
Strait Forward Supply Chain Analysis and Business Opportunities Study

Final Report



**Prepared for
The Cape Breton Island and Mulgrave Prosperity Framework**



By



ECONOMIC GROWTH SOLUTIONS INC.

In association with:

Dan White and Associates Ltd.

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Project Partners:

Cape Breton Partnership
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TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
Strategic Sectors Targeted for Analysis.....	i
Comprehensive Study Research and Consultation Process	i
Recommended Priority Opportunities	ii
Recommended Strategic Areas of Focus	iii
Key Implementation Steps.....	iv
1 – INTRODUCTION AND PROJECT CONTEXT	1
Results of Initial Strait Forward Conference	1
Current Study’s Objectives	2
2 – STRAIT AREA’S ECONOMIC BASE	4
Examples of Industry Innovation and Linkages	4
Overview of the Strait Area Economy.....	5
Strategic Sectors Targeted for Supply Chain and Business Opportunities Analysis....	8
3 – OVERALL RESULTS OF RESEARCH AND CONSULTATIONS	15
Results of October 2013 Roundtable Meeting with Strait Area Businesses.....	15
Interviews and Online Survey of Businesses	17
Analysis of Services Sourced Outside Region and Local Supply Chain Gaps	19
4 – LOCAL SUPPLY CHAIN OPPORTUNITIES	26
Inputs for Manufacturing, Processing and Product Assembly.....	26
Business and Industrial Services	34

Specialized Training and Education.....	44
Suitable Housing Supply in Inverness-Mabou Area.....	47
5 – VALUE ADDED FROM EXISTING BY-PRODUCTS AND WASTE STREAMS.....	50
Value Added and By-Products of Production Processes	50
Processing, Distribution and Reutilization of Waste Streams	53
6 – OPPORTUNITIES DEVELOPMENT AND IMPLEMENTATION.....	58
Summary of Recommended Priority Opportunities.....	58
Recommended Strategic Areas of Focus	61
Key Implementation Steps.....	62
APPENDIX A – RESULTS OF INITIAL <i>STRAIT FORWARD</i> CONFERENCE.....	A-1
APPENDIX B – AGENDA FOR ROUNDTABLE MEETING WITH STRAIT AREA BUSINESSES.....	B-1
APPENDIX C – LIST OF REFERENCES	C-1

EXECUTIVE SUMMARY

The Strait Area/Mulgrave region of Nova Scotia has substantial economic development potential, part of which can be realized by enhancing the inter-industry linkages of existing companies that are based in the region. The development opportunities are in strategic sectors with growth potential including the manufacturing, technology, transportation/distribution, energy and the oceans industries.

STRATEGIC SECTORS TARGETED FOR ANALYSIS

The strategic sectors of the Strait Area's economy targeted for analysis in this study are among those identified in the *Prosperity Framework* and include:

- ◆ Manufacturing – including machinery, pulp and paper, wood products
- ◆ Ocean industries sector – particularly port and marine-oriented industries and businesses, such as boatbuilding/repair, shipbuilding/repair and related suppliers; international cargo trans-shipping and distribution; fisheries and seafood processing
- ◆ Energy sector – including oil and gas, green energy (wind, biomass, etc.), technology and related developments, much of which in the Strait Area is closely tied-in with the ocean industries
- ◆ Information and communications technology (ICT)
- ◆ Biotechnology industries
- ◆ Education and training.

COMPREHENSIVE STUDY RESEARCH AND CONSULTATION PROCESS

In addition to undertaking background research on the local economy and businesses sourced from a range of previous studies, reports and data, we undertook direct consultations with Strait Area businesses via the following approaches:

- ◆ Holding a roundtable meeting with Strait Area businesses in early October of 2013
- ◆ Conducting face-to-face and telephone interviews with a cross-section of Strait Area businesses in the strategic sectors noted above
- ◆ Developing an online survey which businesses could respond to on the Cape Breton Partnership and Prosperity Framework websites.

The combination of results from the research and consultations enabled the consulting team to undertake the appropriate analysis of supply chain and business opportunities for the region.

RECOMMENDED PRIORITY OPPORTUNITIES

The various opportunities identified in this study are at different stages of conceptualization, development and implementation, so it is helpful to break them into two categories which have different implementation needs:

- ◆ Opportunities that are already proceeding with proponents in place
- ◆ Opportunities requiring leadership or additional proponent(s) in order to move forward

A recommended opportunities summary table for each of these two categories has been prepared and shown in Figures 1 and 2.

Figure 1: Recommended Priority Opportunities Being Pursued by Proponents

Category	Opportunity	Proponent(s)	Time Frame	Priority
Inputs for Manufacturing, Processing and Product Assembly	1. Sourcing / Production of Additional Biomass within Region	NSP Biomass Co-gen Plant	Short Term	High
	2. Expanding Port Hawkesbury Paper's Supply Chain in the Strait Area	Port Hawkesbury Paper	Immediate and Ongoing	High
Business and Industrial Services	3. Petroleum Products Storage and LNG Import and Export Terminals	NuStar Energy, H-Energy, Anadarko Petroleum	Short and Medium term	High
Specialized Training and Education	4. Customized Industry Specific Training and Marine Training/Certification	NSCC Strait Area Campus	Immediate and Ongoing	High
Value Added and By-Products of Production Processes	5. Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics	Port Hawkesbury Paper	Short Term	High
Processing, Distribution and Reutilization of Waste Streams	6. Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen Plant	Nova Scotia Power	Short Term	High

Source: Study team consultations, research and analysis

While all of the preceding are important opportunities to pursue, the top three priorities in terms of the potential scale of economic impact for the region are:

1. Petroleum Products Storage and LNG Import and Export Terminals
2. Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics
3. Sourcing / Production of Additional Biomass within Region.

Figure 2 lists the other ten priority opportunities identified, that either require a lead proponent(s) to move forward, or require additional proponents to more fully pursue the opportunity.

Figure 6.2: Recommended Priority Opportunities in Need of Lead Proponent(s)

Category	Opportunity	Time Frame	Priority
Inputs for Manufacturing, Processing and Product Assembly	7. Sourcing Skilled Trades in Rural Inverness County	Short Term	High
	8. Incremental Sourcing and Production of Wood Chips within Region	Short Term	High
	9. Developing and Marketing “Buy Local” Agricultural Products	Medium Term	Medium
Business and Industrial Services	10. Transportation Logistics Management	Short Term	High
	11. Industrial Equipment and Technology Maintenance Services	Short Term	High
	12. Incremental Ship Repair, Maintenance and Supply Services	Immediate and Ongoing	High
	13. Offshore Oil and Gas Industry Service Hub	Medium and Longer Term	High
Suitable Housing Supply in Inverness-Mabou Area	14. Housing Development in Inverness-Mabou Area	Short Term	High
Value Added and By-Products of Production Processes	15. Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil	Ongoing and Short Term	High
Processing, Distribution and Reutilization of Waste Streams	16. Processing of Crab Shell Waste into Value Added Products	Medium Term	High

Source: Study team consultations, research and analysis

The top three priorities from this list in terms of the potential scale of economic impact for the region are:

1. Offshore Oil and Gas Industry Service Hub
2. Incremental Ship Repair, Maintenance and Supply Services
3. Incremental Sourcing and Production of Wood Chips within Region.

RECOMMENDED STRATEGIC AREAS OF FOCUS

In proceeding with implementation of the recommended priority opportunities and other business and economic development opportunities that may currently exist or arise, it is important for the Strait Area to focus its efforts strategically. The majority of the preceding

opportunities fall into one or more of the following four strategic industry sector groupings that were included in the priority sectors identified in the original *Prosperity Framework* study:

- ◆ **Oceans and marine sector.** This sector has historically dominated the economy of the Strait Area and continues to be a key economic driver in the 21st century, with substantial growth potential looking forward.
- ◆ **Energy sector.** The Strait Area has a long history in the energy sector going back several decades. It has been a centre for petroleum products refining, storage and shipping since the 1970s and continues this role in the conventional energy sector, as well as new roles as a centre for bio-energy, offshore oil and gas servicing, and potentially LNG importing and exporting.
- ◆ **Transportation and supply chain hub.** The Strait Area has been an international trans-shipment hub for petroleum products and other bulk commodities for decades. The presence of the Strait Superport along with adjacent rail and highway connectivity provide the base infrastructure for further development in this role.
- ◆ **Leading edge manufacturing and processing.** Pulp and paper manufacturing, seafood processing and steel fabricating also have a long history in the Strait Area and continue to be major sources of high quality jobs and income for the region, with incremental growth potential.

KEY IMPLEMENTATION STEPS

Upon completion of this study, several steps will need to be followed in order to effectively facilitate development and implementation of the various recommended opportunities. These steps are as follows:

1. Finalize study report and create awareness of study findings among Strait Area businesses.
2. Present key findings at a meeting with the Strait Area business community.
3. Establish an ongoing Strait Forward Committee to monitor and facilitate implementation.
4. Prioritize initiatives to pursue in the short term.
5. Organize the implementation process and agree on roles and responsibilities of principal stakeholders.
6. Liaise with the identified existing and prospective proponents to facilitate pursuit of the priority opportunities.
7. Identify and pursue potential proponents for opportunities where no proponents have come forward.

8. Provide advocacy support for companies to facilitate access to public sector funding resources and technical support, where appropriate.
9. Leverage the region's industrial parks infrastructure to support opportunities development.
10. Monitor and evaluate progress of implementation on an ongoing basis.

1 – INTRODUCTION AND PROJECT CONTEXT

On the recommendation of a broadly representative group of community stakeholders, the Cape Breton Partnership and the Cape Breton Island and Mulgrave Prosperity Framework, in cooperation with the Strait Area Chamber of Commerce, Enterprise Cape Breton Corporation (ECBC) and Nova Scotia Economic and Rural Development and Tourism initiated this study of supply chain linkages and value added opportunities for the Strait area.

The Strait Area/Mulgrave region of Nova Scotia has substantial economic development potential, part of which can be realized by enhancing the inter-industry linkages of existing companies that are based in the region. The development opportunities are in strategic sectors with growth potential including the manufacturing, technology, transportation/distribution, energy and the oceans industries.

RESULTS OF INITIAL STRAIT FORWARD CONFERENCE

An important economic initiative of the regional business community and its partners was the Strait Forward Conference, which took place on May 16, 2013 in Port Hawkesbury. The Strait Area Chamber of Commerce, in cooperation with the Cape Breton Partnership, Enterprise Cape Breton Corporation, and the Nova Scotia Department of Economic and Rural Development and Tourism, hosted this conference to advance the cause of diversification of the Strait area economy. They did so at a time of particular economic challenge with the pending closure of the paper mill, one of the region's largest employers and most influential enterprises. A summary of the results of this session is included in Appendix A of this report, and a brief synopsis is provided in the following paragraphs.



In the Conference sessions community and business representatives from the Strait region and Mulgrave, as well as other regions of Cape Breton, considered the short and long-term economic opportunities, as well as the challenges facing the area and proposed tactics to address these issues. In this context it was agreed that a rigorous study of the area's supply chain is necessary in order to better understand gaps in supplies and services, as well as to promote regional assets. This has led to the present Supply Chain Analysis and Business Opportunities Study.

Participants at the Conference were invited to outline three priorities for the Strait Region, as well as to identify three challenges to be addressed immediately. The most repeated priorities

in the session focused on port development and the Oceans Sector. Several of the suggested priorities provide a frame of reference for the current Supply Chain Analysis and Business Opportunities Study:

- ◆ Grow the Oceans Sector through NSCC, ports and related businesses, including aquaculture.
- ◆ Diversify the economy.
- ◆ Maximize “bio-economy/biomass” opportunities.
- ◆ Encourage/facilitate more collaboration between businesses and educational institutions like NSCC.
- ◆ Develop and maintain innovative, cutting-edge services.
- ◆ Develop new products for the export market.
- ◆ Increase the region’s energy security (focus on renewable energy).
- ◆ Create housing options for professionals.

Conference participants also identified challenges to be addressed immediately in the Strait Region, the most important of which were related to improving investment readiness. Examples of the suggested challenges to be addressed include the following:

- ◆ Undertaking initiatives to improve infrastructure, especially Internet access.
- ◆ Identifying sector leaders and forming committees to facilitate initiatives.
- ◆ Attracting skilled tradespeople.
- ◆ Solving energy source/pricing issues.
- ◆ Circulating relevant and current information to businesses and other stakeholders.

CURRENT STUDY’S OBJECTIVES

This study is focused on analyzing Strait Area businesses in the manufacturing, transportation, distribution, technology and oceans sectors in order to get a better sense of where raw materials and other inputs are sourced and the extent to which waste streams and by-products are reutilized or disposed of. This is with a view to finding or developing commercial opportunities to buy more products and services locally, to potentially make use of some waste streams and by-products locally, and to encourage cooperation and partnership among area businesses.

The work of this study of supply chain analysis and value added and by-product business opportunities builds on the important information and new insights that emerged at the time of forging new links in the future of the paper mill. Therefore, this study has the following core objectives:

4. To examine the supply chains of Strait Area/Mulgrave companies to document raw materials and products brought in for assembly and production that could possibly be supplied locally.
5. To examine what services are sourced from outside the Strait Area/Mulgrave region and document the gaps in available local services.
6. To document waste materials and by-products created by Strait Area/Mulgrave companies' operations, and to determine which have potential value to other regional companies, with a view to linking local supply chain needs to local products and by-products.
7. To identify potential local sources for local companies' supply chain needs (for both goods and services).
8. To identify new business opportunities to meet the needs of local companies.
9. To undertake appropriate research, stakeholder and industry consultations in connection with fulfilling the preceding objectives.
10. To prepare an overall study report documenting the findings, conclusions and recommendations of the consultation, research and analysis.

The consulting team consisting of Economic Growth Solutions Inc. and Dan White and Associates Ltd., led by John Murray and Dan White, developed a comprehensive work plan and methodology designed to thoroughly address these objectives.

RESEARCH AND CONSULTATION PROCESS UNDERTAKEN

The research and consultation process undertaken in the current study consisted of several steps including the following:

1. Review of previous studies, plans, reports and data related to the Strait Area economy and its strategic sectors and businesses, including various initiatives that were previously undertaken by the Strait-Highlands Regional Development Agency (see List of References in Appendix C).
2. Facilitation of a round table discussion attended by a cross-section of Strait Area businesses and community and regional stakeholders for purposes of discussing potential supply chain opportunities and the reutilization of waste streams and by-products of existing production processes.
3. Comprehensive face-to-face and telephone interviews with representatives of a cross-section of businesses within several strategic sectors of the Strait Area economy.
4. Implementation of an online survey instrument to enable companies to provide online input in relation to the identification of supply chain opportunities and potential for reutilizing existing waste streams and by-products.
5. Consolidation and analysis of the results of the research and consultation steps of the study to identify and analyze key potential opportunities and how they may be pursued.

2 – STRAIT AREA'S ECONOMIC BASE

This chapter of the report provides some overall context regarding the Strait Area's economic base, by highlighting a few individual success stories, presenting statistical data which characterizes the overall structure of the region's economy and its existing and potential labour force, and briefly describing the strategic sectors and economic drivers of the region's economy.

EXAMPLES OF INDUSTRY INNOVATION AND LINKAGES

The Strait Area is unique in several respects, not the least of which is its mix of business and service providers. In combination these enterprises have, and continue to, shape a dynamic economy. This was particularly evident at the Strait Forward Conference. Attendees were provided with enhanced understanding of a number of regional success stories such as Superport Marine Services and the Nova Scotia Community College's Strait area campus.

- ◆ Superport Marine Services recently constructed a specialized tug with marine research capability. Markets have been successfully opened in both the Caribbean and on Canada's West Coast in areas of sophisticated ocean mapping and the laying of underwater cable.
- ◆ Nova Scotia Community College on the other hand has made advances in teaching and instruction at the Strait campus in ocean navigation, instrumentation and vessel arrangement. The Nautical Institute at the campus has evolved into one of four highly specialized marine institutes in Canada. Therefore, there is a high degree of synergy between Superport Marine Services and the Strait campus that is graduating students in the marine technologies sought locally and out-of-area.

The preceding example explains the logic behind the decision to study supply chains in the Strait Area and to consider potential synergies that can seize on opportunities for new value added products and by-product development. While the area's economy is certainly dynamic it is also, in many respects, compact.

Halifax Biomedical is an example of a particularly adroit and progressive new company in the greater Strait Area that through exemplary innovativeness has developed technologies that are gaining market share nationally and internationally. Mulgrave Machine Works is a long-standing and decidedly adaptive Strait Area company that has successfully navigated challenging cycles in business and the economy to become a bell-weather Nova Scotia enterprise. Both companies embody unique characteristics, clear and obvious potential, and in many respects practices from which other enterprises can learn and benefit.

OVERVIEW OF THE STRAIT AREA ECONOMY

Data available from the 2011 Census is helpful for understanding the overall sectoral structure of the region's economy and characteristics of its labour force.

Labour Force by Industry and Occupational Category

Information regarding the characteristics of the region's labour force and population base indicates the relative importance of key sectors of the economy and characteristics of the region's existing and potential labour supply.

Based on data from the 2011 Census, the distribution of the Strait-Highlands region labour force by principal industry sector is shown in Figure 2.1. This stresses the importance of manufacturing, retail trade, health care and social services, educational services and the tourism sector.

Figure 2.1: Strait-Highlands Region Labour Force by Industry, 2011

NAICS Code	Industry	Total	
		No.	%
11	Agriculture, forestry, fishing and hunting	1,270	9.8
21	Mining and oil and gas extraction	245	1.9
22	Utilities	85	0.7
23	Construction	1,015	7.8
31-33	Manufacturing	1,355	10.5
41	Wholesale trade	230	1.8
44-45	Retail trade	1,555	12.0
48-49	Transportation and warehousing	580	4.5
51	Information and cultural industries	115	0.9
52	Finance and insurance	315	2.4
53	Real estate and rental and leasing	15	0.1
54	Professional, scientific and technical services	360	2.8
55	Management of companies and enterprises	0	0
56	Administrative and support, waste management and remediation	270	2.1
61	Educational services	1,145	8.9
62	Health care and social assistance	1,596	12.3
71	Arts, entertainment and recreation	205	1.6
72	Accommodation and food services	900	7.0
81	Other services (except public administration)	615	4.8
91	Public administration	790	6.1
	Industry-Not applicable	270	2.1
	All Industries	12,931	100.0

Source: Nova Scotia Statistics – modeled from Statistics Canada 2011 Census data

Tourism accounts for the majority of Accommodation and Food Services and a significant component of Arts, Entertainment and Recreation, which together encompass 8.6% of the labour force as of 2011. Tourism also encompasses a portion of the retail sector.

The strength of the forestry and fisheries sectors is evident under the industry group Agricultural, Forestry, Fishing and Hunting, which encompasses 9.8% of the labour force, the vast majority of which are forestry and fisheries related workers.

The focus of this study is on several strategic value added sectors with growth potential, which encompass the following proportions of the region's labour force as of 2011:

- ◆ Forestry, fishing – approximately 9%
- ◆ Manufacturing 10.5%
- ◆ Wholesale trade 1.8%
- ◆ Transportation and warehousing 4.5%
- ◆ Professional, scientific and technical services 2.8%
- ◆ Educational services 8.9%

The distribution of the region's labour force by occupational category is shown in Figure 2.2. The relatively strong industrial base of the Strait area is evident from the occupational profile of the labour force with industrial and transportation related occupations accounting for approximately one-third of the labour force as follows:

- ◆ Trades, transport and equipment operators and related 19.4%
- ◆ Primary industry specific 8.4%
- ◆ Processing, manufacturing and utilities 6.2%.

Figure 2.2: Strait-Highlands Region Labour Force by Occupational Category, 2011

NAICS Code	Industry	Total	
		No.	%
A	Management	895	6.9
B	Business, finance and administrative	1,351	10.4
C	Natural and applied sciences	490	3.8
D	Health occupations	1,020	7.8
E	Social Science, education, government and religion	1,260	9.7
F	Art, culture, recreation and sport	230	1.8
G	Sales and service	3,086	23.7
H	Trades, transport and equipment operators and related	2,525	19.4
I	Primary industry-specific	1,086	8.4
J	Processing, manufacturing and utilities	800	6.2

NAICS Code	Industry	Total	
		No.	%
	Occupation - Not applicable	260	2.0
	All Occupations	13,003	100.0

Source: Nova Scotia Statistics – modeled from Statistics Canada 2011 Census data

The largest occupational category shown is sales and service, accounting for 23.7% of the labour force as of 2011. This in part relates to the strength of the retail and tourism sectors which are generally labour intensive. Retail and tourism are not a focus of the current study.

Age Distribution and Educational Attainment of Population Base

In Figure 2.3, the age distribution of the region’s population base indicates a significant component of the population is 65 years and older (21%). The proportion of the population base within the principal age categories that make up the labour force is approximately 48%.

Figure 2.3 Strait-Highlands Region Population by Age Group, 2011

Age Group	2011	
	No.	%
Pre-School Age (less than 5 yrs)	1,115	4.1
Elementary/Secondary School Age (5-19 yrs)	4,640	17.0
Labour Force Ages		
20-34 yrs	3,460	12.7
35-54 yrs	7,482	27.5
55-64 yrs	4,827	17.7
Seniors		
65-74 yrs	3,350	12.3
75+ yrs	2,360	8.7
Total Population	27,234	100.0

Source: Nova Scotia Statistics – modeled from Statistics Canada 2011 Census data

Educational attainment of the population base 15 years and older is shown in Figure 2.4 for all of Cape Breton Island for 2011, which indicates that just over 50% have only high school educations or less. As shown, the overall educational levels are lower for Cape Breton than for the province overall and for Canada overall. This relatively low overall educational level can limit employment opportunities and potential. It will be important to create additional opportunities for those without trades or college educations to obtain this additional training, as this can lead to enhanced opportunities for both the labour force and for businesses in the region.

**Figure 2.4: Cape Breton Island, Nova Scotia and Canada Educational Attainment
(15 yrs. and over), 2011**

Educational Level	Cape Breton Island		Nova Scotia	Canada
	No.	%	%	%
No certificate, diploma or degree	29,595	27.4	21.6	20.1
High school certificate or equivalent	24,485	22.7	24.0	25.6
Apprenticeship or trades certificate or diploma	16,920	15.7	11.7	10.8
College, CEGEP or other non-university certificate or diploma	17,890	16.6	19.3	18.2
University certificate, diploma or degree	19,020	17.6	23.3	25.2
· University certificate or diploma below bachelor level	5,535	5.1	3.8	4.4
· Bachelors degree	8,465	7.8	12.6	13.3
· University certificate or diploma above bachelor level	2,430	4.7	6.9	7.5
Total Reporting	107,910	100.0	100.0	100.0

Source: Nova Scotia Statistics – modeled from Statistics Canada 2011 Census data; Canada % figures are calculated from 2011 Census data

STRATEGIC SECTORS TARGETED FOR SUPPLY CHAIN AND BUSINESS OPPORTUNITIES ANALYSIS

The strategic sectors of the Strait area’s economy are among those identified in the Prosperity Framework and include:

- ◆ Manufacturing – including machinery, pulp and paper, wood products
- ◆ Ocean industries sector – particularly port and marine-oriented industries and businesses, such as boatbuilding/repair, shipbuilding/repair and related suppliers; international cargo trans-shipping and distribution; fisheries and seafood processing
- ◆ Energy sector – including oil and gas, green energy (wind, biomass, etc.), technology and related developments, much of which in the Strait Area is closely tied-in with the ocean industries
- ◆ Information and communications technology (ICT)
- ◆ Biotechnology industries
- ◆ Education and training.

We realize that there are many other sectors and businesses with a presence in the Strait area. However, those in the strategic sectors noted above are poised for growth and will yield the most significant economic benefits to the regional economy by implementing the results of this supply chain analysis and business opportunities identification, which will be beneficial to all other businesses in the Strait area (particularly retail and service businesses). Brief profiles of several of the leading companies in the manufacturing, ocean industries and energy sectors are summarized on the following pages, based on information from interviews and/or company websites.

Manufacturing Activity

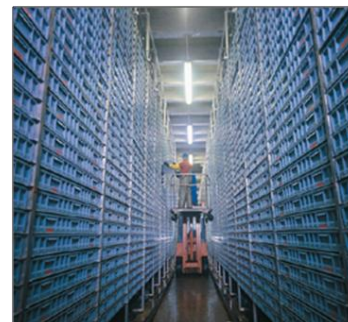
There are several significant manufacturing and processing facilities in the Strait Area including the following companies (among others):

- ◆ **Port Hawkesbury Paper.** This is the latest incarnation of the pulp and paper mill that has dominated the manufacturing landscape in the Strait Area for the past 50 years. In 2012 the mill was purchased by Stern Partners. It produces high-quality, super calendared paper, which is shipped to customers throughout North America, South America, Asia and Europe. During its first year of production, Port Hawkesbury Paper has invested close to \$160 million in Nova Scotia. It is a significant employer with 300 employees at the mill and over 400 jobs in the woodlands. The mill is also working closely with Cape Breton University and other partners to make the thermo-mechanical pulping (TMP) line 3 the most energy efficient TMP line in the world and are examining various bio-economy opportunities.
- 
- ◆ **Mulgrave Machine Works.** This is a full-service metal fabrication shop that offers a range of design and fabrication services to the oil and gas, heavy industry, forestry, marine, fishing and environmental sectors. It is certified by the National Board of Boiler and Pressure Vessel Inspectors and offers the highest standards in quality control systems. The company has been in operation for more than 40 years and continues its commitment to excellence with a team of up to 100 welders, fitters, riggers, millwrights, machinists, mechanics and laborers. In addition to its fabrication facility in Mulgrave, the company has provided crews to oil and gas drilling rigs offshore, or while anchored in the harbour, or dockside, as needed.
- 
- ◆ **Cabot Gypsum.** This operation was established in early 2011 after purchasing the Federal Gypsum plant that went bankrupt a few years earlier. The 200,000 sq. ft. plant produces a selection of popular drywall products, which are being sold in Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and the Eastern United States.
 - ◆ **Martin Marietta.** This U.S. based company purchased the quarry at Porcupine Mountain in 1995 and produces high-grade crushed stone used in construction. The product is shipped to the U.S. and Caribbean, so the port location is ideal. It has been employing approximately 100 people.

Ocean Industries – Fishing/Fish Processing

Fishing and fish processing continue to make an important contribution to the region's economy with the industry concentrated on Isle Madame and in Cheticamp. Crab and lobster are the dominant species being landed and processed, along with some groundfish.

- ◆ **Clearwater Seafoods.** Of particular note is its dryland lobster holding facility located at Arichat. This lobster holding facility employs 15 to 18 people on a year-round basis and employment increases to 75 to 80 when they are buying lobsters in season and trucking them into the storage facility. Annual throughput is more than 8 million pounds of live, premium lobster, which is shipped to customers across North America, Europe and Asia. This unique storage facility keeps lobsters in a hibernative state to maintain their health and quality until they are shipped.



- ◆ **Premium Seafoods Group.** This Strait Area company is based in Arichat on Isle Madame and specializes in fresh and frozen seafood. The majority of the seafood is harvested directly by the company or purchased directly from local fishers. Its seafood products include Atlantic Snow Crab, Canadian Lobster, Northern Shrimp, Ocean Perch, and Haddock. The company also sources premium fresh seafood product from around the world, including Norwegian Haddock and Pacific Cod. During the past three decades Premium Seafoods Group has grown to five companies employing over 200 workers. It buys and/or processes more than 15 million pounds of seafood annually, which is shipped worldwide.



Ocean Industries – International Cargo Trans-Shipping and Distribution

One of the greatest assets of the Strait Area is the large ice-free deep-water port created when the Canso Causeway was first constructed in 1955. The Strait of Canso Superport Corporation Limited was created in 1996 as a result of the divestiture of port infrastructure across the country. In 2000 the Strait Superport acquired the Mulgrave Marine Terminal and Port Hawkesbury Pier and both wharves have been reconstructed and a warehousing facility developed at the Mulgrave Marine Terminal.



The Superport provides direct marine shipping capabilities for major industrial businesses that are located in Port Hawkesbury, Mulgrave and Point Tupper, including the following:

- ◆ NuStar Energy LP – storage and trans-shipment of petroleum products

- ◆ Nova Scotia Power – coal-fired generating station and biomass co-gen operation
- ◆ Port Hawkesbury Paper
- ◆ Georgia Pacific – gypsum export facility
- ◆ Martin Marietta Materials – aggregates shipping
- ◆ Mulgrave Marine Terminal – common user/break bulk shipping facility
- ◆ Melford International Terminals – proposed Maher Container Terminal development.

Ocean Industries – Supply and Services

A significant number of marine and shipping supply and service businesses have developed to support the various port facilities and related industries including:

- ◆ Ship repair services
- ◆ Custom fabrication
- ◆ Ship supplies and provisioning, including water and fuel
- ◆ Stevedoring
- ◆ Trucking
- ◆ Industrial cranes
- ◆ Environmental services
- ◆ Logistics support
- ◆ Tugs and barges
- ◆ Drilling fluid.

As of 2009 the cargo traffic through the Port included manufactured goods, petroleum products, pulp and paper, gypsum, seafood and break/bulk items such as salt and aggregates. The vessel movements through the Port also include pleasure craft, fishing boats, and work boats. However, the Port is significantly underutilized with ample potential to handle substantial growth in the industrial base and shipping volumes. The proposed container terminal at Melford, should it be developed, will be a significant opportunity for this international cargo and trans-shipping economic cluster.

Energy Sector

The oil and gas sector has a major presence in the Strait Area with the Exxon Mobil Natural Gas Liquids Fractionation Plant, NuStar Energy's Statia Terminals petroleum storage facilities in Point Tupper, as well as Nova Scotia Power's Point Tupper Generating Station and its Port Hawkesbury Biomass Co-gen Plant.

Based on our research, consultations and analysis, several of the following businesses have supply chain, value-added, and by-products or waste stream reutilization opportunities, which are outlined in subsequent chapters of this report.

◆ **Exxon Mobil Point Tupper Fractionation Plant.**

Natural gas liquids, which are a by-product of the processing that occurs at Exxon Mobil's Goldboro Plant, are transported via pipeline to Point Tupper where they are fractionated or separated into propane, butane and condensate. The plant operates on a 29-hectare site and employs a workforce of approximately 20 people and has processing capability of 20,000 barrels of liquid per day. It operates 24 hours a day, seven days a week.



◆ **NuStar Energy Terminals.** This is apparently one of the largest petroleum storage facilities in the world, capable of storing 7.5 million barrels of fuel including crude oil, gasoline, diesel fuel, furnace oil, gasoline blend components, and butane. The facility was developed in 1992 when Statia took over and refurbished the tanks and loading facilities of the Gulf Oil Refinery that was located on this site. As a result of purchases of the facility in 2002 and 2005, NuStar Energy became the owner of the terminals. Employment at the Statia terminals has been in the range of 75 people. The terminal can handle large supertankers up to 400,000 DWT.



◆ **Port Hawkesbury Biomass Co-gen Plant.** This is Nova Scotia Power's newest power generation plant which began operations in July of 2013, supplying as much as 4% of the province's total electricity requirement from a 60 megawatt plant. This operation has created new jobs in the Strait Area and as many as 50 trucks a day deliver up to 2000 tonnes of biomass, which is consumed in the power generation process. It is located adjacent to the pulp and paper mill.

◆ **Point Tupper Generating Station.** This is a thermal power generating station which was initially an oil-burning unit when developed in 1973, but was converted to coal in 1987. Pollution control technology installed in recent years is designed to prevent the creation of nitrogen oxides and to capture 99% of fly-ash emissions, retaining a fly-ash by-product that may have alternative uses. This generating station produces 154 megawatts of power and is the smallest of the province's four coal-fired generating stations.



Information and Communications Technology (ICT)

Cape Breton's ICT sector is primarily based in the Sydney area. However, there is a presence of some small software consulting operations with incremental growth potential in the Strait Area, such as the following example:

- ◆ **I-Port Support Services.** Based in Port Hawkesbury, this company provides its clients with state-of-the-art help desk support and software solutions. It is capable of providing these services to the global economy and is tapping into the international market, including work on e-learning projects and content management systems. The firm also provides consulting services and enterprise-level hosted software solutions to small and medium-sized enterprises (SMEs).

Biotechnology Industries

The Strait Area is also home to specialized biotechnology companies, such as the following:

- ◆ **Ocean Nutrition/DSM.** This operation is based in Mulgrave. This company is the world's largest supplier of Omega 3 EPA/DHA ingredients to the dietary supplement and food manufacturing markets. It also has the largest privately owned marine research and development facility in North America. In Nova Scotia the company has plants at Mulgrave and Dartmouth. The Omega 3 product is extracted from fish oils and exported worldwide. However, in spite of Nova Scotia's extensive fisheries, the species (anchovies) which is the best source of the Omega 3 is imported from Chile to be processed in the Strait area.
- ◆ **Halifax Biomedical Inc.** This medical device company has been successful with the development and export of orthopaedic products and services, primarily related to orthopaedic patient assessments and orthopaedic contract research studies. Halifax Biomedical manufactures and sells medical devices, which have regulatory approval in the U.S., Canada and Europe. The company has its major base of operations in the community of Mabou in Inverness County and recently opened a U.S. office in Cambridge, Massachusetts.

Education and Training

The success of the strategic sectors noted in the preceding paragraphs is underpinned by the availability of suitably educated, trained and qualified staff. Training and education itself is also an economic sector providing jobs and income to the region, and is partly an export-based sector, to the extent that students from outside the region are educated/trained. The Nova Scotia Community College presence in the region is the cornerstone of this sector:

- ◆ **NSCC Strait Area Campus.** Located in Port Hawkesbury, the campus has a full-time enrolment of 650 to 700, plus many students in part-time and continuing education programs. Approximately 60 faculty and 50 additional staff are involved in operations of the facility and its programs, so it is a major employer. Its courses in business administration, industrial trades, and marine training are particularly supportive of the Strait Area's other

strategic sectors. Of particular note are the training and certification programs offered by the College's Nautical Institute and School of Fisheries.

3 – OVERALL RESULTS OF RESEARCH AND CONSULTATIONS

In addition to undertaking background research on the local economy and businesses sourced from a range of previous studies, reports and data (see List of References in Appendix C), we undertook direct consultations with Strait Area businesses via the following approaches:

- ◆ Holding a roundtable meeting with Strait Area businesses in early October of 2013
- ◆ Conducting face-to-face and telephone interviews with a cross-section of Strait Area businesses in the strategic sectors described in the preceding chapter of this report
- ◆ Developing an online survey which businesses could respond to on the Cape Breton Partnership and Prosperity Framework websites.

The combination of results from the research and consultations enabled the consulting team to undertake the appropriate analysis of supply chain and business opportunities for the region.

RESULTS OF OCTOBER 2013 ROUNDTABLE MEETING WITH STRAIT AREA BUSINESSES

This session was held in Port Hawkesbury on October 2, 2013 and attended by representatives from 11 industrial and service businesses from the private sector, 2 municipal councillors, 2 senior staff members of the Cape Breton Partnership, 1 representative from Enterprise Cape Breton Corporation (ECBC), and 1 member of the media. The discussion followed the agenda shown in Appendix B and highlights of the discussion are briefly summarized in the following paragraphs, grouped by category.

Opportunities Associated with By-Products and Waste Streams

- ◆ **Waste materials from seafood processing.** There was considerable discussion of the potential use of the by-products of seafood processing, in particular shells (lobster, crab and shrimp). Research has been initiated at Université St. Anne, Cape Breton University (CBU), and by fishing sector interests in Cheticamp. There appears to be interest in the opportunity among economic development officials.
- ◆ **Recycling and processing of plastic containers and waste paper.** Brief discussion took place regarding the potential processing of plastic containers and waste paper into secondary products. Attendees generally viewed this as highly competitive business and volume and location sensitive.
- ◆ **Utilization of waste heat.** Several comments were heard concerning a recent study by Dalhousie University pertaining to the Strait Area and the potential use of waste heat available at Port Hawkesbury Paper and Nova Scotia Power's Point Tupper generating

station. There was general agreement on the importance of taking the report into consideration as part of the Strait Forward research.

- ◆ **Methane gas capture and reuse.** Some discussion took place of the potential to capture methane gas produced through biodegradation of wood fibre organics at Port Hawkesbury Paper and fed to the bio-mass co-generation facility as fuel.
- ◆ **Sugar from wood fibre prototype manufacturing facility.** This is a new large-scale project under consideration and is being led by foreign industrial interests working with Port Hawkesbury Paper. The essence of the concept involves the extraction of cellulose from local hardwoods for eventual processing into biodegradable plastics which will have many end product uses globally. Another by-product will be lignin which will also be developed into products for use in Nova Scotia or for export. This project is in the early stages with trial extraction planned in both Canada and Europe at special facilities. The discussion involved consideration of the area's competitive advantages with respect to the project as well as inherent challenges. Primary among the challenges is provincial industrial power rates that are, in the view of some attendees, as much as 40% higher than in other provinces and jurisdictions along the eastern seaboard.
- ◆ **Use of fish oil as heating fuel.** DSM/Ocean Nutrition was mentioned as using fish oil in place of conventional heating oil at its facilities in Mulgrave in the context of by-product utilization opportunities. This was considered worthy of further consideration.
- ◆ **Use of fly-ash and bottom-ash waste streams.** Use of the fly-ash and bottom-ash generated at the Point Tupper Generating Station was discussed. Apparently it can be used in the production of cement. Also fly-ash generated at the biomass co-generation facility can be a supplement or possible replacement for lime in soil enhancement.

Supply Chain Opportunities Including Business Services

- ◆ **Provincial procurement.** Procurement policies at the Nova Scotia provincial level, whereby bids are sought regionally when the value of goods and services exceeds \$5,000, were cited as limiting the opportunity for local providers to win business from government in their area.
- ◆ **Specialized containers for transporting fresh seafood.** There was a brief discussion on research taking place on the transport of fresh shellfish in specialized containers. Few additional details were provided.
- ◆ **Transportation logistics.** There was a brief discussion of transportation logistics and apparent opportunities in the Strait Area with Port Hawkesbury Paper, Nova Scotia Power and Martin Marietta Materials involving rail, truck transport and marine transport.
- ◆ **General supply chain opportunities.** Discussion specific to Port Hawkesbury Paper suggested that there appear not to be obvious new opportunities at this time, as the preponderance of materials and process inputs are already coming from local providers wherever possible.

Value-Added Opportunities

- ◆ **New opportunities in general.** Attendees at the Roundtable expressed the view that the advancement of large-scale projects for the area now under consideration, such as the container terminal at Milford, energy/oil and gas project as contemplated by Shell and cellulose (sugar) extraction had the potential to significantly impact the local economy in noticeable ways. The importance of community support and advocacy for the projects was emphasized. The start-up manufacturer of plastic fishing gear suggested consideration be given to the establishment of injection moulding capabilities in the area.
- ◆ **Wood chips.** Enhanced utilization of existing infrastructure and harvesting capacity as it related to the production of wood chips for the biomass co-gen facility at Port Hawkesbury Paper operated by NSP. Attendees expressed interest in the potential to supply off-shore markets with chips as there is apparent interest in the product in Europe. Among the inherent challenges is finding ways to reduce the moisture content of the product to achieve necessary economies in shipping as well as meet regulatory requirements respecting allowable cut limitations and sale of raw wood fibre off shore. Additionally attendees felt that the area enjoyed some potential for commercial mineral extraction, although no specifics were offered.
- ◆ **Specialized marine training and certification.** This was noted in relation to the NSCC Strait Area Campus, involving destination-based industry specific training, drawing on the college's Nautical Institute and specialized marine capabilities. Proponents view that customized training offered by the College has the potential to give the Strait area a competitive advantage and sets the college apart from similar institutions. As well, it was stressed that the College, along with Université St. Anne, offers unique research capabilities with the potential to distinguish the region.
- ◆ **Food import substitution.** This was discussed as a value-added opportunity in the replacement of imported foods in the retail food service sectors. Effectively the recommendation was that more arable land be brought into cultivation to grow food.

Several of the preceding opportunities were further explored in more detail in connection with the one-on-one interviews with individual businesses, including the companies mentioned above.

INTERVIEWS AND ONLINE SURVEY OF BUSINESSES

The consulting team developed a comprehensive Interview Guide for one-on-one interviews either in person or by telephone with individual companies, as well as an online survey that was uploaded onto the Cape Breton Partnership and Prosperity Framework websites. Copies of the Interview Guide and online survey questionnaire are included in the Appendices of this report.

Results of Interviews

The objective of the study was to interview at least 20 Strait Area companies falling within the strategic sectors noted earlier in this report. Several of these interviews were undertaken in person while the consultants were in the Strait Area in early October and the remainder were undertaken by telephone. While individual private sector companies are frequently reluctant to share information on their operations, the consulting team did successfully complete more than 20 interviews with an excellent cross-section of companies in several sectors, including the many of the large-scale operations that are present in the Strait Area. This provided extensive insights regarding the following:

- ◆ Company supply chains and the extent to which inputs and services are sourced locally
- ◆ Identification of waste streams and by-products that may have alternative uses
- ◆ Identification of value-added and other business opportunities associated with the procurement of additional goods and services locally and reutilization of waste streams and by-products.

A list of companies interviewed is included in the List of Persons Contacted in the Appendices of this report. The interviews were conducted as confidential interviews, so individual comments cannot be reported. However, the extensive information gleaned from the research and interviewing stages of this study has been reported on in some form in the overall list of opportunities table, which is Figure 3.2, as well as in other sections of this report.

Online Survey

In addition to posting the survey on the Cape Breton Partnership and Prosperity Framework websites, the presence of the survey on these websites was promoted to members of the Strait Area Chamber of Commerce and Cape Breton Partnership, as well as to attendees at the Roundtable session. In spite of these efforts, few companies responded to the online survey. These companies were representative, however, of businesses within strategic sectors including marine construction and repair, the energy sector, manufacturing and mining.

- ◆ The companies responding indicated that out of necessity the majority of their inputs are sourced from outside the Strait Area, either elsewhere in Nova Scotia or elsewhere in Canada.
- ◆ Companies indicated that either they were not aware of any opportunities for sourcing these inputs locally or had considered sourcing them locally but potential suppliers had not demonstrated the ability to provide inputs of sufficient quantity in a timely manner.
- ◆ One company indicated that they are aware of opportunities for selling waste materials locally to companies who could use them and have considered doing this, although no specific details were provided.

ANALYSIS OF SERVICES SOURCED OUTSIDE REGION AND LOCAL SUPPLY CHAIN GAPS

Our research of specific sectors of the economy and individual key businesses, combined with interviews of these businesses, yielded important information regarding the types of inputs and services sourced outside the region which represent local supply chain gaps.

Business Services

Business services being procured outside the region that could potentially be supplied within the region include the following:

- ◆ Specialized marine training and certification
- ◆ Industrial equipment and technology maintenance services
- ◆ Information and communications technology development and maintenance
- ◆ Incremental ship repair, maintenance and supply services
- ◆ Incremental off-shore oil and gas supply and servicing
- ◆ Incremental cost effective transportation and shipping opportunities including enhanced transportation logistics coordination via rail, marine and truck.

Waste Streams

In the analysis of waste streams and by-products it appeared that the principal opportunities include the following:

- ◆ Reutilization of shell waste from shellfish processing operations
- ◆ Utilization of fish oil as a substitute and/or complement to conventional heating oil
- ◆ The use of fly-ash and bottom-ash from Nova Scotia Power's coal thermal generating station and the new co-gen biomass generating plant
- ◆ Sludge biomass from the pulp and paper mill.

Value Added

The research and interviews yielded a number of other value-added and supply chain opportunities including the following:

- ◆ Sourcing and production of additional biomass within the region
- ◆ Sourcing of additional wood chips from within the region
- ◆ Generation of energy from waste as a form of biomass and/or use of methane gas from composting to generate energy

- ◆ Incremental fish processing capabilities
- ◆ Incremental bio-technology opportunities
- ◆ Incremental housing development opportunities designed to help attract and retain highly skilled, professional and managerial employees.

CONSOLIDATED LIST OF OPPORTUNITIES FOR FURTHER CONSIDERATION

In the comprehensive table of Figure 3.2, starting on the following page, we have provided a summary list of the opportunities identified by the research, consultations and analysis of this study. These include business services, reutilization of by-products and waste products, additional value-added opportunities, and supply chain opportunities. The table provides a brief description of each opportunity, existing or potential proponents, the current status and/or issues associated with the opportunity, and action required to move to the next stage of exploring or developing each opportunity. With a few exceptions, where indicated in the Action column, most of these opportunities are appropriate to pursue in the short-term, at least to the point of researching and analyzing them further if they are still at the initial concept stage.

In chapters 4 and 5 additional detail and preliminary analysis is provided for many of the opportunities identified, with a focus on those that have strong short and medium term potential and are in need of business community collaboration and support to move forward.

Figure 3.2: Strait Forward Overall List of Opportunities

Category	Opportunity	Proponent	Status / Issues	Action
Business Services	Customized Industry Specific Training, especially marine training and certification	Nova Scotia Community College, Strait Campus, Nautical Institute	Capacity available with potential for growth. Initial course offerings in place and marketing initiated. Specializations in Marine Engineering Technology and Marine Navigation Technology. Also home to School of Fisheries.	Further assessment of potential demand among marine sector businesses.
	Broadened Government Procurement/Local Business Services and Products	Local suppliers of goods and services	Challenge: Provincial government procurement policies seem to work against local supply on RFPs valued at \$5,000 or more. Policies seemingly entrenched.	Needs detailed consideration against current policy – an advocacy issue for business and economic development organizations.
	Transport of fresh seafood to international markets	Research of methods to transport live seafood via specialized containers – industry players are advocates	Research stage	Needs more consideration in detail, perhaps collaborating with BioNovations in Antigonish.
	Transportation logistics management including marine shipping, rail, truck, containers.	No specific proponent. Existing large industrial businesses are advocates.	Advocates seem to be large industry players in the Strait area: e.g. PHP, NSP, energy companies, aggregates.	Merits closer consideration by documenting the current empty backhauls by various modes of major companies
	Industrial equipment & technology maintenance services	No specific proponent.	Frequently technical expertise has to be sourced outside region. Perhaps potential to specialize in equipment and technology most common within region's manufacturing and transportation/distribution sectors.	Requires further research and analysis, identification of potential proponents.
	Incremental ship repair, maintenance and supply services – for numerous ships that sail into or close to Strait area	No specific proponent.	There are existing facilities and services in Port Hawkesbury and Mulgrave areas, but incremental potential based on extent of shipping passing by the area.	Requires market analysis and specific opportunities identification relative to existing and anticipated shipping traffic in the region.

Category	Opportunity	Proponent	Status / Issues	Action
			Currently some crew changes occur by flying into Sydney and transferring to ships via helicopter.	
	Off-shore oil and gas industry service hub in Port Hawkesbury and Mulgrave – similar to preceding opportunity with focus on oil and gas servicing.	Oil and gas companies would need to partner in this.	The Shell project has leased an additional four parcels off the east coast of Nova Scotia, as has BP. Two of the Shell leases are in deepwater, along with the four BP parcels. Already some servicing going on in Strait Area – e.g. Mulgrave Machine Works manufacturing equipment for Hebron offshore oil project.	Identify specific potential opportunities by examining types of services provided by existing offshore service hubs for Nova Scotia and Newfoundland oil and gas.
	Increased Petroleum Products storage and growth in related ship handling services (line handlers, pilots, tugs, repair) – relates to preceding two opportunities	Sector General	Closure of Imperial Oil Refinery in Dartmouth may result in a shift in demand for petroleum storage to the Strait area and with it new activity in related port and ship handling services.	Situation top of mind at Nu-Star and being monitored closely.
By-products	Seafood Processing – utilization of by-products, particularly shells	Local processors have strong interest but additional research seems necessary	Research being attended to but the effort appears constrained	Needs more investigation of particulars
	Waste Utilization: plastic drink containers and paper. Processing for secondary manufacture	Community general. No specific proponent.	Level of interest tepid. Inherent challenges with respect to volume of supply, location relation to markets and competition	Low priority opportunity for Strait Area as likely requires much larger volumes than generated in Cape Breton
	Waste Heat and Methane Gas utilization	Community Interest	Topical – some research but general agreement on significant challenges, such as infrastructure to transfer the waste heat from the sources to where it can be utilized.	Literature review to better understand the research

Category	Opportunity	Proponent	Status / Issues	Action
	Fish Oil	DSM/Ocean Nutrition- Local Fishery	DSM has undertaken considerable research on fish oil as a substitute and/or complement to conventional heating oil.	Need to better understand research and industry perspective
	Ash from NSP Point Tupper Generating Station and Port Hawkesbury Co-gen plant	NSP Point Tupper and Co-Gen	Long standing interest in selling fly-ash from Point Tupper. New ash product from Co-gen seems to have potential applications in agriculture.	Fly-ash market is seemingly cyclical and particular about product characteristics – therefore somewhat limited. Co-gen ash appears to have promise and may work well. NSP is continuing to pursue this opportunity.
	Sludge biomass from pulp & paper mill – possible use as soil amendment product for composting, etc.	Port Hawkesbury Paper with possible First Nations interests	Opportunity is being assessed – has some inherent challenges and may not be sufficient supply.	Potential is noteworthy. Merits in-depth discussion and further research, which is ongoing.
	Scrap metal	Mulgrave machine works – possibly other fabricators, machine shops	Much can be reused by Mulgrave although some goes to scrap dealer – there may be opportunities to further consolidate collection and reuse of scrap metal within region	Possibly warrants further consideration over medium and longer term as shipping and oil and gas sector servicing activities are ramped-up. Short term opportunity may be limited or negligible.
New Value-Added Product	Extraction of plant cellulose (sugar) from hardwood fibre to bio-available sugar using supercritical water hydrolyses process	Foreign business interests with Port Hawkesbury Paper	Sugar opportunity being assessed with trial extraction plant under consideration. Inherent challenges, particularly as regards energy costs.	Potential is significant. Merits in-depth discussion, further research (which is ongoing), and potential advocacy regarding energy costs.
Supply Chain	Import Substitution – Food Products	Sector General	Concept only locally. Potential to be incorporated into local food procurement as part of growing international emphasis	Need sector/other proponent to address fundamentals, research and identify suppliers

Category	Opportunity	Proponent	Status / Issues	Action
	Woodchips	Sector General	Topical and subject of interest among international sector players, but there seem to be inherent challenges: e.g., moisture	Need closer look to better understand particulars
	Sourcing/production of additional Biomass within region	Nova Scotia Power could be key partner	Considering miscanthus, a rapid growing, non-invasive, sterile perennial grass that can grow more than 3 metres tall. It re-grows each spring, is low maintenance and has a life expectancy of 20+ years. It requires little water, no fertilizer or weed control and thrives in untilled fields. Apparently it is capable of producing double the yield of other biomass crops (such as switchgrass).	NS Power has been researching and considering opportunities similar to what ProFarm Energy Inc. has been doing in Ontario.
	Supply Chain-Port Hawkesbury Paper	Sector General	PHP does not see significant opportunity	Low priority – but going forward it could be useful to review supply chain and possible opportunities associated with new or incremental initiatives.
Other	Large Industrial Projects: containers, sugar, oil and gas	PHP, Shell, Melford Terminal	Projects under discussion and at various stages	Important issue of community's role in advocacy and drawing attention to energy competitiveness
	Waste for energy – essentially incineration of garbage and/or use of methane gas from composting to generate energy	No specific proponent.	At the idea stage, although this is being done elsewhere – key issues are availability of sufficient supply of garbage and costs per MW generated in this manner. All of Cape Breton would likely need to collaborate at minimum.	Further study is required, perhaps partnering with other regions.
	Capital Expansion to	DSM/Ocean Nutrition	\$25 million capital investment in	Company appears not to have

Category	Opportunity	Proponent	Status / Issues	Action
	produce new product – DSM/Ocean Nutrition		Mulgrave for the purpose of new product production. Engineering studies complete, financing being assembled	yet disclosed the project publicly
	New Fish Processing Capabilities - Premium Seafood Group	Premium Seafood Group	New shrimp processing facility in advance stage of construction and expected to open in the next six months. New wet fish processing facility to be build at a cost of \$5-7 million to replace plant destroyed by fire this past spring.	Both projects a certainty with the potential to employ several hundred.
	Real-estate – new housing development in Inverness-Mabou area to accommodate personnel taking employment: e.g., Halifax Bio-Medical	Advocated by Halifax Bio-Medical and local community – need to identify potential partners who would develop	Halifax Bio-Medical struggling to attract skilled personnel for lack of adequate housing. Contemplating subsidiary in construction/real-estate to build and sell/rent housing	Opportunity under active consideration by principals at Halifax Bio-Medical
	Skilled trades rural Inverness-Cape Breton	Sector General	Halifax Bio-Medical advancing new mobile diagnostic unit for back pain. Involves fitting large 50-60 ft. trailers with electrical systems and hospital treatment room cabinetry and fixtures. Skilled trades persons needed to undertake the work on contract. Potentially 3-4 trailers built yearly.	Opportunity being developed.

Source: Consultations, interviews and study team analysis

4 – LOCAL SUPPLY CHAIN OPPORTUNITIES

As indicated in the Table of Figure 3.2, the research, consultations and analysis of this study have identified a number of local supply chain opportunities of varied significance with apparent commercial potential for the Strait Area. These fall into four broad groupings:

- ◆ Inputs for manufacturing, processing and product assembly
- ◆ Business and industrial services
- ◆ Specialized training and education
- ◆ Suitable housing supply for students, faculty and labour force.

For each of the opportunities identified under these headings, the consulting team has prepared a summary table including a brief description of each opportunity, the proponents and partners (where these are known), issues and constraints associated with the opportunity, comments regarding potential viability, and the recommended actions or next steps appropriate to further investigate or pursue development of each opportunity. The extent of information and detail provided for each opportunity varies as each is at a different stage of evolving the concept or proceeding with initial development.

INPUTS FOR MANUFACTURING, PROCESSING AND PRODUCT ASSEMBLY

Opportunities identified represent initiatives to develop additional input sources within the region for existing major businesses and industries.

4.1 Sourcing / Production of Additional Biomass within Region

Sourcing / Production of Additional Biomass within Region	
Description / Rationale	<ul style="list-style-type: none"> ◆ Currently biomass used in Nova Scotia Power’s Biomass Co-gen Plant is trucked from all over the region at significant cost, as trucking is an expensive mode of transport ◆ Biomass is also sourced from well beyond the region such as bark which is brought in from the Great Lakes. ◆ The concept of this opportunity is to supplement these sources of biomass with additional locally sourced biomass production in the form of miscanthus, which is a rapid growing, non-invasive, sterile perennial grass that can grow more than 3 metres tall. ◆ The miscanthus re-grows each spring, is low maintenance and has a life expectancy of 20+ years. It also requires little water, no fertilizer or weed control, and can thrive in untilled fields.

Sourcing / Production of Additional Biomass within Region	
	<ul style="list-style-type: none"> ◆ Pursuing this opportunity will provide Nova Scotia Power with an additional source of biomass for its Biomass Co-gen plant at Port Hawkesbury, creating additional economic impact within the region and potentially reducing overall input costs.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Nova Scotia Power is primary proponent ◆ Pro Farm Energy Inc. may be a key partner ◆ Local agricultural producers could be partners if they have sufficient suitable land and are located in reasonable proximity to the Co-gen Plant.
Issues and Constraints	<ul style="list-style-type: none"> ◆ Nova Scotia Power has been researching and considering this opportunity, drawing on the approach of Pro Farm Energy Inc. in Leamington, Ontario. ◆ Research to date indicates that the miscanthus is capable of producing double the yield of other biomass crops such as switchgrass. ◆ Pro Farm Energy Inc. leases existing under-utilized farmland from farmers to grow the miscanthus. <ul style="list-style-type: none"> • They also hire farmers for specific services such as contract spraying, contract ploughing, contract harrowing and cover crop planting services • Professional farmers are hired to plant and harvest miscanthus and to deliver the harvested miscanthus to the power plant. ◆ A prototype operation is being developed in the Hantsport area by Minas Basin Pulp and Power (MBPP) that will develop the Hantsport Biomass Power Plant on land previously used by MBPP. The new plant is expected to be up and running by 2017. ◆ The miscanthus requires three to four years to achieve full production, once planted. It can be harvested annually using standard hay cutting and baling equipment. ◆ In this approach to producing biomass, the production would be controlled by an outside company, Pro Farm Energy Inc., which would be a project partner or proponent. ◆ For the Hantsport project they require 10 thousand acres of land which may be a challenge in the Strait region. ◆ The land-lease rate they are offering farmers appears to be fairly nominal and decreases with distance to the Biomass Co-gen Plant. <ul style="list-style-type: none"> • However, it does create incremental contract work and jobs for farmers in the region.
Potential Viability	<ul style="list-style-type: none"> ◆ This will be dependent upon the acreage of available under-utilized suitable land for producing the miscanthus, or alternatively switchgrass. ◆ It appears that Pro Farm Energy Inc. have done sufficient due diligence to determine the rates they are willing to pay to lease suitable land, although these rates may be too low to appeal to farmers, so alternative

Sourcing / Production of Additional Biomass within Region	
	approaches may need to be considered (e.g. contract directly with farmers to produce the crops).
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short Term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Nova Scotia Power is currently pursuing this and has been considering the Pro Farm Energy concept. ◆ Further research is required to determine viability. ◆ An important next step will be to undertake discussions with regional farmers and owners of suitable land for producing the miscanthus or switchgrass.

4.2 Sourcing Skilled Trades in Rural Inverness County

Sourcing Skilled Trades in Rural Inverness County	
Description / Rationale	<ul style="list-style-type: none"> ◆ Halifax Biomedical, based in Mabou, requires skilled trades to manufacture new mobile diagnostic units for back pain. ◆ The units are essentially 50-60-ft. trailers fully outfitted with electrical systems and hospital treatment room cabinetry and fixtures. ◆ Skilled tradespersons such as electricians, electronics technicians, carpenters and cabinet-makers will be required to undertake this work on contract. ◆ It is anticipated that three to four trailers will be built annually, and ultimately fitted with sophisticated diagnostic equipment and related computer and electronic systems.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Halifax Biomedical is a specific proponent for this opportunity, although these skilled trades are likely in demand by other businesses located in the Strait Area and Mulgrave. ◆ Electrical contractors, electronics and computer services companies and contractors, skilled carpenters and cabinet makers are all potential partners in this initiative, as they could be important contractors.
Issues and Constraints	<ul style="list-style-type: none"> ◆ Considerable skilled labour from within the region has been at least temporarily exported to Western Canada, primarily drawn by the shortage of skilled trades there required to support the burgeoning oil and gas sector. ◆ While it may be possible for Halifax Biomedical to have these units produced elsewhere, the company is committed to creating jobs locally. <ul style="list-style-type: none"> · Producing the units in immediate proximity to their base of operation will provide efficiencies in terms of ongoing customization and

Sourcing Skilled Trades in Rural Inverness County	
	<p>control of the manufacturing process, including evolving one or more prototypes.</p> <ul style="list-style-type: none"> ◆ There may be opportunities to work in collaboration with Nova Scotia Community College to ensure that a sufficient quantity of skilled workers in the appropriate trades are being successfully graduated and encouraged to work within the region. ◆ There may be other regional supply chain opportunities associated with this manufacturing process, which will be more clearly determined when the concept has been fully articulated.
Potential Viability	<ul style="list-style-type: none"> ◆ Halifax Biomedical is a medical device company that has been successful with the development and export of orthopaedic products and services, primarily related to orthopaedic patient assessments and orthopaedic contract research studies. <ul style="list-style-type: none"> · It manufactures and sells medical devices, which have regulatory approval in the U.S., Canada and Europe. · These proposed mobile diagnostic units are an extension of the products and services it has already demonstrated success in. ◆ The highly specialized nature of the mobile diagnostic units will enable Halifax Biomedical to charge premium prices, which should help to ensure financial viability of the endeavour. ◆ The manufacture of the units would primarily be done by contractors, making use of appropriate materials and components, so it should be possible to minimize the incremental overhead associated with this product line, in order to be as cost effective as possible.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short Term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Proponents at Halifax Biomedical are further developing the concept and will need to establish the design and specifics in more detail. ◆ Discussions between Halifax Biomedical and the Nova Scotia Community College faculty involved in educating the skilled trades required would be a useful next step. ◆ Discussion with existing trade guilds in the region to determine existing supply of suitable trades may also be helpful, along with interviewing qualified tradespersons and contractors.

4.3 Incremental Sourcing and Production of Wood Chips within Region

Incremental Sourcing and Production of Wood Chips within Region	
Description / Rationale	<ul style="list-style-type: none"> ◆ This concept is focused on enhancing the utilization of the existing infrastructure and harvesting capacity related to the production of wood

Incremental Sourcing and Production of Wood Chips within Region	
	<p>chips for the Biomass Co-gen Plant at Port Hawkesbury.</p> <ul style="list-style-type: none"> ◆ In addition to enabling the Biomass Co-gen plant to source more biomass locally, there is apparently potential to supply offshore markets with wood chips, based on interest in the product in Europe. ◆ This would provide additional opportunities for contractors and workers involved in the harvesting and production processes and could help reduce the extent to which the Biomass Co-gen plant has to bring in wood chips from well beyond the region, as well creating an additional product to export from the region.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Existing harvesters and producers of wood chips ◆ Nova Scotia Power's Biomass Co-gen plant and Port Hawkesbury Paper could be partners in this initiative.
Issues and Constraints	<ul style="list-style-type: none"> ◆ An important challenge that will need to be addressed is finding ways to reduce the moisture content of the wood chips product, in order to achieve the necessary economies in shipping. ◆ Another challenge is meeting regulatory requirements with respect to allowable cut limitations in Nova Scotia and the sale of raw wood fibre offshore. ◆ For the export product it will be important to establish supply contracts (pre-purchase agreements) with overseas purchasers of the wood chips product. ◆ It will be essential to understand the international competitive context with regard to supplying wood chips to overseas purchasers.
Potential Viability	<ul style="list-style-type: none"> ◆ For this initiative to be viable, the delivered costs of the wood chips biomass product must be competitive with other sources being used currently by Nova Scotia Power, as well as by any overseas potential purchasers. ◆ This could be challenging if the incremental timber harvested to produce this incremental supply stream is less accessible and, therefore, more expensive to harvest. ◆ It is possible that even at a premium price, depending upon the location of other suppliers, the incremental wood chips supply source may still be competitive because of lower transportation costs to the purchasers of the product.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short Term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Convene a meeting of interested harvesters and suppliers with representatives of Nova Scotia Power's Biomass Co-gen plant at Port Hawkesbury. ◆ Further research and due diligence regarding the potential of this initiative and the related regulatory issues will be required.

4.4 Developing and Marketing “Buy Local” Agricultural Products

Developing and Marketing “Buy Local” Agricultural Products	
Description / Rationale	<ul style="list-style-type: none"> ◆ The overall concept is to produce more agricultural products locally, possibly including related small-scale processing operations. ◆ It will be important to focus on products that have the best opportunity and potential competitive advantage relative to the local market (e.g. specialized products such as fruits and vegetables, dairy products may be appropriate). ◆ In addition to encouraging and coordinating agricultural production, there will be a need to enhance the profile of the region’s agricultural sector by developing a local and regional marketing campaign focusing on “buying local and buying fresh” perhaps in partnership with local retailers, distributors and farmers’ markets. ◆ Focusing on a specific niche such as organic products may be a worthwhile approach and, if successful, enable exports beyond the immediate region. ◆ It may be possible to work towards developing an appropriate food processing shared laboratory/kitchen, freezing and dehydration facility, which would be shared by several producers.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Strait Area agricultural producers ◆ Partners could include grocery retailers, food distributors, and farmers’ markets.
Issues and Constraints	<ul style="list-style-type: none"> ◆ For this initiative to be successful there will be a need for a coordinated effort, so organizations such as the Cape Breton Partnership and Strait Area Chamber of Commerce may need to help facilitate and provide encouragement for this initiative. ◆ Some analysis may be required of potential supply and demand for appropriate produce and processed products that would be most successful marketed on a local basis. ◆ An inherent challenge will be ensuring that the local produce and processed products are sufficiently price competitive to appeal to the local market as there will be a limit on the price premium that people will be willing to pay for local produce/products. ◆ A further challenge is gaining shelf space at local retailers, so it will be important engage them in this process from the beginning, along with other appropriate local/regional distributors. ◆ This could be a medium to longer-term initiative as the planting of new crops and/or raising of additional livestock, along with awareness-building and marketing will take time. ◆ The food processing aspect of this opportunity will also require significant capital investment, although it is intended that these would be relatively small-scale “cottage industry” type processing businesses

Developing and Marketing “Buy Local” Agricultural Products	
	producing such things as specialty jams, jellies and beverages.
Potential Viability	<ul style="list-style-type: none"> ◆ Further study will be required to determine the viability of these local food provider initiatives. ◆ A significant constraint on potential viability will be the lack of economies of scale possible for smaller-scale local producers, so there will need to be a focus on niche products that can command a premium price. ◆ Modern technology makes it possible for small-scale processors to survive, although individual processors will likely require at least several local suppliers of specific types of produce to make their operations viable. ◆ It is likely that start-up funding assistance will be required for any food processing operations.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ Medium priority ◆ Medium term time frame (initiate within three to five years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ A meeting of regional agricultural producers should be convened with a view to exploring the concept further and identifying potential proponents. ◆ Coordinating additional research and analysis, once proponents have been identified, will likely be required.

4.5 Expanding Port Hawkesbury Paper’s Supply Chain in the Strait Area

Expanding Port Hawkesbury Paper’s Supply Chain in the Strait Area	
Description / Rationale	<ul style="list-style-type: none"> ◆ During the Roundtable Meeting with Strait Area businesses and in a one-and-one interview, the overall local supply chain for Port Hawkesbury Paper was discussed. The concept is to identify any additional inputs, products and services that could be sourced locally. ◆ During the first full year of operation PHP purchased approximately \$180 million worth of supplies and services from businesses in Nova Scotia, with significant procurements within the Strait Area. ◆ Port Hawkesbury Paper has more than 700 suppliers and partners in Nova Scotia which are located in Port Hawkesbury, throughout Cape Breton and Northern Nova Scotia, and extend as far as Halifax and Hantsport. ◆ Significant employment is provided for residents of the region including 300 jobs at the mill and 400 jobs in the woodlands managed by Port Hawkesbury Paper. ◆ They have partnerships with Nova Scotia Power on the Co-generation

Expanding Port Hawkesbury Paper's Supply Chain in the Strait Area	
	<p>biomass facility as well as with Cape Breton University for research and development</p> <ul style="list-style-type: none"> ◆ They are working with the First Nations to develop an Impact Benefit Agreement to ensure meaningful participation of the First Nations in forestry operations and the mill itself and have an agreement related to forestry with the Unama'ki Institute of Natural Resources. ◆ New initiatives such as turning wood into a non-food sugar product may produce additional supply chain opportunities, so ongoing dialogue between the mill and the Strait Area business community is essential.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Port Hawkesbury Paper (PHP) ◆ Partners include the existing numerous suppliers and partners located in the Strait region, which supply many of the goods and services required by the paper mill and its ancillary operations.
Issues and Constraints	<ul style="list-style-type: none"> ◆ While Port Hawkesbury Paper continues to make significant capital investments in new equipment, technology, products and production processes, much of this is based on highly sophisticated equipment and technology which is manufactured outside the region and to a large extent outside Nova Scotia and even outside Canada. ◆ The significant scale of operation of the mill and associated production processes is large, requiring a substantial volume capability on the part of suppliers of inputs, products and services, which cannot always be met locally. ◆ Because of all of the sophisticated machinery and technology, some of the technical services need to be sourced from outside the region, particularly from the manufacturers of specialized equipment and technology who frequently service their own products. This limits the potential for providing this locally. ◆ New initiatives, such as the plan to build a non-food sugar production facility at the mill, are based on partners external to the region, such as Corbian, which is headquartered in Amsterdam.
Potential Viability	<ul style="list-style-type: none"> ◆ The potential success of incremental supplies and services sourced in the Strait Area by Port Hawkesbury Paper will be dependent upon a combination of competitive pricing, product/service quality, and ability to provide the volume or quantity of the product or service required by PHP. ◆ To be viable suppliers, it is possible that some local companies will need to re-invest in and expand their operations in order to meet these three key requirements.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Timeframe is immediate and ongoing
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Continued dialogue between Port Hawkesbury Paper and the local business community should be encouraged, perhaps with coordination assistance from the Strait Area Chamber of Commerce, Cape Breton

Expanding Port Hawkesbury Paper's Supply Chain in the Strait Area	
	<p>Partnership, and public sector development agencies and organizations.</p> <ul style="list-style-type: none"> ◆ Occasional meetings of existing and prospective suppliers of inputs, products and services with appropriate officials of Port Hawkesbury Paper could be encouraged and coordinated.

BUSINESS AND INDUSTRIAL SERVICES

Several of the business and industrial services opportunities relate to transportation and shipping associated with existing and developing industrial operations in the region, such as the offshore oil and gas sector that will be expanding northward to the coastal waters east of the Strait Area and Cape Breton.

4.6 Transportation Logistics Management

Transportation Logistics Management	
Description / Rationale	<ul style="list-style-type: none"> ◆ This opportunity is focused on all surface modes of transport including marine shipping, rail, truck and containers. ◆ The rationale is to better utilize the empty backhauls that occur in many transportation movements of industrial inputs, commodities, and manufactured or processed products. Examples include the following: <ul style="list-style-type: none"> ▪ Some of the biomass used in Nova Scotia Power's Biomass Co-gen Plant is barged in from the Great Lakes, resulting in an empty backhaul that could possibly be used for some other bulk product such as fly-ash generated by the Co-gen Plant if markets can be found for this by-product. ▪ Port Hawkesbury Paper has a similar situation with pulpwood and wood chips hauled in (mainly by truck) to supply its mill. ▪ Clearwater Seafoods, which operates a dry land storage facility in Arichat notes that its trucks have empty outbound segments or backhauls in connection with transporting live lobster to and from their dry land storage facility. ◆ There are likely numerous other examples of empty outbound trips or backhauls, suggesting there may be an opportunity to coordinate such things as truck, railcar, barge and ship movements among various companies that have alternative requirements. <ul style="list-style-type: none"> ▪ As transport costs are generally a major factor in the cost structure of many of the Strait Area's businesses and industries, any potential for savings in transportation costs will be welcomed by these businesses. ◆ There may be an opportunity for a transportation logistics management

Transportation Logistics Management	
	<p>firm to inventory and coordinate these various movements to realize potential savings by achieving utilization of at least portions of these empty outbound trips or backhauls.</p>
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Potential proponents and partners include several of the large companies based in the Strait Area including Port Hawkesbury Paper, Nova Scotia Power, DSM Ocean Nutrition, the energy companies, and Martin Marietta Materials (aggregates). ◆ They would need to coordinate with the transportation companies involved.
Issues and Constraints	<ul style="list-style-type: none"> ◆ The initial critical issue associated with this concept is the extent to which the ship, barge, railcars and trucks can be used for alternative commodities, inputs and manufactured or processed products. <ul style="list-style-type: none"> ▪ For example, a bulk tanker or barge loaded with wood chips would need to have its cargo holds cleaned out properly after each use if alternative materials were to be carried in a backhaul. ▪ In the case of containers or trucks, it is possible to insert and remove liners that allow for transport of different materials and products. ▪ Clearwater Seafoods indicated that it uses regular insulated trucks (not refrigerated) to transport its lobsters that are in individual containers, so the trucks could be used for alternative purposes for any empty outbound trips or backhauls. ◆ The second major issue or constraint is the extent to which the timing of the various transportation and shipping movements would synchronize with the needs of other shippers. <ul style="list-style-type: none"> ▪ In some cases shippers have a fair bit of flexibility as to exactly when shipments occur, while in other cases they are tied to very tight schedules, possibly adhering to “just in time” delivery schedules. ▪ Should the Melford Maher Container Terminal be developed, the availability of containers moving in and out of the Strait Area would be a major opportunity for all shippers and would offer flexibility for filling empty backhauls. ◆ Bulk tankers moving oil and gas products are likely to be fairly restrictive in terms of alternative products that can be handled in connection with backhaul movements. ◆ In order to coordinate any real potential that does exist for synergies among companies with regard to transportation and shipping, there will be a need for a third party broker or facilitator that all of the potential partners and proponents have confidence in.
Potential Viability	<ul style="list-style-type: none"> ◆ Provided that an appropriate and experienced third party facilitator or broker can step forward or be established in the Strait Area, there is clearly some potential for coordination and synchronization of transportation movements to make use of some empty outbound trips and backhauls, particularly in the case of truck transport, some rail cars,

Transportation Logistics Management	
	<p>containers and some ship movements.</p> <ul style="list-style-type: none"> • The empty legs could be offered at significant discounts that would be of benefit to Strait Area companies who would save on shipping costs. • There may also be potential for some companies to share shipments in cases where the truck, container, railcar, barge or ship is not fully loaded by one company.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority – companies have indicated concern regarding transportation costs, so value any opportunity for savings ◆ Short term time frame (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ An important first step is preparation of an inventory of transportation movements, based on some type of survey/interviewing of companies who ship products. ◆ Perhaps a meeting could be convened of interested shippers, coordinated by the Strait Area Chamber of Commerce and/or Cape Breton Partnership.

4.7 Industrial Equipment and Technology Maintenance Services

Industrial Equipment and Technology Maintenance Services	
Description / Rationale	<ul style="list-style-type: none"> ◆ In discussions with major manufacturers, processors and fabricators it became clear that significant technical expertise has to be sourced outside the region, particularly in relation to maintenance and repair of industrial equipment and technology. ◆ Much of the equipment and technology used in manufacturing, processing and fabricating operations is now highly sophisticated and based on digital systems that require highly specialized expertise to service, maintain and repair. <ul style="list-style-type: none"> • While some companies retain significant expertise in-house to handle day-to-day situations, most still rely on some outside expertise to keep everything running smoothly. • Some highly specialized equipment can only be serviced by the manufacturer, so if they do not have technical representatives in the region, it is essential to go outside the region. ◆ There may be an opportunity for a company that specializes in industrial equipment and technology maintenance services to enhance its specializations and certifications so that it can service much of the equipment that is in use at major manufacturing, processing and fabricating operations in the Strait Area.

Industrial Equipment and Technology Maintenance Services	
	<ul style="list-style-type: none"> • This may require some specialized training and courses for the company's technicians that may be available from manufacturers, so that they could service their equipment located in the Strait Area on a contract basis. • One company we interviewed indicated they had sourced their computer software services locally within the Strait Area, although ultimately had to shift to a provider located outside the region in order to have the depth and breadth of experience necessary.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ No specific proponent has been identified. ◆ It is possible that a local engineering company that has been involved with local and regional manufacturing, processing and fabrication operations could take this on in the interests of product/service diversification. ◆ Alternatively there may be an existing industrial equipment and technology repair, maintenance and service company that would be willing to extend its qualifications to provide more highly specialized services within the region, possibly on behalf of some major equipment and technology manufacturers.
Issues and Constraints	<ul style="list-style-type: none"> ◆ Some manufacturers of equipment and technology may not want to train anyone but their own in-house technicians that service, repair and maintain their equipment wherever it is installed. ◆ It is possible that there may be too much in the way of single or very few installations of specialized equipment within the region, such that there would be little or no work for technicians specifically trained in relation to certain equipment and technology. ◆ If this expertise is developed locally, it would quite likely be necessary to export these services to a much broader region within Nova Scotia and Atlantic Canada, in order to have a sufficient customer base. <ul style="list-style-type: none"> • Servicing such a broad region from a location within the Strait Area, may not be considered practical in terms of the extent of travel involved as significant components of the customer base could be located in places like Halifax, Moncton and Saint John. ◆ Training of technicians in specialized equipment and technology provided by overseas manufacturers may not be practical from the point of view of the travel costs involved if training is done at the manufacturer's home base in a distant location. ◆ There may be issues regarding recruitment of additional highly specialized technicians, so there may be a need for close linkages with the College in the pursuit of this opportunity.
Potential Viability	<ul style="list-style-type: none"> ◆ To determine the viability of this concept, it will be necessary to do further research, including, perhaps, preparing an inventory of the principal manufacturing, processing and fabricating equipment and technology currently installed at companies within the region.

Industrial Equipment and Technology Maintenance Services	
	<ul style="list-style-type: none"> ◆ It is quite likely that the markets for such services will need to extend well beyond the region to be viable business proposition, although having an installed base of such equipment and technology within the region will provide some initial critical mass for this type of service business.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Short term time frame (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Prepare an inventory of major equipment and technology at Strait Area manufacturing, processing and fabricating operations that requires outside servicing technicians. Document how all of this equipment and technology is currently being serviced. ◆ Establish the extent to which it would be possible to recruit/train local technicians to service this specialized equipment and technology, with approval and/or certification from the appropriate manufacturers.

4.8 Incremental Ship Repair, Maintenance and Supply Services

Incremental Ship Repair, Maintenance and Supply Services	
Description / Rationale	<ul style="list-style-type: none"> ◆ Currently there are ship repair, maintenance and supply services located in Port Hawkesbury and Mulgrave in the Strait Area, but the extent of existing and potential shipping in the region suggests there may be incremental potential. <ul style="list-style-type: none"> ▪ For example, there is considerable shipping travelling the Great Circle routes from Europe that passes quite close to the Strait Area and already some crew changes occur by flying crew members into Sydney airport and transferring them to/from ships via helicopter. ▪ This proximity to the shipping lanes suggests there may be potential for providing additional services to these ships, which might find it cost effective to make the short diversion into the Strait Area, to more quickly access maintenance, repair and provisioning services (rather than being delayed in already congested ports such as Halifax). ◆ In addition to saving time, it may be possible for providers of ship repair, maintenance and supply services to offer them at highly competitive costs, since the cost of doing business is likely to be less than in much larger urban areas such as Halifax-Dartmouth. ◆ This opportunity may represent expansion and perhaps diversification of existing operations based in the Strait Area and may provide opportunities for new businesses. ◆ With potential increases in offshore oil and gas activity off the east coast

Incremental Ship Repair, Maintenance and Supply Services	
	of Cape Breton and the Strait Area, shipping and related activities are likely to increase during the coming years, providing an even stronger rationale for this business services opportunity.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Existing providers of ship repair, maintenance and supply services located in the Strait Area ◆ Potential new entrants to this sector
Issues and Constraints	<ul style="list-style-type: none"> ◆ Some local ship suppliers such as Atship Services Ltd., have operational bases at other major Nova Scotia ports (e.g. Halifax and Sydney), as well as in the Strait Area, so are in a position to easily adapt to increasing demand for ship supply and services as this occurs. ◆ Another similar example is Atlantic Towing Limited which has several locations in Atlantic Canada including Port Hawkesbury, Dartmouth, Saint John, New Brunswick and St. John's, Newfoundland. <ul style="list-style-type: none"> ▪ The company provides harbour towage, coastal towage, and offshore support services for major oil and gas companies including BP, Shell, PetroCanada, Encana, Exxon Mobil and Husky Oil. ▪ These existing major customer linkages will help it to take advantage of incremental opportunities that may occur in the Strait Area as offshore oil and gas activity increases. ▪ Services to offshore oil and gas rigs by this company include anchor handling, ice management, rig moves and towage, and supply and support services. ▪ As part of the Irving group of companies, Atlantic Towing is affiliated with companies operating truck, rail and ship cargo service, so can offer complete integrated transportation solutions. ◆ The rejuvenation of major industrial operations in the Strait Area such as Port Hawkesbury Paper and its ancillary businesses, plus expanded Nova Scotia Power operations, such as the Biomass Co-gen Plant, will result in increased shipping movements in the Strait Area, which should generate incremental business for ship repair, maintenance and supply services, as will expansion in the offshore oil and gas sector.
Potential Viability	<ul style="list-style-type: none"> ◆ The viability of this incremental opportunity is based on the extent of growth in shipping activity in the Strait of Canso area, as well as offshore oil and gas activity. ◆ Incremental proactive marketing and promotion to shipping lines that travel close to the Strait Area, but may not currently make a port of call, could also help to enhance viability of incremental services by drawing incremental business from the shipping lanes which are close by. ◆ The Strait Area has some inherent operational cost advantages for companies operating there compared with costs at congested ports in major urban areas such as Halifax-Dartmouth.

Incremental Ship Repair, Maintenance and Supply Services	
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Time frame is immediate and ongoing, as growth in a number of activities in the Strait Area start to ramp-up.
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Undertake a market analysis and specific opportunities identification relative to existing and anticipated shipping traffic in the Strait Area. ◆ Prepare an inventory of shipping lines that call in at ports in the Strait Area, as well as those which travel the nearby shipping lanes along the Great Circle Route, to determine potential targets for marketing initiatives. ◆ Coordinate meeting of ship repair, maintenance and supply service companies located in the Strait Area to discuss incremental business opportunities, based on growth trends that are occurring.

4.9 Offshore Oil and Gas Industry Service Hub

Offshore Oil and Gas Industry Service Hub	
Description / Rationale	<ul style="list-style-type: none"> ◆ This opportunity is somewhat similar to that described above in section 4.8, but focused specifically on the offshore oil and gas industry. ◆ There is potential for Port Hawkesbury and Mulgrave to strengthen their role as an offshore oil and gas industry service hub, particularly as the activity off the east coast of Nova Scotia expands over the next number of years. <ul style="list-style-type: none"> • The Shell project has leased an additional four parcels off the east coast of Nova Scotia, as has BP. Two of the Shell leases are in deepwater, along with the four BP parcels. ◆ As noted earlier, there are already a number of marine service and supply companies in the Strait Area that have connections to the offshore oil and gas sector and some other industrial enterprises, such as Mulgrave Machine Works, have been manufacturing equipment for offshore drilling rigs. Among the services that existing Strait Area companies have been providing for the offshore oil and gas sector are the following: <ul style="list-style-type: none"> • Oil rigs supplies and services • Anchor handling • Rig moves and towage • Manufacture/fabrication of modularized equipment and pressure vessels • Servicing of rigs at their drilling locations, in the harbour or dockside. ◆ With the potential expansion of activity off the southeast coast of Cape

Offshore Oil and Gas Industry Service Hub	
	<p>Breton and Nova Scotia, the proximity of the Strait Area to future drilling activity, if it shifts north, will provide a competitive advantage as an offshore oil and gas supply and service centre relative to other locations further away.</p> <ul style="list-style-type: none"> ◆ The size and depth of the Strait of Canso Superport make it ideal for assembling and/or servicing large rigs required for the new offshore activity.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Existing marine service and supply businesses, as well as manufacturing and fabrication operations such as Mulgrave Machine Works, that are experienced suppliers to the offshore oil and gas industry ◆ Important partners are the oil and gas companies such as Shell, Exxon Mobil and others active off the east coast of Nova Scotia and Cape Breton, as well as the Strait of Canso Superport.
Issues and Constraints	<ul style="list-style-type: none"> ◆ Several major international oil and gas companies are involved in Nova Scotia's offshore oil and gas industry including Shell, Exxon Mobil, Chevron, BP and Encana – most of these companies already have a major office presence in Halifax, as well as their exploration and operational bases onshore and offshore ◆ Superport Marine Services, based in Port Hawkesbury, already has two vessels working in a support role for seismic research Shell has been doing offshore in the Shelburne Basin ◆ The existing oil and gas activity has been located off the southeast coast of Nova Scotia, so has been serviced from Halifax-Dartmouth and locations on the South Shore, so are working with established suppliers. <ul style="list-style-type: none"> • However, some of these suppliers also have locations in the Strait Area that will be helpful in pursuing this offshore servicing opportunity.
Potential Viability	<ul style="list-style-type: none"> ◆ Beyond short term incremental business associated with offshore oil and gas activity generally for companies already servicing that sector, the viability of this opportunity appears to be over the medium and longer term as the offshore deepwater parcels southeast of Cape Breton are explored and developed. ◆ Over the long term, given the geographic proximity and existing servicing and infrastructure base in the Strait Area, this would appear to be a viable opportunity, provided that drilling results are positive.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Medium and longer term (3-10 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Maintain an ongoing dialogue with Shell, BP and other companies that will be involved in the offshore oil and gas development southeast of Cape Breton, in order to keep abreast of current and anticipated activities, as well as needs relative to servicing and supplies. ◆ Work with the Superport Corporation and marine supply and service

Offshore Oil and Gas Industry Service Hub	
	<p>businesses to develop a comprehensive marketing package geared to promoting the Strait Area’s services for the offshore oil and gas sector.</p> <ul style="list-style-type: none"> • This could include a website plus print and electronic promotional materials (directory of services, etc.)

4.10 Petroleum Products Storage and LNG Import and Export Terminals

Petroleum Products Storage and LNG Import and Export Terminals	
Description / Rationale	<ul style="list-style-type: none"> ◆ The strategic advantage of the Strait of Canso Superport and its ability to handle the world’s largest supertankers, appears to be supporting continued enhancement of petroleum storage facilities at Point Tupper, as well as the possibility of eventual development of Anadarko’s partly developed Point Tupper LNG import terminal, along with a recently proposed \$3 billion LNG plant and export terminal at Melford. ◆ The NuStar Energy Petroleum storage facility, one of the world’s largest, announced in September of 2013 that it plans to build a railcar offloading facility at its petroleum storage terminal in Point Tupper. <ul style="list-style-type: none"> • It would ship Western Canadian crude oil via rail to Richmond County where it would be loaded onto tankers bound for refineries overseas. • The proposed facility would also handle natural gas liquids and both crude oil and gas liquids would be hauled by mixed cargo freight trains of 16 to 20 cars in length. • More capacity would be added to the facility’s existing 37 storage tanks, should the railcar project go ahead. ◆ Anadarko Petroleum Corp. of Texas has recently been evaluating its options for the \$650 million LNG import facility at Bear Head near Point Tupper, which it halted development of in 2006. <ul style="list-style-type: none"> • It recently renewed its construction permit at the site for another three years as it continues to consider its options for this potential development. ◆ In May of 2013 a Mumbai, India company, H-Energy, announced it is planning to build a \$3 billion LNG plant and export terminal at Melford in the Strait Area and that construction could start in 2016 with the facility being operational by 2020. <ul style="list-style-type: none"> • The proposed Melford facility would export up to 4.5 million metric tonnes of LNG per year. • The LNG would be exported by tanker to markets that would likely include India, Latin America and Europe.

Petroleum Products Storage and LNG Import and Export Terminals	
	<ul style="list-style-type: none"> • Initially the Melford facility would have one tanker, although it could be expanded to add two more vessels to transport the LNG. • The Mumbai company has optioned 240 hectares of Crown Land in the Guysborough Industrial Land Reserve. ◆ Should any or all of the preceding developments move forward, they would represent a significant enhancement to the presence of the oil and gas sector in the Strait Area and the LNG export facility could conceivably be tied-in to Nova Scotia's offshore natural gas production.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Proponents include NuStar Energy, Anadarko Petroleum Corp., and H-Energy. ◆ Many partners including local and regional contractors and construction companies will likely be involved.
Issues and Constraints	<ul style="list-style-type: none"> ◆ While it is quite possible that one or more large-scale projects such as these petroleum and LNG facilities may go ahead at some point over the next few years, it is still very unclear what will proceed and when. <ul style="list-style-type: none"> • Clearly the Strait Area has a role to play in the global oil and gas sector and is strategically located to export energy products to overseas markets such as Europe, Asia and South America. • Combined with the continuing oil and gas activity off the east coast of Nova Scotia, the Strait region is likely to experience the growth of all of its existing oil and gas assets and development of new ones. ◆ It would be helpful to have a regional coordinated plan for pursuing strategic opportunities related to the oil and gas sector, with a view to maximizing the benefits and economic spin-offs for the Strait Area, the rest of Cape Breton and Nova Scotia. ◆ The additional tanker traffic in and out of the Strait will provide significant opportunities for ship handling services such as line handlers, pilots and tugs, as well as ship repair, maintenance and supply/provisioning services, as described earlier in opportunity 4.8. ◆ Environmental assessments and environmental concerns generally will have an impact on the extent to which these projects go ahead and how they will proceed.
Potential Viability	<ul style="list-style-type: none"> ◆ The NuStar Energy rail off-loading facility will be dependent on rail shipments of oil and natural gas liquids via rail tanker cars. The company will need to demonstrate that this approach will not carry with it the types of risks that resulted in the train disaster at Lac Megantic, Quebec. ◆ Anadarko Petroleum's planned LNG import facility is also not guaranteed as the company had previously mothballed the project when it was unable to obtain a long-term contract for purchasing the LNG. ◆ The H-Energy LNG plant and export terminal proposed for Melford is at the feasibility study stage so it could be some time before it is known

Petroleum Products Storage and LNG Import and Export Terminals	
	whether or not this is a firm project. The feasibility study will likely demonstrate whether or not the project is anticipated to be viable.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Short and medium term (1-5 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ The current status of all of these proposed projects should be monitored on an ongoing basis, along with other developments related to offshore oil and gas in proximity to the Strait Area. ◆ Ongoing liaison with the various companies should be coordinated and perhaps a regional committee should be established consisting of representatives of the Strait Area Chamber of Commerce, Prosperity Framework, and the municipalities/counties affected. <ul style="list-style-type: none"> · This group could perhaps lead the development of a Regional Strategic Plan for coordinating development of oil and gas sector initiatives in the region.

SPECIALIZED TRAINING AND EDUCATION

The success of the majority of the supply chain and other business opportunities identified in this study will be highly dependent on the ability to recruit skilled labour, professionals and management, which in turn is dependent upon the specialized education and training available for the region's labour force. In particular, given the strong role of the oceans sector, marine oriented training and education is an important niche to focus on.

4.11 Customized Industry Specific Training and Marine Training/Certification

Customized Industry Specific Training and Marine Training/Certification	
Description / Rationale	<ul style="list-style-type: none"> ◆ A major asset in the Strait Area is the Nova Scotia Community College Campus at Port Hawkesbury, which has a full-time enrolment of 650 to 700, plus many students in part-time and continuing education programs. <ul style="list-style-type: none"> · The Campus has 60 faculty, plus 50 additional staff involved in operations of the facility and its programs. · The Strait Area Campus offers a variety of relevant programs, particularly in business administration, industrial trades, and marine training. ◆ Of particular note is the Nautical Institute which offers advanced diploma programs in marine engineering technology and marine navigation technology, as well as certification training for engineering officers at all levels, plus safety training.

Customized Industry Specific Training and Marine Training/Certification	
	<ul style="list-style-type: none"> ◆ The School of Fisheries offers a number of relevant fisheries and marine-oriented programs including: <ul style="list-style-type: none"> ▪ Fishing certification upgrading ▪ Small commercial vessel operation ▪ Marine safety ▪ Global maritime distress safety system (GMDSS) Radio telephone operation ▪ Fish harvesting technology. ◆ The industrial trades programs at the Campus are also well-suited to training individuals for jobs in Strait Area industries including: <ul style="list-style-type: none"> ▪ Construction and industrial electrician certificate and diploma programs ▪ Heavy equipment operator ▪ Steam fitting/pipefitting, as well as plumbing ▪ Power engineering technology ▪ Welding ▪ Natural resources environmental technology. ◆ The College also does customized industry-specific training under contract with businesses. ◆ The focus of this opportunity is on capturing the incremental potential to train skilled workers, technologists and professionals for the various components of the ocean industries that dominate the Strait Area economy, given the anticipated growth in activities that is expected to occur, as documented earlier in this chapter of the report. <ul style="list-style-type: none"> ▪ The Nautical Institute has faculty from all over the world with excellent connections in the marine and shipping sector and capacity available to take in additional qualified students.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Nova Scotia Community College – Strait Area Campus ◆ Partners include Strait Area businesses, along with NSCC’s Marconi Campus and Université Ste Anne for certain programs.
Issues and Constraints	<ul style="list-style-type: none"> ◆ As with most educational institutions, there are ongoing financial pressures that constrain recruiting and marketing of programs, and the physical facilities are full to capacity on weekdays, so the Campus is looking at extending daily operating hours. ◆ The Nautical Institute is a leader in marine safety training and marine fire fighting and offers Transport Canada Certified Marine Training programs, one of only a few colleges in Canada to do so. <ul style="list-style-type: none"> ▪ This certification training is a significant opportunity for the College and the Nautical Institute. ◆ The Nautical Institute is looking at expanding its programming to include such things as marine electrical, marine culinary and other relevant

Customized Industry Specific Training and Marine Training/Certification	
	<p>programs and courses.</p> <ul style="list-style-type: none"> ◆ Housing for students and faculty is a key constraint as approximately 300 of the 650 full-time students require accommodations as they are from outside the region. <ul style="list-style-type: none"> ▪ Students prefer accommodation in campus residences. ▪ The College developed a residence that accommodated more than 130, but cost \$30 million, so expanding student residences is an expensive undertaking that would be difficult to secure funding for. ▪ Perhaps some type of public/private partnership may be possible to address this issue. ◆ The faculty for the Campus also find housing a constraint and some live as far away as Antigonish, where they feel they can find more suitable housing than that currently available in and around Port Hawkesbury.
Potential Viability	<ul style="list-style-type: none"> ◆ In the short term modest incremental expansion of enrolment in marine training programs should be viable as additional students can be handled with existing faculty. <ul style="list-style-type: none"> ▪ At a certain point, and in order to offer incremental courses and programs, additional faculty will need to be recruited. ▪ Viability will then be based on attracting sufficient enrolment for the expanded initiatives requiring new faculty. ◆ To ensure the medium and longer term viability of expanded programming, particularly if additional programs are considered for the training of workers for the offshore oil and gas sector, the housing issue will need to be proactively addressed, so that additional students and faculty can be accommodated in the region.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High priority ◆ Timeframe is immediate and ongoing
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Ongoing interaction and dialogue between the Strait Area Campus and businesses in the region is essential to ensure that the Campus' programs are meeting the needs of local businesses and industries and that these businesses are aware of all of the training and education opportunities available at the Campus, including new programs and initiatives as they are developed. ◆ The housing issue should be tackled in a proactive manner. Perhaps representatives from the College, local municipalities, housing developers and other Strait Area businesses should meet to review the latest opportunities for developing incremental student housing, as well as additional housing stock that would appeal to the College's faculty and management as programs expand.

SUITABLE HOUSING SUPPLY IN INVERNESS-MABOU AREA

The availability of suitable housing for professional and managerial staff in rural Cape Breton communities wishing to expand and attract major businesses can be a key constraint. A fairly immediate opportunity for appropriate housing development exists in and around the Village of Mabou, where a successful biotechnology company, Halifax Biomedical, has its major base of operation.

4.12 Housing Development in Inverness-Mabou Area

Housing Development in Inverness-Mabou Area	
Description / Rationale	<ul style="list-style-type: none"> ◆ Halifax Biomedical, which has its base of operations in Mabou, is challenged in attracting skilled personnel, particularly senior professionals and management, because of the lack of suitable housing in the immediate area. ◆ Therefore, an opportunity exists to develop suitable housing, which could be taken on by a private developer. ◆ Alternatively Halifax Biomedical is considering the concept of setting-up a subsidiary in construction/real estate to build and sell/rent suitable housing to facilitate recruitment of the highly skilled technical, professional and management employees it requires. ◆ This initiative would complement existing community improvement programs that have been spearheaded by the Mabou and District Community Development Association.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Halifax Biomedical and its potential housing development subsidiary. ◆ Alternatively a private developer may be encouraged to undertake this initiative, provided an appropriate formal land-use plan for the community is established and appropriate services can be accessed. ◆ Partners would include construction and trades contractors.
Issues and Constraints	<ul style="list-style-type: none"> ◆ In addition to growth and development of Halifax Biomedical which has enhanced the local economy, the community has engaged in significant upgrading, led by the Community Development Association. These include: <ul style="list-style-type: none"> • The Mabou Façade Improvement Program, which has resulted in significant improvements to the streetscape and business facades in the Village, based on a conceptual design plan that was developed for the Village. • A new community brand. ◆ A key issue relative to attracting private sector developers to undertake a small housing subdivision relates to the need for a formal community land-use plan, similar to what has been developed for other communities in Inverness County such as Inverness and Port Hood. <ul style="list-style-type: none"> • This establishes defined land-use zoning for commercial and

Housing Development in Inverness-Mabou Area	
	<p>residential areas, providing developers and investors with certainty regarding the surrounding land uses that will be allowed and ensuring compatibility of neighbouring uses.</p> <ul style="list-style-type: none"> • Without proper planning and zoning in place, it is difficult to attract residential and commercial developers and to expand the community in an orderly way to achieve economic growth. • Another issue is the availability of and connectivity to services such as hydro, water and sewer, which can affect development costs significantly if not readily available and accessible. <ul style="list-style-type: none"> ◆ It is conceivable that Halifax Biomedical may be able to launch a housing subsidiary that could attract sufficient investor funding to build several houses, although it will be important that the company's senior management does not get too tied-up in this initiative as it must focus on its core business. ◆ There will be a need to work closely with the Community Development Association, County of Inverness, and Eastern District Planning Commission to establish the appropriate planning regime for the community, so that orderly housing development, and other commercial development can take place as the community expands.
Potential Viability	<ul style="list-style-type: none"> ◆ While land prices in the area are low relative to major urban areas, construction of executive-type housing is an expensive undertaking and such houses will likely come on the market at a much higher cost per square foot than the cost of purchasing existing housing stock of the same size. • There will be a need to closely consult with the local real estate industry to ensure that the proposed price points that will be required for the housing development to be financially viable are realistic in the context of the region's market for executive-style housing. • There may be merit in considering purchase and renovation of existing housing stock, where appropriate and available. ◆ If the development company were to own and rent-out the housing, once again the high costs of developing it might result in rents that are significantly higher than what the market will bear in the immediate region. ◆ Clearly a financial feasibility analysis of the whole concept is required, prior to proceeding with any major investment.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short Term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Work with Community Development Association, County of Inverness, and Eastern District Planning Commission to initiate development of a Community Plan and Zoning, similar to what has been done for other communities in the County, including Inverness, Cheticamp and Port Hood.

Housing Development in Inverness-Mabou Area	
	<ul style="list-style-type: none">◆ Undertake a financial feasibility analysis of housing development within or near the community.◆ Seek a developer or investors for the housing development opportunity.

5 – VALUE ADDED FROM EXISTING BY-PRODUCTS AND WASTE STREAMS

In our consultations with Strait Area businesses it became clear that there are a number of production process by-products and waste streams that have potential for further processing into value-added products that would reduce or eliminate waste disposal costs these companies incur for certain waste streams, as well as reducing environmental impacts. This chapter includes summaries of several of these opportunities that appear to have potential and should be further analyzed and pursued.

VALUE ADDED AND BY-PRODUCTS OF PRODUCTION PROCESSES

Certain production processes produce by-products or can be altered to create value-added products based on similar raw material inputs.

5.1 Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil

Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil	
Description / Rationale	<ul style="list-style-type: none"> ◆ DSM/Ocean Nutrition has its primary fish oil processing plant in Mulgrave and has been successful in re-using the waste from fish oil manufacturing as bio-diesel fuel, which is then recycled into the boiler and heating system so that the plant is run almost entirely on fish oil fuel. <ul style="list-style-type: none"> • Essentially Ocean Nutrition extracts the Omega 3 fatty acids from the fish oil it processes for use in health food and then converts the by-product into bio-fuel. • The company has gone beyond using the bio-diesel that it generates for its own operation and has been selling it to a fuel retailer who blends it before selling it as bio-diesel fuel. • Wilson Fuel Company has marketed the bio-fuel, which contains 20% fish oil, primarily for use in diesel buses and trucks but it has been used as a heating oil as well. ◆ Given the existence of several other fish and shellfish processing plants in the Strait Area and Cape Breton, there may be potential to expand on DSM/Ocean Nutrition’s production of bio-fuel to make better use of waste from fish processing products.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ DSM/Ocean Nutrition is already a proponent and actively involved in bio-fuel production, although use as a heating oil would be a further spin-off ◆ Perhaps other fish and seafood processors could collaborate on fish oil

Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil	
	bio-fuel production.
Issues and Constraints	<ul style="list-style-type: none"> ◆ Fish oil is approximately 6% less energy dense than diesel. ◆ Existing engines and heating equipment may need to be adapted in order to utilize fish-based bio-fuel. ◆ Being able to reutilize fish waste as much as possible in the form of value-added by-products such as bio-fuel, has important environmental protection implications: <ul style="list-style-type: none"> ▪ If fish waste is dumped into the sea in high concentrations the waste can disrupt marine eco-systems. ▪ When land-filled the fish waste typically creates odour problems and attracts rodents and other pests. ▪ As with any production process, there are clearly economies of scale, so a significant volume of fish waste is required to produce sufficient quantities of fish oil for use in bio-fuel. ◆ Companies that do not currently produce bio-fuel from fish waste would need to invest in significant technology, but some type of collaboration among a number of companies may offer potential and result in additional value-added and revenue for the companies.
Potential Viability	<ul style="list-style-type: none"> ◆ DSM/Ocean Nutrition has already demonstrated viability of the concept, not only for its own use but as an incremental revenue stream. ◆ For other fish and seafood processors, there may be a need for collaboration of several companies to achieve the economies of scale required for a viable fish oil based bio-fuel operation – perhaps a collaboration with DSM/Ocean Nutrition would be appropriate.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Ongoing and short term
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Meet with regional fish and seafood processors to determine interest in the concept and any existing experience beyond that of DSM/Ocean Nutrition. ◆ Determine the overall volume of fish waste potentially available for conversion into fish oil to understand the potential for implementing this concept beyond DSM/Ocean Nutrition.

5.2 Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics

Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics	
Description / Rationale	<ul style="list-style-type: none"> ◆ Port Hawkesbury Paper has been undertaking significant investments at the mill and is working on making its thermo-mechanical pulping (TMP) line 3 the most energy efficient TMP line in the world. <ul style="list-style-type: none"> ▪ This will enable the company to utilize one of its other two TMP lines for bio-economy opportunities. ▪ PHP is partnering with a company called Corbion Purac which is considering development of a non-food sugar production facility in North America. ◆ A first step in the development of the full-scale project is the construction of a \$5 million test plant at the PHP site where the cellulose fibres and wood chips would be converted into lactic acid which can then be converted into polylactic acid (PLA) thermo-plastic resin. <ul style="list-style-type: none"> ▪ PLA is a compostable bio-plastic that can be used for a range of applications such as creating bio-degradable plastic soft drink bottles. ▪ Apparently a more recent breakthrough potentially enables a high-heat PLA which will withstand high temperatures and may be durable enough for use to create such things as moulded automotive parts, clothing and carpet fibres, and computer housings. ◆ This value-added by-product opportunity nicely complements other bio-economy opportunities currently being developed or with strong potential, such as the Bio-mass Co-gen Plant and the bio-fuel from fish oil production.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Corbion Purac and Port Hawkesbury Paper are the proponents for this prototype concept. ◆ FP Innovations have been involved in the research side and the Province of Nova Scotia has been a partner.
Issues and Constraints	<ul style="list-style-type: none"> ◆ One of the key concerns in relation to the process is the relatively higher cost of electricity in Nova Scotia, which may limit the potential for developing an internationally competitive full-fledged commercial production facility to produce the bio-plastics. ◆ Approximately a dozen scientists will work on this \$10 million test plant and there is a two year window of opportunity for the project. ◆ The non-food sugar production plant will use incremental raw material and will create additional jobs at the PHP site.
Potential Viability	<ul style="list-style-type: none"> ◆ The cost of energy will be a major factor affecting viability and there is a concern that the Province's energy pricing policy results in a much

Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics	
	<p>higher industrial rate for electricity than in other provinces, which hinders national and international competitiveness of any processes that have high energy consumption.</p> <ul style="list-style-type: none"> ◆ There are also a variety of technical issues associated with the viability of the bio-plastics production. ◆ Achieving the appropriate level of economies of scale and ensuring a consistent market for the finished products will also be crucial to overall viability.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Corbian Purac and PHP are developing the business case for the prototype plant and working with research and government partners on technical issues and financing. ◆ This and other innovations may play an important role in the sustainability of PHP's operation in the Strait Area, so it may be helpful for local organizations to provide advocacy support in relation to provincial electricity pricing policies and other issues which may help facilitate this important initiative.

PROCESSING, DISTRIBUTION AND REUTILIZATION OF WASTE STREAMS

In addition to the preceding examples of value-added by-products, some major industrial plants in Cape Breton produce waste streams that could be reutilized with relatively little or no processing for alternative uses, rather than being land-filled. Examples include processing of crab shells into compost and fertilizers and utilizing fly- ash and bottom ash from the Biomass Co-gen Plant as a substitute for lime in soil enhancement and as a binding agent in cement production.

5.3 Processing of Crab Shell Waste into Value Added Products

Processing of Crab Shell Waste into Value Added Products	
Description / Rationale	<ul style="list-style-type: none"> ◆ The snow crab fishery is of great importance to the Cape Breton fisheries and seafood industry providing employment for fisherman, processors, plant workers and exporters, but snow crab processing produces significant waste amounting to approximately 25% of the volume that is processed. <ul style="list-style-type: none"> · Currently most of this waste is trucked to municipal landfills for composting, which is costly and is underutilizing the potential value

Processing of Crab Shell Waste into Value Added Products	
	<p>of the harvested crabs.</p> <ul style="list-style-type: none"> ◆ Depending on the level of processing involved, it is possible to reutilize the waste crab shells to produce a variety of products including crab shell composts and fertilizers, crab meals as a feed for finfish aquaculture operations or animal feed, and even highly refined chitin products for pharmaceuticals, textile production and other uses. ◆ A study completed in 2010 on the feasibility of producing value-added products from snow crab processing waste in Cape Breton indicated that each of Cape Breton's processing plants incurred a cost of \$30,000 to \$40,000 each crab season to dispose of their waste in landfills. ◆ There are companies in New Brunswick that are successfully producing value-added products from crab and lobster waste, selling crab and lobster meals to Asian markets, based on the processing of thousands of tons of raw processing waste. <ul style="list-style-type: none"> ▪ An important component of the process is collecting the waste from the various processing plants. ▪ This entails having a small fleet of trucks shuttling back and forth between the plants to deliver the waste from the seafood processing plants to the waste product processing plant. ▪ A drying process is used to produce dried crab or lobster shells and powder.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Local crab processing plants have shown interest but no clear proponent has come forward. ◆ The processors at the very least would be partners in this type of initiative as it would likely be necessary to collect crab-processing waste from several plants for a viable operation.
Issues and Constraints	<ul style="list-style-type: none"> ◆ The short length of season and variability of snow crab abundance is a major constraint. <ul style="list-style-type: none"> ▪ The snow crab season in Cape Breton is 3 to 4 months, meaning that a plant built to process the crab waste would remain idle the rest of the year, unless it is possible to store enough waste to keep the plant running for longer periods of time. ◆ It is likely that the volume of crab processing waste produced in Cape Breton would only support one waste processing plant, meaning that some or all of the plants may have to transport their waste further than they do currently to dispose of it at local landfills. ◆ Another constraint is the cost of energy for running the dryer in the waste-processing plant – one of the current New Brunswick plants estimates that 60% of its operating costs are spent on fuel ◆ Capital costs are an issue as a significant investment of more than \$1 million would be required to develop a plant for drying and processing the crab waste.

Processing of Crab Shell Waste into Value Added Products	
	<ul style="list-style-type: none"> ◆ Should a higher level of processing be attempted, for example, by producing chitin, a multi-million dollar investment would be required. <ul style="list-style-type: none"> ▪ Chitin is the structural bio-polymer of all crustacean eco-skeletons comprising about 16% of the dry weight of the snow crab processing waste. ▪ More than 200 products are derived from chitin, so it is used in a multitude of bio-medical, agricultural and industrial applications.
Potential Viability	<ul style="list-style-type: none"> ◆ Financial and market viability of this concept for Cape Breton is still unclear, so will require further research and analysis. ◆ A key issue will be finding ways to minimize transportation costs for trucking the snow crab waste from multiple sites to where it is processed, unless small-scale processing is advocated at each site, resulting in the shipping of processed products to a centralized storage and distribution location. ◆ There may also be significant regional competition in the Atlantic Provinces from a large plant in Newfoundland, although there is a strong Asian market for the processed crab waste.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Medium Term (3-5 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Plan for processing or re-utilization of crab processing waste needs to be developed and adopted by appropriate partners including the crab processing plants and the municipalities. ◆ The short term option would appear to be doing value-added processing at municipal landfill sites to produce compost, as well as direct field application, coordinating with local farmers. Over the longer term it may be possible to develop a crab meal and dry cell production facility, based on the successful models of companies in New Brunswick that have done this for many years.

5.4 Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen Plant

Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen plant	
Description / Rationale	<ul style="list-style-type: none"> ◆ There has been long-standing interest in selling fly ash from the Point Tupper Generating Station as significant costs are incurred to truck and landfill the ash, yet it has beneficial uses in other industries such as using it in the manufacture of cement. ◆ Coal fly ash has a number of advantages when used in cement production, including:

Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen plant	
	<ul style="list-style-type: none"> • Improving the plasticity properties of concrete by enhancing its workability • Reducing water demand, segregation and bleeding, as well as lowering the heat of hydration. • It also increases the concrete’s strength, reduces its permeability, and reduces the corrosion of reinforcing steel, among other things. ◆ To a lesser extent, bottom ash can also be used in cement production, but its properties are less advantageous for cement production. ◆ New ash product from the Biomass Co-gen Plant seems to have potential applications in agriculture: <ul style="list-style-type: none"> • It can be a soil enhancer improving permeability of the soil, its textural properties, soil aeration, fertility and ultimately crop yield. • It can improve plant water and nutrients uptake, the development of roots, help to detoxify contaminated soils, and potentially replace use of lime in overly acidic soils, among other things. ◆ Little or no processing is required to reutilize the ash, so it seems prudent and environmentally responsible to pursue its sale and distribution rather than land-filling it.
Proponent(s) and Partners	<ul style="list-style-type: none"> ◆ Nova Scotia Power’s Point Tupper Generating Station and Port Hawkesbury Co-gen plant ◆ Key partners would be purchasers of the ash including cement companies within the region and beyond, where transportation costs make it cost effective, plus regional agricultural producers
Issues and Constraints	<ul style="list-style-type: none"> ◆ The use of the fly ash and bottom ash in cement production has some weaknesses that restrict the proportions that can be used including: <ul style="list-style-type: none"> • In cold weather there can be problems with extended setting times and slow strength development resulting in low early-age strengths which can delay construction schedules. • May be more susceptible to surface scaling when de-icing chemicals such as salts are used. ◆ There are also some technical constraints in the use of ash in agriculture including: <ul style="list-style-type: none"> • The source and quality of the fly ash needs to be matched to the soil being treated, the crop being grown and the local climatic conditions. • Apparently there can be concern about the presence of heavy metals in ash products and the extent to which there is uptake and accumulation in crops grown, so the exact source and composition of the ash and quantities used must be carefully controlled. ◆ The market for ash products is perceived as being cyclical and quite particular about the exact chemical properties of the ash, for either cement or agricultural use.

Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen plant	
	<ul style="list-style-type: none"> ◆ Transportation costs and logistics are a major consideration, so the ability to utilize empty backhauls may be a critical consideration.
Potential Viability	<ul style="list-style-type: none"> ◆ Viability is strongly dependent upon having sufficient markets that can be accessed cost effectively in terms of transportation of the ash: <ul style="list-style-type: none"> ▪ The price the purchaser is willing to pay ideally should be at least as much as the transportation costs. ▪ If this is not the case, Nova Scotia Power would need to determine if savings in landfill costs sufficiently outweigh any costs of subsidizing the transportation costs. ◆ There may be some technical issues to work out and minor processing and quality control procedures required to ensure consistency of product quality.
Priority / Time Frame	<ul style="list-style-type: none"> ◆ High Priority ◆ Short Term (initiate within 1-2 years)
Recommended Actions or Next Steps	<ul style="list-style-type: none"> ◆ Meet with and/or survey local and regional cement companies to determine their interest in using ash products in their mixes, including product quality issues and quantities required. ◆ Undertake similar consultations with the region's agricultural sector.

6 – OPPORTUNITIES DEVELOPMENT AND IMPLEMENTATION

The consultations, research and analysis of this study have resulted in identification of specific supply chain and value added opportunities that can be pursued by strait area businesses, including processing and distribution of some by-products and waste streams. There are a total of sixteen diverse recommended priority opportunities that were analyzed in the preceding two chapters of this report and now need to be moved forward to their next stage of development and implementation.

SUMMARY OF RECOMMENDED PRIORITY OPPORTUNITIES

The various opportunities identified are at different stages of conceptualization, development and implementation, so it is helpful to break them into two categories which have different implementation needs:

- ◆ Opportunities that are already proceeding with proponents in place
- ◆ Opportunities requiring leadership or additional proponent(s) in order to move forward

A recommended opportunities summary table for each of these two categories has been prepared and shown in Figures 6.1 and 6.2.

Recommended Opportunities Already Proceeding with Proponents in Place

In Figure 6.1 there are six priority opportunities listed, for which proponents are already in place and actively pursuing the opportunity. For these opportunities the following types of implementation actions may be helpful and could be coordinated by the Cape Breton Partnership and Strait Area Chamber of Commerce in conjunction with other partners:

- ◆ Facilitating communications and awareness within the region's business community, particularly other prospective partners or supply chain linked businesses that could participate in these opportunities.
- ◆ Advocacy in support of proponents and their partners to influence government policies and regulatory mechanisms (if appropriate) that may be unduly constraining implementation of specific opportunities.
- ◆ Facilitating additional research and analysis that may be required to take development and implementation of the opportunity to the next stage.

Figure 6.1: Recommended Priority Opportunities Being Pursued by Proponents

Category	Opportunity	Proponent(s)	Time Frame	Priority
Inputs for Manufacturing, Processing and Product Assembly	1. Sourcing / Production of Additional Biomass within Region	NSP Biomass Co-gen Plant	Short Term	High
	2. Expanding Port Hawkesbury Paper's Supply Chain in the Strait Area	Port Hawkesbury Paper	Immediate and Ongoing	High
Business and Industrial Services	3. Petroleum Products Storage and LNG Import and Export Terminals	NuStar Energy, H-Energy, Anadarko Petroleum	Short and Medium term	High
Specialized Training and Education	4. Customized Industry Specific Training and Marine Training/Certification	NSCC Strait Area Campus	Immediate and Ongoing	High
Value Added and By-Products of Production Processes	5. Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics	Port Hawkesbury Paper	Short Term	High
Processing, Distribution and Reutilization of Waste Streams	6. Ash from Point Tupper Generating Station and Port Hawkesbury Co-gen Plant	Nova Scotia Power	Short Term	High

Source: Study team consultations, research and analysis

While all of the preceding are important opportunities to pursue, the top three priorities in terms of the potential scale of economic impact for the region are:

1. Petroleum Products Storage and LNG Import and Export Terminals
2. Use of Cellulose-Derived Sugar to Produce Compostable/Bio-Degradable Bio-Plastics
3. Sourcing / Production of Additional Biomass within Region.

Recommended Opportunities Requiring Leadership or Additional Proponent(s) to Move Forward

Figure 6.2 lists the other ten priority opportunities identified, that either require a lead proponent(s) to move forward, or require additional proponents to more fully pursue the opportunity (such as using fish oil to make bio-fuel). To facilitate implementation of these opportunities the Cape Breton Partnership and Strait Area Chamber of Commerce, in conjunction with other partners could coordinate the following types of initiatives:

- ◆ Facilitating additional research and analysis that may be required to refine specific opportunity concepts, in order to initiate development and implementation.

- ◆ Creating an awareness of these opportunities and their merits within the region’s business community, particularly other prospective partners and linked businesses that could participate in these opportunities.
- ◆ Based on further business community consultations, identifying a suitable proponent(s) who can take the lead in developing and implementing the opportunity
- ◆ Advocacy in support of proponents and their partners to influence government policies and regulatory mechanisms (if appropriate) that may be unduly constraining implementation of specific opportunities.
- ◆ Facilitating access to funding assistance for eligible initiatives, where appropriate.

Figure 6.2: Recommended Priority Opportunities in Need of Lead Proponent(s)

Category	Opportunity	Time Frame	Priority
Inputs for Manufacturing, Processing and Product Assembly	7. Sourcing Skilled Trades in Rural Inverness County	Short Term	High
	8. Incremental Sourcing and Production of Wood Chips within Region	Short Term	High
	9. Developing and Marketing “Buy Local” Agricultural Products	Medium Term	Medium
Business and Industrial Services	10. Transportation Logistics Management	Short Term	High
	11. Industrial Equipment and Technology Maintenance Services	Short Term	High
	12. Incremental Ship Repair, Maintenance and Supply Services	Immediate and Ongoing	High
	13. Offshore Oil and Gas Industry Service Hub	Medium and Longer Term	High
Suitable Housing Supply in Inverness-Mabou Area	14. Housing Development in Inverness-Mabou Area	Short Term	High
Value Added and By-Products of Production Processes	15. Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil	Ongoing and Short Term	High
Processing, Distribution and Reutilization of Waste Streams	16. Processing of Crab Shell Waste into Value Added Products	Medium Term	High

Source: Study team consultations, research and analysis

The top three priorities from this list in terms of the potential scale of economic impact for the region are:

1. Offshore Oil and Gas Industry Service Hub

2. Incremental Ship Repair, Maintenance and Supply Services
3. Incremental Sourcing and Production of Wood Chips within Region.

RECOMMENDED STRATEGIC AREAS OF FOCUS

In proceeding with implementation of the recommended priority opportunities and other business and economic development opportunities that may currently exist or arise, it is important for the Strait Area to focus its efforts strategically. The majority of the preceding opportunities fall into one or more of the following four strategic industry sector groupings that were included in the priority sectors identified in the original *Prosperity Framework* study:

- ◆ **Oceans and marine sector.** This sector has historically dominated the economy of the Strait Area and continues to be a key economic driver in the 21st century, with substantial growth potential looking forward. The following priority opportunities identified in the current study fall into this sectoral group:
 - 3. Petroleum Products Storage and LNG Import and Export Terminals
 - 4. Customized Industry Specific Training and Marine Training/Certification
 - 12. Incremental Ship Repair, Maintenance and Supply Services
 - 13. Offshore Oil and Gas Industry Service Hub
 - 15. Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil
 - 16. Processing of Crab Shell Waste into Value Added Products
- ◆ **Energy sector.** The Strait Area has a long history in the energy sector going back several decades. It has been a centre for petroleum products refining, storage and shipping since the 1970s and continues this role in the conventional energy sector, as well as new roles as a centre for bio-energy, offshore oil and gas servicing, and potentially LNG importing and exporting. Several of the recommended priority opportunities are related to the energy sector:
 - 1. Sourcing / Production of Additional Biomass within Region
 - 3. Petroleum Products Storage and LNG Import and Export Terminals
 - 13. Offshore Oil and Gas Industry Service Hub
 - 15. Fish Oil as a Bio-fuel and Supplement/Complement to Heating Oil

Development and implementation of these opportunities will further strengthen the Strait Area's role in the energy sector.

- ◆ **Transportation and supply chain hub.** The Strait Area has been an international trans-shipment hub for petroleum products and other bulk commodities for decades. The presence of the Strait Superport along with adjacent rail and highway connectivity provide the base infrastructure for further development in this role. A notable planned project is the Melford Maher Inter-modal Container Trans-shipment Terminal. Some of the recommended

priority opportunities will help reinforce the Strait Area as an international transportation and supply chain hub, including the following:

- 3. Petroleum Products Storage and LNG Import and Export Terminals
 - 10. Transportation Logistics Management
 - 12. Incremental Ship Repair, Maintenance and Supply Services
- ◆ **Leading edge manufacturing and processing.** Pulp and paper manufacturing, seafood processing and steel fabricating also have a long history in the Strait Area and continue to be major sources of high quality jobs and income for the region. Recommended priority opportunities that will help to reinforce this component of the Strait Area economy include the following:
- 2. Expanding Port Hawkesbury Paper's Supply Chain in the Strait Area
 - 5. Use of Cellulose-Derived Sugar to Produce Compostable Bio-Plastics
 - 8. Incremental Sourcing and Production of Wood Chips within Region
 - 16. Processing of Crab Shell Waste into Value Added Products.

KEY IMPLEMENTATION STEPS

Upon completion of this study, several steps will need to be followed in order to effectively facilitate development and implementation of the various recommended opportunities. These steps are briefly described in the following paragraphs:

- 1. Finalize study report and create awareness of study findings among Strait Area businesses.** Once this report is finalized the Cape Breton Partnership and Strait Area Chamber of Commerce should initiate awareness of the project's completion and provide some initial information to the business community about the types of opportunities identified. This could be done in the form of an e-mail blast to the business community, circulating a preliminary media release summarizing a few of the key opportunities identified that appear to have strong potential to proceed.
- 2. Present key findings at a meeting with the Strait Area business community.** It may be appropriate to convene a third Strait Forward event as a follow-up to the Strait Forward Conference in May 2013 and the subsequent Roundtable Meeting for this study in October 2013. The focus of the session would be to present the overall findings, particularly the list of opportunities that were analyzed in the report and appear to have strong potential. The session may be a good opportunity to obtain insights from the business community regarding implementation, as well as for encouraging participation in specific initiatives.
- 3. Establish an ongoing Strait Forward Committee to monitor and facilitate implementation.** To ensure the progress of implementation activities there must be a formalized organizational and leadership mechanism in place to achieve this. We recommend formation of an ongoing Strait Forward Committee to monitor and facilitate the

implementation process. This Committee could consist of representatives from the Cape Breton Partnership, Strait Area Chamber of Commerce, and other partners such as Enterprise Cape Breton Corporation (ECBC) and Nova Scotia Department of Economic and Rural Development and Tourism (ERDT). Resources should be allocated to assist the Committee in moving forward the priority recommendations in a timely and collaborative manner.

- 4. Prioritize initiatives to pursue in the short term.** In this report we have provided a preliminary indication of the priority and implementation time frame for each opportunity that was analyzed. Based on input and feedback at the meeting noted above in step 2, the Strait Forward Committee should clearly identify the opportunities it will focus on facilitating over the short term – the next 1-2 years.
- 5. Organize the implementation process and agree on roles and responsibilities of principal stakeholders.** Potentially many organizations may be involved in the implementation of the multitude of opportunities identified in this report. The principal organizations that will facilitate the implementation process are the Cape Breton Partnership, working with the Strait Area Chamber of Commerce, ECBC, ERDT and other regional stakeholders. Technical and funding support for implementation of some opportunities may involve agencies such as ECBC and ERDT, among others.
- 6. Liaise with the identified existing and prospective proponents to facilitate pursuit of the priority opportunities.** Ongoing communications and liaison with the proponents of specific priority opportunities is essential to maintain momentum and ensure effective implementation. This will ensure that facilitating organizations fully understand the ongoing issues and needs of the businesses involved, particularly in relation to any advocacy support and technical or regulatory requirements that need to be investigated.
- 7. Identify and pursue potential proponents for opportunities where no proponents have come forward.** As noted earlier, there are ten priority opportunities identified for which there are no specific proponents at this point or require additional proponents to proceed further. There will be a need to work with the business community to identify companies that could possibly be proponents and encourage their participation in implementing specific opportunities from which they will benefit.
- 8. Provide advocacy support for companies to facilitate access to public sector funding resources and technical support, where appropriate.** It is possible that some opportunities may require public funding assistance to proceed and that this can be justified because of the economic benefits that will result (new jobs and other impacts), as well as possible environmental benefits. In these situations the Cape Breton Partnership, Strait Area Chamber and their partners could provide advocacy support for the proponents to help them secure this assistance.
- 9. Leverage the region's industrial parks infrastructure to support opportunities development.** The Strait Area is home to a number of existing industrial parks that are

underutilized with serviced sites, buildings and land available that could be deployed as catalysts for some of the priority opportunities that are outlined in this report. A comprehensive plan on how to leverage and position the Strait region's industrial parks should be undertaken in the near-term.

- 10. Monitor and evaluate progress of implementation on an ongoing basis.** We recommend that the implementation of the opportunities identified in this study be monitored systematically with regular updates on implementation progress provided to all organizations involved and to the business community at large. A more comprehensive evaluation of progress and issues that need to be addressed to further facilitate implementation could be done on an annual basis.

APPENDIX A – RESULTS OF INITIAL *STRAIT FORWARD* CONFERENCE

An important economic initiative of the regional business community and its partners was the Strait Forward Conference, which took place on May 16th, 2013, in Port Hawkesbury. The Strait Area Chamber of Commerce, in cooperation with the Cape Breton Partnership, Enterprise Cape Breton Corporation, and the Nova Scotia Department of Economic and Rural Development and Tourism, hosted this conference to advance the cause of diversification of the Strait area economy. They did so at a time of particular economic challenge with the pending closure of one of the region's largest employers and most influential enterprises.

In the Conference sessions community and business representatives from the Strait region and Mulgrave, as well as other regions of Cape Breton, considered the short and long-term economic opportunities, as well as the challenges facing the area and proposed tactics to address these issues. In this context it was agreed that a rigorous study of the area's supply chain is necessary in order to better understand gaps in supplies and services, as well as to promote regional assets. This has led to the present Supply Chain Analysis and Business Opportunities Study.

Priorities Suggested by Strait Forward Conference Participants¹

Participants at the Conference were invited to outline three priorities for the Strait Region, as well as to identify three challenges to be addressed immediately. The most repeated priorities in the session focused on port development and the Oceans Sector, with the following suggestions:

- ◆ Grow the Oceans Sector through NSCC, ports and related businesses, including aquaculture.
- ◆ Develop a consensus on the Strait Superport by engaging stakeholders.
- ◆ Re-invest “harbor bottom” fees locally to support the port's leadership role.

A second significant group of suggested priorities at the Conference were related to entrepreneurship and supporting its development, as reflected in the following ideas that were put forward:

- ◆ Improve productivity through innovation and teaching entrepreneurship.
- ◆ Map the regional assets and strengths and then plan strategically. *[This has been done to a large degree in the Prosperity Framework and is being taken a step further in the current study.]*

¹ Based on summary notes prepared by Ian McNeil, Manager, Prosperity Framework

- ◆ Align strategic plans with regional, Atlantic, Canadian and global priorities.
- ◆ Adopt a “Can Do” attitude.
- ◆ Facilitate investment readiness on all levels, playing to strengths and developing the brand.
- ◆ Create one portal for economic development.
- ◆ Create the “Strait Area Regional Municipality”.
- ◆ Create a new economic development entity or industrial commission (to replace Strait-Highlands RDA).
- ◆ Assist graduates with technical expertise to find local employment.
- ◆ Diversify the economy.
- ◆ Maximize “bio-economy/biomass” opportunities.
- ◆ Strait Area Chamber of Commerce should lead development and implementation of the economic agenda.
- ◆ Encourage/facilitate more collaboration between businesses and educational institutions like NSCC.
- ◆ Develop and maintain innovative, cutting-edge services.
- ◆ Develop new products for the export market.

While some of these priorities are already being dealt with in the context of the *Prosperity Framework*, several are addressed in the current study.

The remaining suggested priorities articulated by Conference participants included:

- ◆ Increase the region’s energy security (focus on renewable energy).
- ◆ Market what we have to attract quality investment.
- ◆ Invest in the next generation through enhanced education and workforce readiness initiatives.
- ◆ Strengthen labour attraction and retention through innovative compensation.
- ◆ Participate in *Prosperity Framework* committees.
- ◆ Improve connectivity (e.g. enhanced electronic communications infrastructure).
- ◆ Report on the progress of Strait area economic development initiatives.
- ◆ Create housing options for professionals.

Challenges Identified by Strait Forward Conference Participants²

Conference participants also identified three challenges to be addressed immediately in the Strait Region, the most important of which were related to improving investment readiness. The various challenges noted represent an action agenda for the Strait Area, several of which are addressed in the current study. Examples of challenges to be addressed included the following:

- ◆ Undertaking initiatives to improve infrastructure, especially Internet access.
- ◆ Creating a brand to highlight strengths, rather than focusing on limitations.
- ◆ Enhancing access to capital to facilitate business start-ups, expansion and diversification.
- ◆ Achieving consensus on the Strait Superport.
- ◆ Building a coherent port management system.
- ◆ Identifying sector leaders and forming committees to facilitate initiatives.
- ◆ Attracting skilled tradespeople.
- ◆ Solving energy source/pricing issues.
- ◆ Determining health care capacity.

The next group of challenges identified focused on mobilizing people in the Strait region to work together. These represent additional potential action items for stakeholders:

- ◆ Integrating stakeholders and working together, on the same page.
- ◆ Engaging the private sector, which is perceived as being more efficient and innovative.
- ◆ Circulating relevant and current information to businesses and other stakeholders.
- ◆ Building awareness of the need to reach global markets.
- ◆ Determining the goals and aspirations of youth/students.
- ◆ Creating an “inbound” trade mission.
- ◆ Defining the Strait region. *[For purposes of the present study the Strait area or region is the geographic area encompassed by Inverness and Richmond Counties, the Town of Port Hawkesbury and the Town of Mulgrave.]*
- ◆ Amalgamating the “Quad Counties”.
- ◆ Creating an “open for business” mindset at municipal levels.
- ◆ Building ten houses in Inverness/Richmond counties.

² Based on summary notes prepared by Ian McNeil, Manager, Prosperity Framework

While some of the suggested priorities and challenges may not be realistic or are overly specific, the majority can be addressed in the context of the *Prosperity Framework* and follow-up initiatives, including the present Supply Chain Analysis and Business Opportunities Study.

**APPENDIX B – AGENDA FOR ROUNDTABLE MEETING WITH STRAIT
AREA BUSINESSES**



Strait Forward Business Opportunities Roundtable
Local Supply Chain Linkages and Value-Added Waste/By-Products Utilization

Wednesday October 2nd, 2013 – Maritime Inn, Port Hawkesbury
11:30 am to 2:00 pm

AGENDA

- ◆ Welcome and Introductions – 11:30 - 11:35 am
- ◆ Framing Discussions: Presentation – 11:35 - 11:45 am
- ◆ Discussion Topics – 11:45 am - 1:45 pm
 - Supply Chains (products and materials): What production process inputs (including raw materials and manufactured inputs/parts/products) are sourced from beyond the Strait Area/Mulgrave, but could be produced or supplied locally?
 - Business Services: What business services are sourced from beyond the Strait Area/Mulgrave that are available locally?
 - Waste Materials: What materials and by-products are generated by local enterprises that could be used by other local enterprises where they have value?
 - Local Sources: What companies/enterprises locally are seen as having the potential to become part of the supply chain to other local companies?
 - Potential New Businesses: What local opportunities could be pursued to meet the supply chain needs of Strait Area/Mulgrave companies and to add value to by-products and waste products currently produced locally?
- ◆ Concluding Comments and Next Steps – 1:45 - 2:00 pm



APPENDIX C – LIST OF REFERENCES

The following documents and information sources were reviewed in connection with the research for current study:

Cape Breton Island and Mulgrave Strategic Framework for Economic Prosperity, 2011-12 (prepared by Economic Growth Solutions Inc. and Dan White & Associates Ltd.)

Cape Breton Prosperity Study, Enterprise Cape Breton Corporation, 2009

“Coal Fly Ash in Agriculture: Beneficial or Risky?” by J.S. Singh in *Science Reporter*, June 2012.

“Corbion Purac Sugar Project – Port Hawkesbury Paper”, Backgrounder, June 2013

Detailed Sector Profiles of the Cape Breton Economy, Prepared for Enterprise Cape Breton Corporation, September 2008

Feasibility of Producing Value Added Products from Snow Crab Processing Waste in Cape Breton, Nova Scotia, prepared for Nova Scotia Department of Fisheries and Aquaculture, January 2010.

“H-Energy eyes \$3b gas project”, *The Chronicle Herald*, May 15, 2013

Mabou & District Community Development Association Community Newsletter, March 2012

Major Project Opportunity Assessment and Asset Map, prepared for Enterprise Cape Breton Corporation, 2013

New 5-Year Strategic Economic Plan for the Strait-Highlands Region, Strait-Highlands Regional Development Agency, November 2008

“NS Power’s Port Hawkesbury Biomass Plant generating firm, renewable energy”, media release from Nova Scotia Power, October 30, 2013

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“Optimizing the Use of Fly Ash in Concrete” in *Concrete Technology*, 2007

Port Hawkesbury Paper, overview brochure and data sheet

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APPENDIX C

Pro Farm Energy Inc. – information from website

Strait-Highlands Regional Development Agency Annual Report, 2009-2010, May 2010

Strait of Canso Superport Corporation – information from website