FINAL REPORT

Sydney Harbour Shuttle Feasibility Study
Final Report

CAPE BRETON REGIONAL MUNICIPALITY

Project No. 115812020

Submitted by:

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SYDNEY HARBOUR SHUTTLE FEASIBILITY STUDY

FINAL REPORT

This report has been prepared for Cape Breton Regional Municipality, which has received financial assistance from the Federation of Canadian Municipalities Green Municipal Fund and Enterprise Cape Breton Corporation. The report summarizes research investigating the feasibility of a shuttle ferry serving Sydney Harbour between the community of Westmount and Downtown Sydney.

Prepared by Stantec Consulting

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EXECUTIVE SUMMARY

INTRODUCTION

The concept of a pedestrian ferry arises from the CBRM Active Transportation Plan, which was prepared for the Municipality by the IBI Group and Stantec in 2008. The ferry has an important potential role in traversing the Harbour and eliminating roughly 8 kilometers of travel for cyclists and pedestrians as well as automobile users seeking to connect between Westmount and Downtown Sydney. The proposed marine crossing as shown in the AT Plan is a very short route covering just more than half of a kilometer between Westmount and Downtown Sydney. The ferry is expected to serve only pedestrians and cyclists, making it much easier to establish than a car ferry.

This report summarizes the results of research conducted by Stantec team members for the assignment over the period from January through March 2013. Project team members investigated passenger ferries across North America, researched the domestic and tourist markets, and examined ferry route and vessel options.

The consultants interviewed a wide range of knowledgeable local stakeholders, including the Regional Councilors representing Westmount and Downtown Sydney, as well as representatives of the Dobson Yacht Club in Westmount and the Enterprise Cape Breton Corporation, which respectively own the two properties that appear to have the most potential to host a ferry service on either side of the Harbour. Others interviewed included local business and tourism operators, several individuals with expertise in marine vessel construction, refit, and operation.

MARKET OVERVIEW

Substantial neighbourhoods are located on the Harbour shores. CBRM's Planning Department plotted dwelling units and non-residential land uses by distance from preferred ferry landing points in Westmount and Downtown Sydney. The total of nearly 8,000 dwelling units within 2,500 meters of the two sites suggests a population of 20,000 to 25,000.

In support of this study, CBRM's Planning Department dropped off questionnairesat 1,000 homes in the Westmount area to which 337 households responded. Responses revealed that 25.9 per cent of350 individuals for whom respondents reported a place of work work are employed in the Downtown. In total, 46.0 per cent have work places located on the east side of the Harbour and reasonably accessible on foot or bicycle from the Downtown waterfront (*i.e.*, Downtown itself, the Regional Hospital, Mayflower Mall, and the Welton/Grand Lake Road area).

One segment of the market that has the potential to grow is tourism, particularly tourists visiting CBRM on cruise ships. Overall, visitation to Cape Breton Island has been static in recent years as has visitation to most of Atlantic Canada since 9/11 and the revival of the Canadian dollar relative to the American dollar. Cruise ships, on the other hand, have been a strengthening component of

Cape Breton's tourist market. Cruise ship sailings have been increasing significantly worldwide and visits to Sydney Harbour have risen with this general trend. Contacts with Sydney Ports Corporation indicated that 72 cruise ships are expected for 2013, which would represent a 26 per cent increase over 2012. These vessels are expected to carry approximately 120,000 passengers and 51,000 crew. The port is capable of handling three or four cruise ships at a time with current facilities, allowing for considerable further growth in visitation.

ROUTE AND VESSEL OPTIONS

Currently preferred docking sites for the proposed ferry include Dobson Yacht Club in Westmount and the Royal Cape Breton Yacht Club in Downtown Sydney. A route joining the two yacht clubs would cover 600 meters. While travel time will vary somewhat dependent on the vessel employed, the trip between the two locations should take about six minutes.

Year-round operation of a ferry in Sydney Harbour is unlikely. All but one of the interview subjects contacted envisioned the proposed ferry as operating only in summer and early fall. Respondents also favoured daytime operation only. Most felt that operation during commuting peaks would be insufficient. The consensus appeared to be that commuters would not be the key user group. Most respondents felt that the ferry would be most attractive to casual users who would be inclined to use it on pleasant days to visit or shop across the Harbour, or, perhaps, to access Petersfield Provincial Park from the Downtown. Discussions of fares were limited. Those who addressed the subject generally suggested $2 to $2.50 each way.

It is assumed that the proposed ferry should qualify as a small commercial vessel no larger than 15 tons gross tonnage and carrying no more than 12 passengers. Vessels of all types are subject to detailed Transport Canada requirements governing not only operating personnel and their qualifications, and safety equipment briefly but also concerning vessel design and power requirements, operating procedures, and other considerations that vary dependent on the type on boat and its intended application(s) (e.g., passenger carrying, fishing, cargo carrying).

Two vessels types were considered for the ferry: a pontoon boat or a remodeled fishing boat. Pontoon vessels are popular and inexpensive recreation boats. Pontoon boats in the 20 to 25-foot range are capable of carrying 10 to 12 passengers in addition to a driver, and can be bought new for less than $25,000, including an outboard engine and canopy. The boats normally provide the unobstructed wraparound view for the driver required by Transport Canada and allow the driver to disembark conveniently. They are also very stable and will not roll significantly even in heavy seas. Their inherent stability also provides a steady platform for passengers to come aboard and leave the vessel, even elderly and disabled users. Side railings offer good attachment points for bicycle racks either on the outside or inside.

Another attractive ferry boat option would be a fishing vessel like a Cape Islander. Cape Islanders have high bows and broad flat sterns. The general configuration should work well to shelter the ferry driver and passenger from waves and spray. The flat and wide after section is well-suited to positioning seating for passengers. The freeboard is also relatively low behind the cabin in most versions making it reasonably easy to step onto from a floating dock as well as to disembark from. As with pontoon boats, a reasonably sized Cape Islander should provide several surfaces to which bike racks or similar storage facilities can be attached. In larger vessels it is likely that bicycles

could be stored in the cabin, if one is present, although the aft portion of the cockpit area is probably an ideal location to keep bicycles out of the way but quickly accessible to their riders. Most Cape Islanders will have more than enough width in this area for a bicycle.

FINANCIAL SUMMARY

The least expensive option is a pontoon boat, largely because it combines low initial cost for acquisition and refit (which would strictly be customization of a new vessel as opposed to adaptation of an existing one) and lower operating costs. The spread between the most expensive option (a purpose-built Cape Islander) and the least (a new pontoon vessel) is however only about $30,000 per year after amortization of the capital costs at 4.0 per cent annually.

Revenue is calculated on the basis of maximum potential ridership, which is identical for all vessel options, given that all are expected to carry the same number of passengers and charge the same fares. It is assumed that the ferry will run ten roundtrips daily for all seven days of the week over the period from July through October (*i.e.*, 123 days). Maximum annual ridership, therefore, is based on 12 riders x 10 roundtrips x 123 days or 14,760 roundtrip fares. At the fare level generally deemed acceptable by focus group participants -- $2.50 one-way or $5 per roundtrip – maximum revenue potential would equal $68,634, taking into account a 7 per cent allowance for discounts to children and seniors (based on an average 20 per cent discount applied to one-third of all fares).

This is not a sufficient sum to cover total estimated costs. Even if all available seats could be sold, a ferry relying on a new built Cape Islander or similar type vessel would lose $18,258 per year. Reliance on a less expensive used vessel or pontoon boat could put the service into the black but for a used fishing vessel would need to sell 93 per cent of seats and a pontoon boat would require 82 per cent ridership, levels of ridership that will likely be very difficult to attain. Raising the roundtrip fare to $7.50 would increase potential revenue to $102,951. This would be sufficient to cover costs under all three scenarios considered, although ridership levels of 54 per cent for a pontoon boat and 81 per cent for a new fishing type vessel would be required.

It will be challenging to generate a profit with a shuttle ferry as defined for this study. Covering costs will require fare levels that are likely to be beyond the tolerance of local residents. Acceptable fares, on the other hand, will only cover costs at unrealistic levels of ridership.

One potential operator with the necessary resources and appropriate experience has offered to establish a ferry service on a pilot basis. We would advise that CBRM should encourage this individual to pursue his interest with all reasonable facilitation and assistance. A trial over a two-week to one month period in the early summer of this year would allow the potential operator and other stakeholders to gauge the market potential of the service without significant public investment. It should be recognized in doing this, however, that transit routes, of which the ferry is a form, normally take time to build ridership and that significant numbers of tourists will not be available to supplement domestic ridership until August.

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1.0 INTRODUCTION

1.1 Ferry Proposal

The concept of a pedestrian ferry arises from the CBRM Active Transportation Plan, which was prepared for the Municipality by the IBI Group and Stantec in 2008. The Active Transportation (AT) Plan recognizes the cross harbour ferry as a "Proposed Signature Project." The plan does not recommend the implementation of a ferry as such. It anticipates the undertaking of a feasibility study to determine the viability of the idea before proceeding. This study is the required assessment and will provide CBRM Council with the information required to make a decision whether to proceed with implementation of the ferry proposal or not recognizing that the ultimate providers of the service may well not be the Municipality as private business and not for profit solutions are considered a priority.

The AT Plan contains little discussion of the ferry concept beyond portraying it on the AT Plan map as connecting to pedestrian routes planned for Westmount Road on the west side of the Harbour and King's Road on the east side (**Figure 1.1**). Without the ferry, cyclists and pedestrians will still have the option of using the planned King's Road link, which will connect to improved bicycle and pedestrian lanes on Westmount Road link near Sydney River Bridge. It will then follow the length of King's Road to the Esplanade where it will connect with the established waterfront walkway that offers an attractive promenade along most of the waterfront properties within the limits of the Downtown. The ferry nevertheless has an important potential role in traversing the Harbour and eliminating roughly 8 kilometers of travel for cyclists and pedestrians as well as automobile users seeking to connect between Westmount and Downtown Sydney. The land based improvements will continue to have a role for recreational cyclists and walkers and for residents along those trails who are closer to Sydney River than Westmount.

The proposed marine crossing as shown in the AT Plan is a very short route covering just more than half of a kilometer between Westmount and Downtown Sydney. The ferry is expected to serve only pedestrians and cyclists, making it much easier to establish than a car ferry. Conventional docks should be suitable for landing and passenger access and egress, although consideration will have to be given to the handling and storage of bicycles and, possibly, wheelchairs. A range of recreational and light commercial vessels can also be considered provided they meet all applicable regulations and safety requirements and are accessible to the general population and the disabled.

Figure 1.1 CBRM Active Transportation Plan, Signature Projects

Source: IBI Group, Stantec, *et al.*, CBRM Active Transportation Plan, August 2008

1.2 Ferry History

Ferries were once a regular feature of Sydney Harbour. There are many photographs of ferries that connected communities on the Harbour in late 19th and early 20th centuries. Indeed, historical researcher Ross Aitken has pointed out that a series of four ferries operated between Westmount and Sydney from 1899 to 1947. The best remembered of these four vessels was the 52-foot *Mary* (**Figure 1.2**), which operated from 1913 to 1931.The Cape Breton Electric Company also operated a service between North Sydney and Sydney during the same time period as a component of an electric tramway system that it also operated (**Figure 1.3**). Their vessel would at times stop in Westmount when the schedule provided time. In the early years of the 20th century Mr. Aitken has stated that as many as five ferries connected North Sydney to Sydney.

Figure 1.2 The Westmount to Sydney Ferry *Mary*

Source: courtesy of Ross Aitken, Sydney, NS

The Cape Breton Electric Company went bankrupt in 1931 and it appears that the ferry operation ended with the company, although employees in Glace Bay took over the tramway and kept it operating until 1947. The institution of a transit connection to Westmount was apparently critical to the closure of the Westmount ferry in 1947. The rise of automobiles over the longer term obviously reinforced the demise of ferries and impacted both electric and gas powered transit.

The last time that public transit operated between the communities of Westmount and Sydney was in 1994, when Transit Cape Breton ran a 16-passenger shuttle serving one route. It provided 30-minute peak hour service from 7:00 am to 9:00 am and 3:30 pm to 6:00 pm as well as 1 to 2 hour service between 11:30 am and 2:30 pm. Unfortunately, ridership was low at the time and the route was cancelled when Westmount residents declined to pay the levy charged on properties within 760 meters (2,500 feet) of the route that would have supported it.

Figure 1.3 North Sydney and Sydney Ferry Operated by Cape Breton Electric, 1910

1.3 Feasibility Study

Contemporary concerns with climate change and energy consumption as well as community health have revived interest in ferries. Many questions nevertheless need to be addressed before investing in the establishment of a service. Sydney is a medium-sized market and the local population has not increased for many years. Although the community of Sydney is the primary centre of population in the region, furthermore, it only accounts for a little more than 30 per cent of CBRM's population. Westmount takes in less than 3 per cent of residents..

The proposed ferry, on the other hand, should require minimal infrastructure. Potential hosts willing to offer free docking facilities and inexpensive supporting services appear to be available. The simplicity of the concept also suggests that a relatively inexpensive vessel will be sufficient and can be operated with reasonably low overheads.

The service may also be able to tap into cruise ship and other tourism markets in addition to local commuters. Tourism is an important economic activity for Cape Breton and CBRM. The rising cruise ship market, in particular, may augment domestic riders. A successful summer/fall service between Westmount and the Downtown may also support the development of additional routes. While other routes will inevitably be longer, they could connect to larger population centres with more potential riders.

This report summarizes the results of research conducted by Stantec team members for the assignment over the period from January through March 2013. Project team members investigated passenger ferries across North America, researched the domestic and tourist markets, and examined ferry route and vessel options.

The consultants interviewed a wide range of knowledgeable local stakeholders, including the Regional Councilors representing Westmount and Downtown Sydney, as well as representatives of the Dobson Yacht Club in Westmount and the Enterprise Cape Breton Corporation, which respectively own the two properties that appear to have the most potential to host a ferry service on either side of the Harbour. Others interviewed included local business and tourism operators, several individuals with expertise in marine vessel construction, refit, and operation (see: **Appendix A** for a list of interviews completed). Before Stantec began its work on the project, CBRM Planning Department staff also completed a survey of Westmount residents intended to gauge their interest in the proposed ferry service and the likely benefit they may be able to derive from it. A summary of results is provided in **Appendix B** and key findings are addressed at relevant points in the body of this report.

On March 14, 2013, after completion of substantial research that mapped out ferry options, Stantec consultants conducted two focus groups with stakeholders invited from the community. The groups included select CBRM staff, the aforementioned Regional Councillors, residents of Westmount and Downtown Sydney, and various individuals from the CBRM community including individuals with interests in the history of ferry operations in the Sydney area, and in the technical and financial challenges of contemporary ferry operations. These focus groups were well attended with 17 people at the afternoon session and 14 at the evening gathering.

The results of interview and focus group research are woven through following **Chapters 2** and **3**, which respectively address the market for a ferry available in CBRM through residents and tourism. These chapters also address the specifics of the proposed service including prospective landing points, integration with local transit, vessel needs and specifications, and other features of the proposed operation including seasons and times of operation. The outline of the proposed services provided in **Chapters 2** and **3** was critical to Stantec's development of the financial assessment presented in **Chapter 4**. The focus groups were also helpful toward defining the nature of the ferry operation and the willingness of citizens to pay to use it.

2.0 MARKET OVERVIEW

2.1 CBRM Demographics

The population of CBRM counted by the 2011 Census was 101,620. The cluster of communities around Sydney Harbour is the second largest urban concentration in Nova Scotia. Population has however been declining over a long period. Since 1996, the municipality has lost more than 16,000 residents (**Table 2.1**) and the decrease in local population dates from the 1961 Census. Projections recently prepared by Stantec and based on trends in the 2006 to 2011 period indicate that this decline will continue.

Table 2.1 Population by Broad Age Groups, CBRM, 1996-2031

Age	1996	2001	2006	2011	2016	2021	2026	2031
0-14	23,655	19,695	16,655	14,715	13,800	13,080	11,830	10,395
% Share	*20.1%*	*18.0%*	*15.7%*	*14.5%*	*14.3%*	*14.4%*	*14.0%*	*13.3%*
15-24	17,090	14,530	13,845	12,950	10,660	8,715	8,385	8,100
% Share	*14.5%*	*13.3%*	*13.1%*	*12.7%*	*11.0%*	*9.6%*	*9.9%*	*10.4%*
25-64	60,165	57,620	56,640	54,295	50,535	45,335	39,270	34,370
% Share	*51.1%*	*52.7%*	*53.5%*	*53.4%*	*52.3%*	*49.9%*	*46.4%*	*44.1%*
65+	16,925	17,475	18,820	19,675	21,700	23,670	25,160	25,140
% Share	*14.4%*	*16.0%*	*17.8%*	*19.4%*	*22.4%*	*26.1%*	*29.7%*	*32.2%*
TOTALS	**117,840**	**109,320**	**105,930**	**101,620**	**96,700**	**90,805**	**84,635**	**77,995**

Source: Census of Canada (1996 to 211), Stantec (2011-2031)

In 2006, similar demographic projections were prepared for CBRM that included a related study of population shifts within CBRM that has not been repeated with 2011 data. The 2006 analysis found that among six areas defined within CBRM by the Planning Department, the area of the former City of Sydney had the lowest population decrease. It was exceeded only by the Bras d'Or area, which showed a very modest gain in numbers. In all areas of the municipality, population is also aging markedly.

A realistic assessment of CBRM's demographic situation indicates that it would not be prudent to expect community growth to sustain any service in the community. If a new service such as the

Harbour Shuttle is established, it will have to grow in a community that is experiencing a decline in population by demonstrating its practical benefits and, possibly, through gradual extension of service to additional sites on the Harbour. Certainly, specific consideration needs to be given to the domestic seniors market, which is projected to increase by 5,000 to 6.000 people over the next 20 years. Tourists would be another source of ridership that could grow substantially over time.

Notwithstanding slow growth and out migration, substantial neighbourhoods are located on the Harbour shores. CBRM's Planning Department plotted dwelling units and non-residential land uses by distance from preferred landing points in Westmount and Downtown Sydney (**Table 2.2**). The numbers are substantial. The total of nearly 8,000 dwelling units within 2,500 meters (**Figure 2.1**) suggests a population of 20,000 to 25,000.

Table 2.2 Residential and Non-residential Structures by Distance from Proposed Ferry Landings, 2012

Distance	Residential (DUs)				Non-Residential	
	Westmount		Sydney			
	DUs	% Share	DUs	% Share	Structures	% Share
500 meters	84	9.8%	315	4.5%	283	22.7%
1000 meters	311	26.5%	1,317	14.4%	615	26.6%
1500 meters	574	30.8%	2,956	23.6%	760	11.6%
2000 meters	773	23.3%	4,493	22.2%	1,115	28.5%
2500 meters	855	9.6%	6,936	35.2%	1,246	10.5%

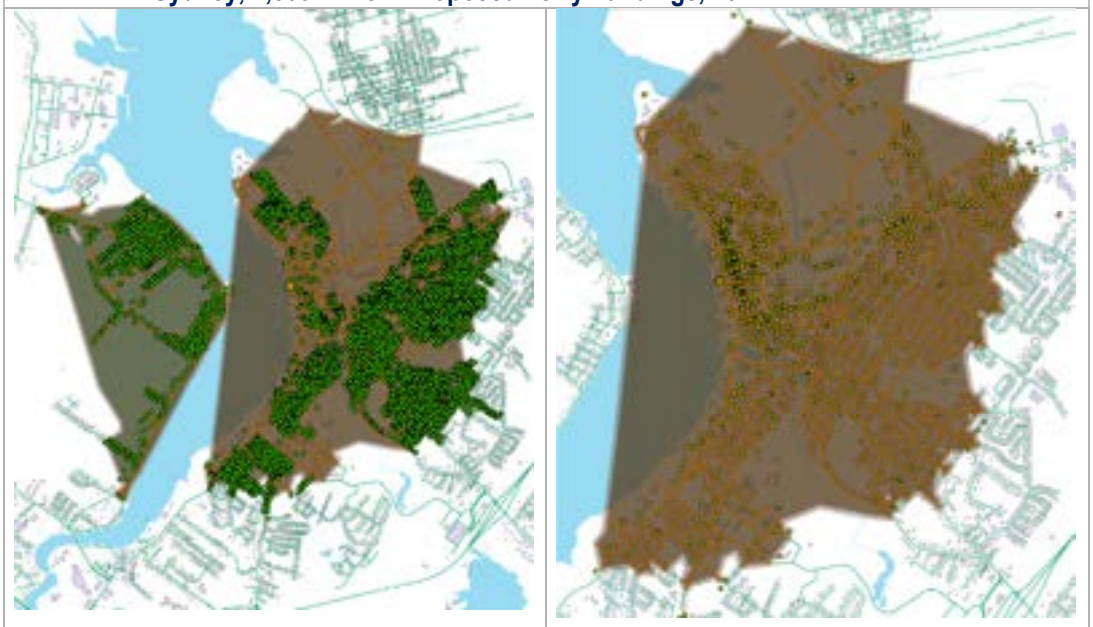
Source: CBRM Planning Department

Non-residential development is concentrated in Downtown Sydney, where several developments are being considered that have great potential to increase the number of residents living near the Sydney Harbourfront where they should enlarge the market for the ferry. Planning is also in the works to extend the boardwalk from the Royal Cape Breton Yacht Club (RCBYC) to the Marine Terminal. The boardwalk could also extend to the former engineering dry dock property to connect with a path that has been designed by the Sydney Tar Ponds Agency. As well, a mixed use development is being considered that could potentially house a new McConnell Library. Other future commercial and residential developments are also being contemplated on the Harbourfront in the area from Kings Road in the south to lands north of the Sydney Marine Terminal.

The waterfront lands flanking the Marine Terminal, as well as the Terminal property itself, are covered by the North End Secondary Planning Strategy approved by CBRM Council in 2006. The area plan regards this waterfront area as "present[ing] some of the greatest opportunities for development in Sydney." Of particular interest to this study is the Waterfront Southern Sub-Area: "An area, largely in private ownership, between the foot of Dorchester Street and the Sydney Marine Terminal." The area is subject to Policy 19 of the North End Secondary Planning Strategy, which envisions its redevelopment as a mixed use area with a significant residential component ("at least one third of all of the combined space of any proposed buildings"). It requires site plan approval for all development proposals in the area so as to ensure the extension of the waterfront boardwalk on the water's edge of each property and provision of sidewalk on the Esplanade as

well as a variety of additional objectives (*e.g.*, preservation of views, provision of landscaping and parking, design compatible with adjacent North End neighbourhoods).

Figure 2.1 Dwelling Unit and Non-residential Structures, Westmount and Downtown Sydney, 2,500 m from Proposed Ferry Landings, 2012



Source: CBRM Planning Department

A particularly strong possibility within this area is the RCBYC property, which was recently purchased by Enterprise Cape Breton Corporation (ECBC). ECBC intends to preserve the yacht club marina but anticipates redevelopment of the landholding. The property is viewed by many as the most logical landing point on the Sydney side for the proposed shuttle ferry. It offers good access to the North End and the Downtown via existing road and sidewalk networks – access that will be enhanced by boardwalk and sidewalk connections required by Policy 19.

The waterfront is already regularly used during summer months for concerts, festivals, and special events. The Municipality's annual Canada Day celebrations are centred on the waterfront and many aspects of Action Week, which covers nine days beginning with the Civic Holiday in early August, are also located there (*e.g.*, Buskers, games for children). The privately promoted Rock the Dock event is also hosted annually at the Joan Harris Cruise Pavilion at the north end of the waterfront, and church and community groups often set up concerts and events on the waterfront boardwalk over the course of the summer, particularly in July and August.

The preferred location for most events is the boardwalk area behind the Civic Centre. Parking limitations are an issue according to contacts with CBRM. For the most part, attendees park on the streets throughout the Downtown. Minor traffic jams are usually experienced at the close of larger events.

Contacts felt a ferry would be of interest to individuals attending special events on the waterfront. Several also pointed out that there is an annual Canada Event is Petersfield Provincial Park on the Westmount side and other events elsewhere on the Harbour's edge, most notably festivals in North Sydney and Sydney Mines. The Westmount Canada Day event might provide return passengers for the ferry on Canada Day and other events might support special trips as they occur or complement additional routes if they are implemented. The expected return of the Farmers Market to the Downtown would also provide a regular attraction on Saturdays.

The most notable non-residential land use in the Westmount area is the Canadian Coast Guard College at Point Edward (CCGC). The College has 106 officer cadets in residence on its Westmount property and employs about 100 staff. It also hosts about 75 other students at most times who attend short-term training programs. The Coast Guard currently provides a seven-seat van shuttle to carry students to Downtown Sydney on an as needed basis during specified hours. Employees living on the east side of the Harbour and students under specific circumstances would be potential users. The van shuttle, however, provides a free alternative that can be expected to undermine student interest in a ferry.

One factor that could have a positive effect on ferry ridership is the replacement of the Keltic Drive Bridge, which is planned to be carried out in 2013. The bridge was built in the 1950s and has seen repairs completed in recent years; however, due to the high cost of upgrades needed, Nova Scotia Transportation and Infrastructure Renewal recently determined that a new modern structure was needed. If a harbour ferry service could be set before construction of the new bridge, it could benefit from use by individuals who would otherwise use the bridge to cross Sydney River. Such use would generate publicity and raise awareness of the service, while allowing some commuters to avoid the detour and likely traffic congestion on the Peacekeepers Way Bridge.

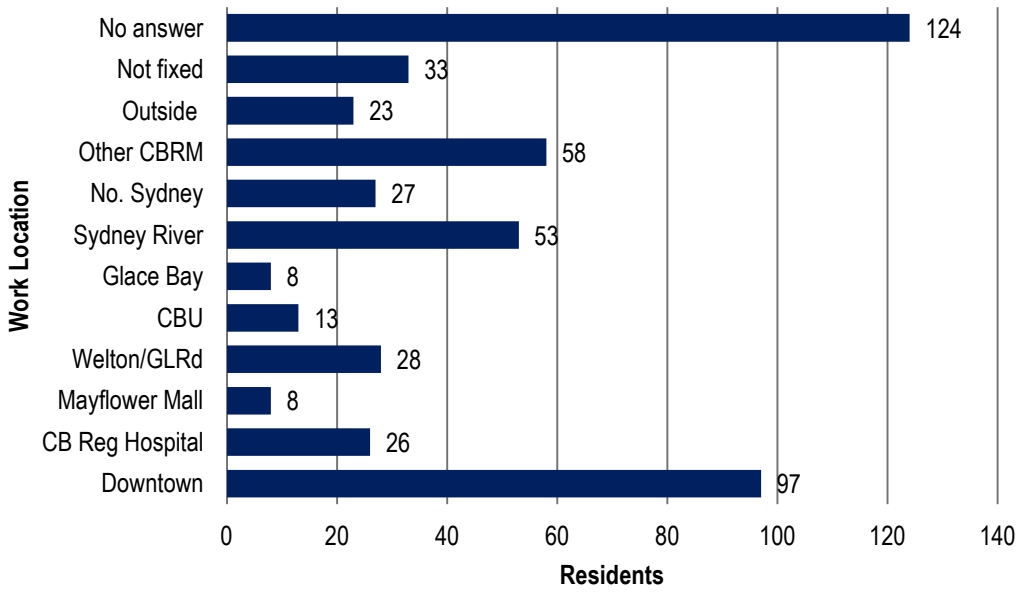
2.2 Community Interest and Support

In support of this study, CBRM's Planning Department undertook a survey of residents in Westmount, who are perceived to be the most likely users of a shuttle ferry. The survey was dropped off at 1,000 homes in the Westmount area and municipal staff picked up most completed surveys from the mailboxes of residents when (surveys could also be mailed to the CBRM Planning Department or dropped off at the Planning Department offices). Overall, 337 households responded to the survey, which is a good return on a survey of this type.

A critical question posed by the survey was the work locations of household members as Westmount residents working in the Downtown are the most likely group to find benefit in the proposed ferry. Responses revealed that the Downtown is the most common work place for residents but also indicated that its margin over other areas of the region is not that large. Of 350 individuals for whom respondents reported a place of work, 25.9 per cent are employed in the Downtown (**Figure 2.2**). In total, 46.0 per cent have work places located on the east side of the Harbour and reasonably accessible on foot or bicycle from the Downtown waterfront (*i.e.*, Downtown itself, the Regional Hospital, Mayflower Mall, and the Welton/Grand Lake Road area). The only remaining destination to the east, Glace Bay, is accessible to only the most ambitious cyclists but can be reached in about 40 minutes from the Downtown via Transit Cape Breton's Route 1 (New Waterford can be accessed via Route 9). Remaining destinations are on the same

side of the Harbour as Westmount (*i.e.*, Sydney River and North Sydney, which account for 21.4 per cent of workers), indefinite locations, or outside of the region altogether.

Figure 2.2 Residents Who Work by Location of Workplace, Westmount Household Survey, 2012



Source: CBRM Planning Department Survey

A following question asked about students in each household. In total, respondents identified 119 students, of which 18 or 15.1 per cent attend schools across the Harbour from Westmount (*i.e.*, Sydney Academy and Cape Breton University). The university is a significant distance (9 kilometers) from the Sydney waterfront but students there are in the age group that is most capable of making the trip by bicycle or on foot or using local transit (**Figure 2.3**). The survey found that 45 per cent of responding households owned at least one bicycle.

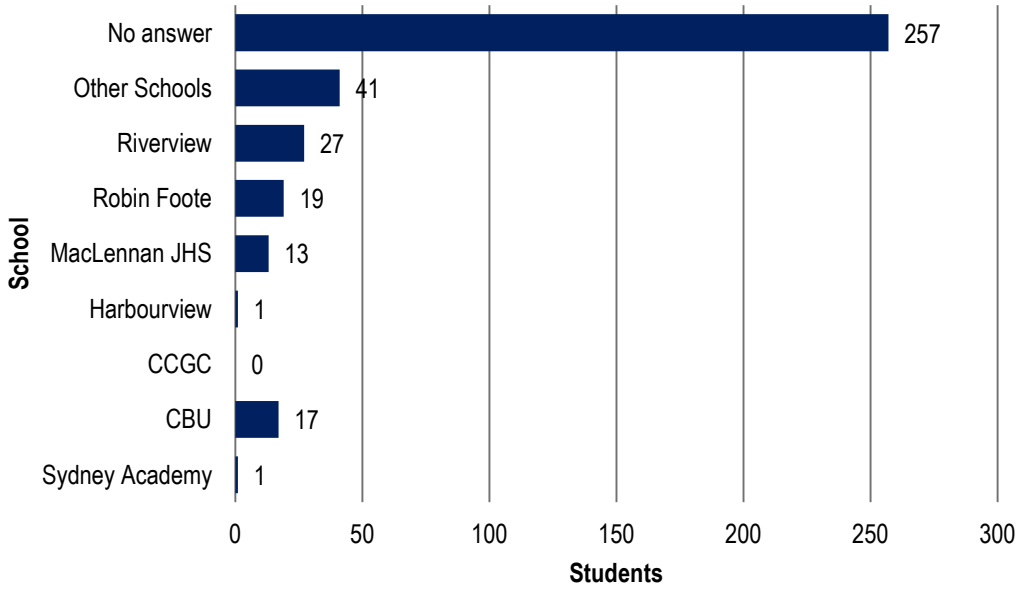
Respondents were also asked how many times they made trips to or from the Downtown in the course of a year. The total of 323 respondents who answered the question stated that they made 17,038 one-way trips to Downtown. The average number of trips was 52.7 per person with a maximum of 300 trips identified by two different respondents.

At the end of the survey, participants were provided an opportunity to comment on the idea of a pedestrian ferry. A total of 143 respondents took the opportunity. Of the 141 expressing their opinions, 91 or 63.6 per cent commented positively on the ferry idea, many as enthusiastically as following:

> A ferry service would be a welcome asset to the Westmount Community as well as providing positive economic growth for Downtown Sydney if used by persons who

would normally not get the chance to go to Sydney as the closest bus route is located at the CB shopping plaza. Great Idea!

Figure 2.3 Residents Who Attend School by Location of School, Westmount Household Survey, 2012



Source: CBRM Planning Department Survey

Many also asserted an interest to make use of the service:

> I think it is a fantastic idea! I am a stay at home Mom with 2 small children. Our family only has 1 car which is used by my husband to travel to and from work. If this shuttle was available to us we would use it. My husband would be able to travel to work this way and the children and I would be able to do more activity – get to the library for example. I like to keep the children active and they love going to playgrounds but there aren't any "fun" ones close to use. With this shuttle we could walk to Wentworth Park and their playground by the bandshell, the playground by the boardwalk, maybe we could even join the YMCA. Right now it wouldn't make sense to join as we cannot affordably get there (No bus service and a taxi would cost too much not to mention the need of an extra car seat). I am excited by the possibilities that this service would provide! Thanks!

> Everyone in my household has at least one bicycle and one person cycles year round for recreation and to travel to meetings or to shop. We think the shuttle is a great idea.

> A ferry service is an awesome idea and a need for those who wish to leave our cars at home. Since my family can only afford one vehicle. Having a ferry service would enable those left with no vehicle another way to travel into Sydney.

Sixteen (11.2 per cent), on the other hand, made negative comments, while 12 (8.4 per cent) indicated that although they were not necessarily opposed to the ferry, the money it will require could in their opinion be better spent improving bus service to the area as typified by the comment: A very nice idea! But cannot see it to be cost effective!

More strenuous objections were expressed by others:

> We consider a ferry to be a waste of taxpayer's money. We have lived in Westmount for 48 years. A bus running through Westmount once a day would take care of the needs here. The seniors would be unable to get from the ferry to their homes!

For the remaining 24 respondents (16.7 per cent), comments addressed miscellaneous issues that were not specific to the ferry project.

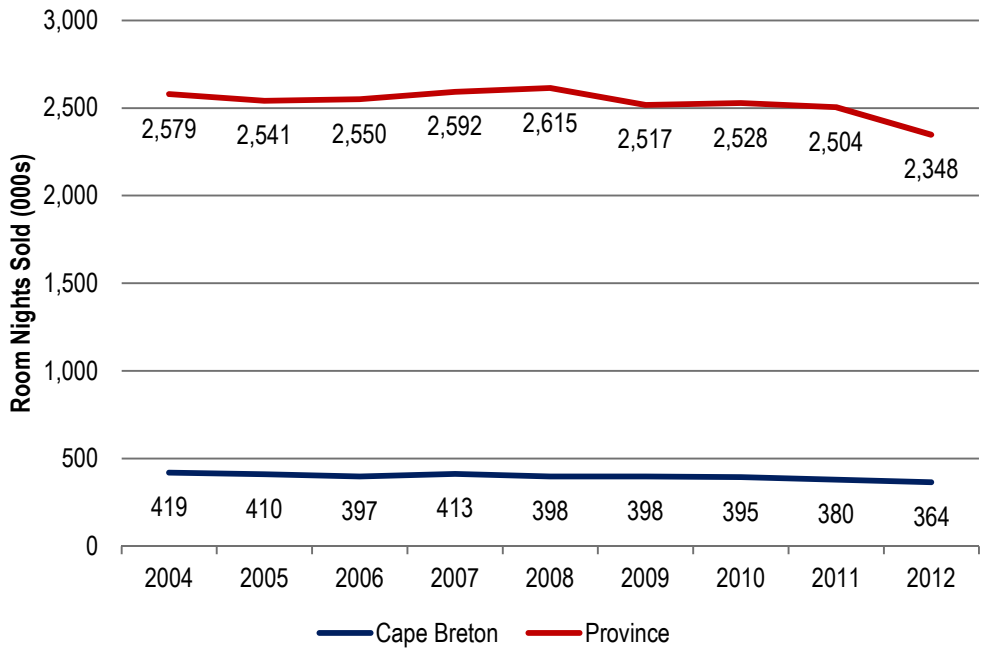
Local contacts from around CBRM interviewed by Stantec reflected similar opinions. For the most part, interview subjects were supportive of the ferry idea. Most respondents recognized the ferry proposal as an environmentally positive initiative that should help Downtown Sydney. Many, however, expressed concern with the likely level of ridership and, therefore, the financial viability of the service. Several inquired about additional stops that might provide a larger passenger base for the service and others suggested adaptations of the service such as partial operation as a water taxi that might improve viability. Some, however, expressed strong doubts that the service could be profitable under any circumstances.

Focus groups conducted by Stantec later in the project directly investigated the interest of the community in the ferry concept. Participants in the sessions conformed to a profile similar to the household survey and interviews. Most endorsed the idea of implementing a ferry but some expressed reservations about its cost. A few expressed strong skepticism; however, no focus group participant could be characterized as categorically opposed. Individuals with the greatest doubts conceded that implementation of a ferry would do no harm if it required no funding support from the Municipality.

2.3 Tourist Market

One segment of the market that has the potential to grow is tourism, particularly tourists visiting CBRM on cruise ships. Overall, visitation to Cape Breton Island has been static in recent years as has visitation to most of Atlantic Canada since 9/11 and the revival of the Canadian dollar relative to the American dollar (**Figure 2.4**). Cruise ships, on the other hand, have been a strengthening component of Cape Breton's tourist market. Cruise ship sailings have been increasing significantly worldwide and visits to Sydney Harbour have risen with this general trend. Cape Breton is within the Canada/New England cruise market, which ranked eighth in 2010 among 15 cruise destination groupings identified by the US Department of Transportation.

Figure 2.4 Room Nights Sold (000s), Nova Scotia and Cape Breton, 2004-2012



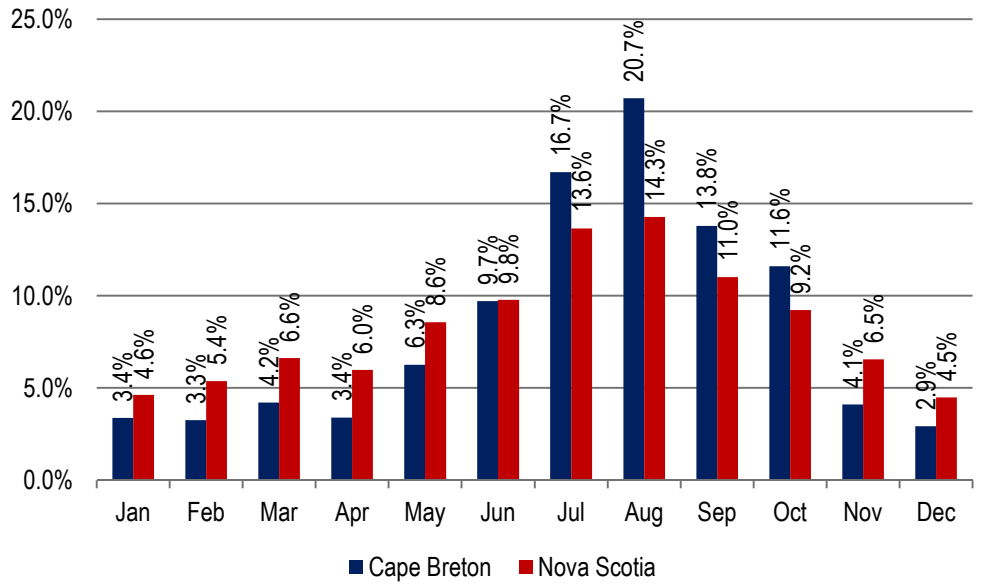
Source: Nova Scotia Economic and Rural Development and Tourism

Tourist visits by all modes to Cape Breton Island tend to peak in the late summer and early fall. The peak month is August, which attracted 29 per cent of visitors by date of exit from Nova Scotia in 2010. August is typically followed in order by September (20 per cent in 2010), July (17 per cent), October (11 per cent), and June (10 per cent). No other month accounts for more than 4 per cent of total visits.

Detailed monthly breakdowns of visits specifically to Cape Breton are not available but room nights sold information is an excellent proxy compiled by the Province. Data for 2012 shown in **Figure 2.5** indicate that Cape Breton experiences a stronger summer peak that the province as a whole. Room night figures exclude campers, RVers, and cruise ship passengers, as well as visitors staying with family, all of which form a larger proportion of visitors during the summer but the peak level of hotel/motel occupancy is strongly weighted to August in Cape Breton, followed by July, September, and October. Nova Scotia as a whole is strongly influenced by Halifax, which has much more balanced visitation over the course of the year.

Notwithstanding challenges faced by the Atlantic Canada tourism industry, room nights sold on Cape Breton Island in 2012 peaked at 78,000 in the month of August. Over the months of July through October, Cape Breton hotels and motels sold 237,000 room nights, which is roughly double the resident population of the Island. The influence of tourism in the region is evident by activity on the Sydney waterfront during the months of summer and early fall.

Figure 2.5 Percentage of Room Nights Sold by Month, Nova Scotia and Cape Breton, 2012



Source: Nova Scotia Economic and Rural Development and Tourism

In contrast to general tourism, passengers destined for ports in Northeastern North America have risen erratically but markedly in recent years (**Table 2.3**). It is also notable that the market is distinctly seasonal with the highest passenger counts occurring not in the summer months of July and August when general tourist visitation to Atlantic Canada reaches its peak but in September and October. The primary draw for cruise tourists travelling the circuit of Atlantic Canada and St. Lawrence ports (*i.e.*, Halifax, Sydney, Charlottetown, and Quebec City) is the opportunity to view the changing of colours in the fall. The Bras d'Or Lakes and the Cabot Trail, both in Cape Breton, are the centrepiece of this tour.

Table 2.3 Cruise Passengers Destined for Northeast US and Canada, 2004-2010

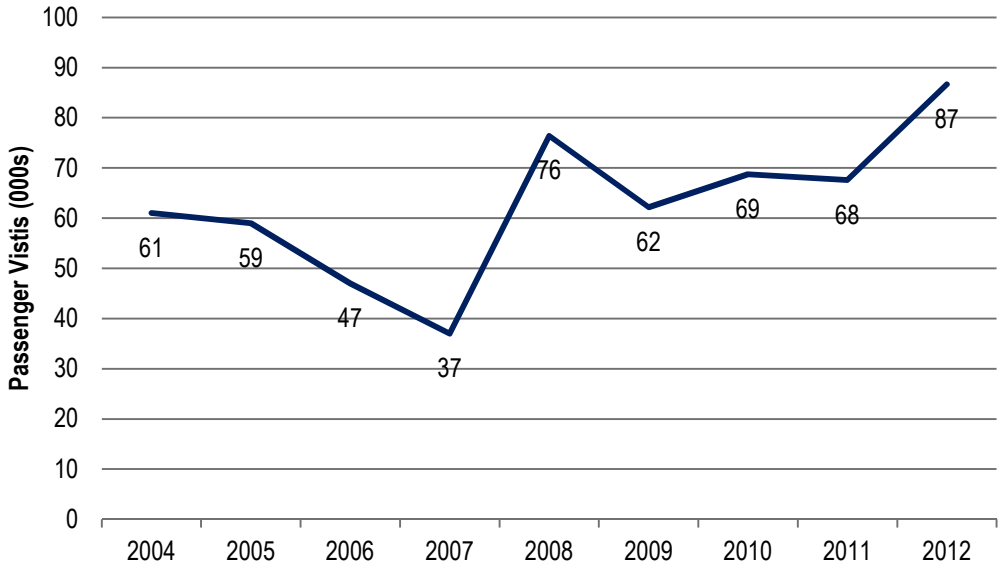
Year	Apr	May	Jun	Jly	Aug	Sep	Oct	TOTAL	Change
2004	1,403	9,964	25,136	37,203	32,300	60,975	46,596	213,577	
2005	1,437	3,733	16,497	38,044	34,111	53,071	33,540	180,433	-15.5%
2006	1,040	3,725	17,664	25,449	28,515	50,102	38,061	164,556	-8.8%
2007		3,557	26,842	24,321	34,943	64,102	35,676	189,441	15.1%
2008		7,638	23,370	28,163	41,671	83,303	46,671	230,816	21.8%
2009		3,843	26,919	24,121	37,685	70,734	62,433	225,735	-2.2%
2010	3,920	2,540	25,866	34,883	44,600	85,508	68,178	265,495	17.6%
2011	1,146	8,057	31,755					40,958	N/A
TOTALS	**8,946**	**43,057**	**194,049**	**212,184**	**253,825**	**467,795**	**331,155**	**1,511,011**	
Share	0.5%	2.4%	11.0%	14.4%	17.3%	31.8%	22.5%	100.0%	

Source: US Department of Transportation, Maritime Administration

Cruise ship visitation to Cape Breton Island has risen in the same erratic pattern as the Northeastern market of which it is a part (**Figure 2.6**). Passenger visits to the island, which include Louisbourg as well as Sydney Harbour, have risen and fallen at the exact same points as the broader regional market. The overall increase, however is very apparent and in keeping with overall industry trends.

Contacts with Sydney Ports Corporation indicated that 72 cruise ships are expected for 2013, which would represent a 26 per cent increase over 2012. These vessels are expected to carry approximately 120,000 passengers and 51,000 crew. The port is capable of handling three or four cruise ships at a time with current facilities, allowing for considerable further growth in visitation.

Figure 2.6 Cruise Ship Passenger Visits (000s), Cape Breton, 2004-2012



Source: Nova Scotia Economic and Rural Development and Tourism

The strong emphasis on fall cruise ship visitation to Cape Breton is evident from data in **Table 2.4**. Of more than 130,000 potential visitors on cruise ships scheduled to land in 2012, 80.7 per cent were expected in September and October. The latter month, furthermore, was dominant with as many visitors during the single month as were expected in the preceding five months. October not only attracts considerably more visits, it draws larger vessels with more passengers and crew members.

Tourists are primarily drawn to Cape Breton by the Bras d'Or Lakes and Cabot Trail, as well as Fortress Louisbourg. Those who come to Sydney in the course of their travels are however interested in local sites. The closure of the steel mill has improved the local environment and redevelopment of the Tar Ponds and other lands related to the mill promise to add to the attractiveness of the area. Tourists are interested in the Harbour as well. The former Manager of the Royal Cape Breton Yacht Club, who was interviewed for this assignment, noted, for example,

that cruise passengers who visited the club in substantial numbers regularly asked about a means of reaching the other side of the Harbour.

Table 2.4 Anticipated Cruise Ship Visitation by Month, Sydney, 2012

Month	Landings	Passenger Capacity	Crew	TOTAL	Per Vessel	% of Total Visitors
May	4	5,064	2,228	7,292	1,823	5.4%
June	5	8,038	3,378	11,416	2,283	8.5%
July	2	2,532	1,114	3,646	1,823	2.7%
August	2	2,532	1,114	3,646	1,823	2.7%
September	19	29,025	12,313	41,338	2,176	30.7%
October	28	47,037	20,414	67,451	2,409	50.0%
TOTALS	**60**	**94,228**	**40,561**	**134,789**	**2,246**	**100.0%**

Source: Sydney Port Corporation Inc., http://sydneyport.ca/public/publications/CRU2012.pdf accessed January 30, 2013

A similar sentiment was expressed by Bernadette MacNeill, the Manager of Cruise Marketing and Development with Sydney Ports Corporation. Ms. MacNeill was strongly supportive of the ferry concept when interviewed by Stantec. She stated that there is a need to increase the range of local attractions available to cruise ship passengers and crew, and suggested that the proposed ferry could play a significant role by enhancing access to Sydney River, Westmount, and the Northside.

Ms. MacNeill noted the cruise ship passenger and crew expectations for 2013 and suggested that roughly 45 per cent of passengers who currently do not take excursions in port as well as most of the one-third of crew who are permitted to leave their vessel when it is tied up are potential ferry riders. She suggested that crew members who are often interested in recreational opportunities could be very attracted to Petersfield Provincial Park. She added that casual passengers (*i.e.*, those who are not interested in an organized excursion) might also be expected to avail themselves of the ferry, particularly if it was in a visible location relative to cruise ship docking areas and the cruise ship pavilion.

She further suggested that there would likely be interest in the ferry as an organized excursion in itself. Under such circumstances, a special trip that might include a circuit of harbour sites would have to be provided within the context of the overall ferry schedule. The ferry operator would then contract with a tour operator who would, in turn, contract with interested cruise lines to provide an excursion. Cruise lines then promote the excursion to their passengers usually with a substantial mark up. Cruise lines will apparently deal directly with suppliers but there preference is to work through local tour operators who organize a variety of excursions for them. This obviously relieves the cruise lines of local logistical responsibilities but adds a layer of cost.

3.0 ROUTE AND VESSEL OPTIONS

3.1 Landing Points

As noted in **Chapter 1**, the cross harbour ferry as described in CBRM's Active Transportation Plan would cover a short route between Westmount on the southeast side of the Harbour to Downtown Sydney directly across from it. Currently preferred docking sites include Dobson Yacht Club in Westmount and the Royal Cape Breton Yacht Club in Downtown Sydney. A route joining the two yacht clubs would cover 600 meters. While travel time will vary somewhat dependent on the vessel employed, the trip between the two locations should take about six minutes. Taking into account loading, docking, and disembarking processes, it should be feasible to run trips every 15 minutes from each side (*i.e.*, four one-way trips per hour).

Contacts with both Dobson Yacht Club (DYC) and Enterprise Cape Breton Corporation (ECBC), which recently purchased the Royal Cape Breton Yacht Club, have confirmed the interest of both in hosting a ferry service. The DYC Board member contacted has discussed the issue with the club's Commodore and indicated that the club would be very interested in providing docking and accommodation for a ferry vessel.

The club has winter storage space on site and could rent a slip to the operator during the period of ferry operation. A travel lift is available on site to move boats within the yard. DYC also has a gas dock, which will allow convenient fuelling on the water, a critical consideration if the vessel is to be operated over the course of a full day. The Board member, furthermore, expressed interest in having a role in the operation of a ferry, possibly as a secondary role for their club manager or for a yard staff person who could combine a role as ferry driver with responsibility for maintenance of DYC's buildings and grounds.

Dobson YC is located slightly below the grade of Westmount Road from which it is accessed (**Figure 3.1**). The grounds are very open and easily surveyed. The preferred site for landing a ferry is directly across from the primary entrance to the property. DYC has a disabled member and has made its facilities reasonably accessible. Our contact suggested that some further upgrading might be desirable if the ferry is to be made accessible for more general users. There does not appear to be, for one thing, seating or shelter that could be used by ferry passengers to wait for the boat. The direct route from the entrance to the likely ferry landing site should allow the club's manager and

members to control and oversee the movements of non-members accessing the site to use the ferry.

Figure 3.1 Dobson Yacht Club

Source: Marinas.com

The RCBYC site is located substantially below the grade of the Esplanade (**Figure 3.2**). The clubhouse roof, in fact, is barely visible from the sidewalk on the street. The building is entered from the street via a ramp that joins a backdoor on the building's third storey to the sidewalk. It has several other entrances accessed from the ground level via internal and external staircases on the water side of the building. The building does not have an elevator but that now appears to be academic as the structure was largely destroyed in a fire as this report was being completed. There is a steeply inclined driveway on the back of the property that provides access from the sidewalk to grade level by the water as well as a driveway with a more moderate slope at the northern edge of the yacht club property. The former manager has suggested that the grade of the long driveway behind the former clubhouse would be challenging for wheelchair users or older pedestrians and inspection of the site confirmed this opinion.

The property also has a boat ramp and impressive breakwaters protecting its marinas and shoreline. The breakwaters and marinas were installed about 1992. The former club manager has stated that the slips have not been renewed since their installation and the styrofoam that supports them needs to be replaced. She also noted that the noticeable displacement of the northern breakwater relative to the southern breakwater exposes the northern breakwater and associated slips to the southwest wind that prevails in the area throughout the summer (see **Figure 3.2**). This apparently makes the northwest portion of the enclosure unusable for the storage of boats and

may have had some impact on the breakwater in that vicinity. The former manager feels that the marinas should be accessible for wheelchair users but noted that the incline of ramps is substantial at low tide.

Figure 3.2 Royal Cape Breton Yacht Club

Source: Marinas.com

The representative of ECBC interviewed stated that his organization plans to maintain the marinas and waterfront infrastructure associated with the RCBYC. The two-storey boathouse located to the south of the main clubhouse is also expected to be maintained on site. It has garage and man door entrances on the ground level and a second storey entrance accessed from the landing of an external staircase that ultimately runs to the third floor of the clubhouse. The boathouse has washroom and shower facilities.

ECBC has publicly indicated plans to demolish the clubhouse on site, which has generated considerable local controversy; however, the future of the clubhouse, which is a historic structure, will have no impact on marina facilities. ECBC objectives for the site appear to be to develop it as a component of an attractive and active waterfront area for which they plan to preserve all existing dock areas and slips. The contact interviewed was supportive of the ferry as a contributor to waterfront activity, which would be beneficial to the site, and the surrounding waterfront and Downtown areas. Inspection of the are found that the area around the marinas is very well developed with attractive light standards and seating alcoves integrated in surrounding walls that could be used by waiting ferry passengers.

Interview subjects, in general, were approving of the DYC and RCBYC sites. They are considered attractive and accessible properties that are reasonably positioned in relation to populations and activities on their respective sides of the Harbour. The Port's Director of Marketing was notably approving of both properties noting that the RCBYC is close to the cruise ship pavilion and the DYC site has an attractive ambience.

Several focus group participants expressed strong concerns with the availability of parking at the ferry landing points. Although the original vision for the ferry was that riders would access it on foot or by bicycle, many contacts felt that some users would probably travel to the ferry landings by car. Both sites appear well-suited to accommodate this need. DYC has extensive areas for boat storage that flank its paved central area and would appear ideal to accommodate long-term parkers in the summer and fall months when the majority of boats should be in the water. In addition, the yacht club's frontage on Westmount Road to the south of the club entrance includes a layby area that is currently subject to no parking restrictions and appears likely to able to accommodate up to ten conventional automobiles.

RCBYC also has parking on site, although it does not have extensive areas comparable to DYC. It is, on the other hand, adjacent to a large parking lot that was well-used by long-term parkers when the RCBYC site was inspected by the consultants in March 2013 (see **Figure 3.2** above). The parking surface is in very poor condition but will likely have to be repaired for current users regardless of whether additional users are drawn by a ferry. There is also metered on-street parking on the Esplanade abutting the yacht club property. There is, in any case, less likelihood of significant demand for parking on the Sydney side given the relatively small number of individuals commuting from Sydney to Westmount.

Assuming a successful service could be established over the short route between DYC and RCBYC, the ferry operator might wish to consider servicing all or a portion of a 20.7-kilometer loop route connecting key points on both sides of the Harbour. Future additional destinations could include the CCGC wharves, which could also provide access to Petersfield Provincial Park; North Sydney at King Street; the redeveloped Tar Ponds site at Muggah Creek; Sydney Garrison; and another location in Downtown Sydney such as Wentworth Street (**Figure 3.3**). North Sydney is particularly attractive as a potential commuter route, as the one-way distance by ferry is 9 kilometers, while the driving distance is approximately 23 kilometers and takes about 25 minutes to cover by automobile. Like Westmount, it is also a traditional ferry landing and provides access to substantial numbers of potential users in North Sydney and Sydney Mines. Some contacts also suggested taking the ferry farther south to Sydney River.

Figure 3.3 Route Options, Sydney Harbour Pedestrian Ferry

Docking facilities vary at these suggested sites. CCGC has excellent wharves that a contact there has confirmed would readily accommodate a small ferry vessel (**Figure 3.4**). Security on the Coast Guard site, however, limits the access of private citizens to and from the site and would seem to preclude its use as a primary stop. Its inclusion as a secondary stop on the short route would however be very likely add to ridership. There are several potential locations for docking in North Sydney, including Northern Yacht Club, but their availability has not been investigated. A dock may be available about 75 meters northeast of the Keltic Drive Bridge in Coxheath/Sydney River, if a ferry route to the south is considered.

Figure 3.4 Canadian Coast Guard College, Westmount

Destinations within a 400 and 800-meter radius of DYC and RCBYC, representing approximate five- and ten-minute walking distances, are shown in **Figure 3.5**. On the Sydney side of the Harbour, the whole of the Downtown core is well within a ten-minute walk of the RCBYC dock. As well, an area as far as Wentworth Park in the south, the Sydney Shopping Centre to the east, and Sydney Garrison to the north is within a ten-minute walk. Downtown Sydney streets generally have sidewalks on both sides, facilitating walking from the ferry to destinations in the Downtown core. The topography may be challenging to some, however, with a substantial incline from the waterfront at RCBYC to the Esplanade, and more moderate slopes to be negotiated on the Esplanade and up to Charlotte Street.

In Westmount, most locations are within a ten-minute walk of DYC, with the exception of areas to the west of Loch Garron Drive and north of Fulton Avenue. Westmount can be accessed from DYC most easily via Westmount Road, which has a sidewalk on its west side. While most of the other streets in Westmount do not have sidewalks but the shoulders are wide enough to accommodate pedestrians. There is a slight one-block incline along the coast from Westmount Road inland, but it is not steep enough to create a barrier for the average pedestrian walking to the ferry.

Figure 3.5 Five- and Ten-Minute Walking Distances from Yacht Club Docks

Some interview contacts and several focus group participants suggested a stop at Petersfield Provincial Park (see the green area adjacent to the intersection of Westmount Road and Murphy Road on **Figure 3.5**), which is the primary attraction on the west side of the Harbour. It was the family estate of a former mayor of New York City. The ruins of the manor house and caretaker's home on the site are designated as historic properties. Petersfield is served by a 7-kilometer network of trails and is adjacent to the CCGC. It could provide a stop accessible to all members of the community and would be convenient for Coast Guard personnel if a stop a stop at the CCGC wharf was not available; however, it would require construction of a suitable dock on the property, probably in the cove off Crawleys Creek from which the Coast Guard docks are accessed. Petersfield is a 22-minute walk and seven to eight minute bicycle ride from DYC.

Docking arrangements at other sites vary. A variety of docks are located on the waterfront in the vicinity of King Street in North Sydney and most of the waterfront in Downtown Sydney is developed with docks or seawall. No contacts have however been made with landowners in either area to determine what sites might be available or whether owners would be willing to host a ferry operation. A connection to North Sydney would provide access to a much larger concentration of population than Westmount; however, the time and distance required for the trip would be considerably longer. Additional stops on the Downtown waterfront would largely enhance the convenience of passengers by placing them closer to specific destinations. A landing at Sydney Garrison would connect residents in the North End of Sydney and those working at Sydney Garrison Victoria Park to the Downtown core and a potential future stop in North Sydney. The

George Street cycling route also terminates at Sydney Garrison, making it a good drop-off and pick-up point for bicyclists intending to use the ferry.

In the case of Muggah Creek, the option is only likely to be of interest when the Tar Ponds area is redeveloped. The redevelopment project will not however provide docking areas. Stantec staff who worked on the recently completed redevelopment plan for the Tar Ponds have indicated that limitations on channel width precluded the inclusion of dock facilities in the redevelopment plan. The channel is only about 15 to 20 meters wide with no area to turn. Any plans to bring a ferry vessel into the channel would require the installation of a floating dock (so as not to compromise the liner in the channel that prevents the dispersion of contaminants contained in the Tar Ponds site), while maintaining enough space in the narrow channel for the boat to maneuver.

A stop at Muggah Creek would however provide access to a growing employment centre at Harbourside Commercial Park and Sydney's historic North End, as well as employment and shopping opportunities on Prince and Welton Streets. Granville Island in Vancouver is an example of a former industrial area that has been reborn as a public market and centre for restaurants, shops, and artists' studios. The two private sector ferry companies that operate from Granville Island allow visitors to travel to various destinations around False Creek and have enough ridership to sustain year-round operations.

The Port Manager with Sydney Ports Corporation has indicated in an interview with the consultants that he would anticipate no significant conflicts between the proposed ferry and anticipated harbour traffic. He noted, however, that there is industrial traffic that might be a concern in the vicinity of Muggah Creek.

3.2 Transit Cape Breton

CBRM's recently elected Council has strongly asserted its support for improvements to active transportation and public transit service in the Shaping Our Future report released in November 2012. The section on Active Communities lists support for enhancements to regional transit as an "Immediate Action" for the Municipality:

> With our partners, support enhancements to regional transit, including Handi-Trans service, by increasing access and controlling costs.

In the longer term the document commits to:

> Work with our partners including the federal and provincial governments, Velo Cape Breton, local businesses and private landowners to develop a walking and cycling trail system.

Transit and Active Transportation are clearly positioned to support each other. Of 13 routes operated by Transit Cape Breton, eight connect to the Downtown area. The following three run on the Esplanade to Pitt Street, the closest intersection to the RCBYC property, and stop on Pitt Street:

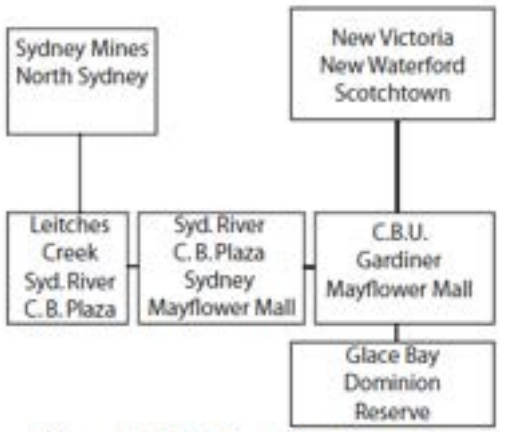
- Route 5 (Sydney - Sydney Mines) Esplanade including the corner of Pitt Street and Esplanade
- Route 10 (Alexandra St.) - connects South Sydney/Sydney River to Downtown
- Route 12 (Sydney - Sydney River)

The remaining five come no closer than the intersection of Charlotte and Dorchester Streets, which is within longer walking distance to the RCBYC site:

- Route 1 (Sydney – Dominion – Glace Bay)
- Route 8 (Sydney – Whitney Pier)
- Route 9 (Sydney – New Waterford)
- Route 11 (Ashby – EDS)
- Route 13 (George Street – Cottage Road)

The eight routes provide good connectivity to a range of communities on the east side of the Harbour from any ferry landing in the Downtown, although it might be argued that routes to Sydney River compete with a ferry crossing. Route 1 to Sydney Mines would also overlap a ferry route to the Northside.

Figure 3.6 Transit Cape Breton Fare Structure



There Is No Sun Bus Service

Basic Fares	1st Zone 1.25	Zone 2-4 1.00	Zone 5 .75
Seniors 55 & Up Child 5-12	1.00	1.00	.50

Example Of Rates

To Go From: Glace Bay Dominion Reserve

	Number Of Zone	Adult	Senior & Child
Within Zone	1	1.25	1.00
To U.C.C.B. / Gardiner	2	2.25	2.00
To New Victoria / New Waterford	3	3.25	3.00
To Scotchtown			
To Syd. River-Syd.-Mayflower mall	3	3.25	3.00
To Leitches Creek	4	4.25	4.00
To North Sydney / Sydney Mines	5	5.00	4.75

Source: Transit Cape Breton Riders Guide

Cape Breton Transit operates six days a week from Monday through Saturday. Fares are $1.25 per zone traveled for adults from 13 years through 54 years of age. Seniors 55 and over and children 5 to 12 range are charged $1.00 per zone traveled. According to the Cape Breton Transit Web site, the cost of riding the bus can range from $1.25 to $5.00 for adults and $1.00 to $4.75, depending on the number of zones travelled (see example in **Figure 3.6**). For persons with disabilities Transit Cape Breton's Handi-Trans bus service offers one-way fares of $1.75 within a particular community and $3.25 between communities within the municipality.

The timing is good to consider linkages with a harbour shuttle, as Transit Cape Breton has discussed developing a bus exchange in Downtown Sydney. An on- or off-street bus exchange on the Esplanade between Dorchester and Pitt Streets would allow easy transfers between the

Harbour shuttle and the regional bus service. In addition to potential adjustment of routes and stopping locations to facilitate connection from the ferry to transit, it will be important to coordinate bus arrivals with ferry departures and arrivals so that riders can transfer seamlessly to available bus options. Transit Cape Breton officials involved in this study have indicated a willingness to adapt bus stop locations and times to complement a ferry if one is established.

An example of these inter-modal connections is the SeaBus in Vancouver, where all bus routes connecting to the ferry terminal at Lonsdale Quay operate on a timed transfer system that allows SeaBus riders to transfer to buses with minimal wait time. The Metro Transit system in Halifax Regional Municilpality also coordinates bus schedules with its ferry operations. Metro Transit users can transfer freely from transit to ferry and ferry to transit within 90 minutes. An integrated fare system that allows free transferring between the ferry service and Transit Cape Breton, coordinated branding, and park and ride services at the ferry terminals would encourage the use of both systems, although it might well reduce revenues.

A bus service connecting to the ferry on the Westmount side would help to shift some trips to the ferry service. However, Transit Cape Breton noted that a recent iTrans study of its system found that due to the large area (over 200 square kilometers) that must be served in CBRM, ridership is currently at only 4.5 passengers per capita and their cost recovery ratio is only 30 per cent (*i.e.*, only $0.30 of every dollar spent on transit is recovered through fares). Unless a connecting Westmount bus route is found to have good ridership potential, it is unlikely to be added in the near future.

3.3 Ferry Operation

Year-round operation of a ferry in Sydney Harbour is unlikely. All but one of the interview subjects contacted envisioned the proposed ferry as operating only in summer and early fall. The remaining interviewee felt that the ferry should operate through as much of the year as possible if it is going to meet its primary mandate as an alternative for commuters. He acknowledged, however, that the ferry could not run at times when the harbour is iced over.

Interviewees generally felt the boat to be used for the ferry should be open with some suggesting that some kind of temporary cover would be desirable for passengers in the event of rain. Other than the individual who advocated that the ferry should strive for year-round operation, no interviewee suggested operation outside the months of May through October. Most contacts suggested July through September as the appropriate time period for operation, although the case for operation in October when cruise ship visitation peaks appeared to be persuasive to participants in the focus group when it was presented to them by the consultants. The focus group consensus appeared to favour a boat that provided at least some enclosed area, although most participants felt it would be desirable to have the opportunity to sit in the open, which would be achievable with a partially enclosed cabin area or a removable canopy.

The complications of winter operation need to be recognized. Although commuter needs are, if anything, more pronounced in winter, operation after snow falls faces several constraints as well as additional demands. Certainly, the availability of active transportation routes connecting to ferry landings and their use, regardless of maintenance, is likely to be diminished as weather

deteriorates. Landings themselves will likely present additional challenges in the winter. The yacht club sites that are the leading candidates for ferry terminals are largely developed for summer use and are generally closed during winter days. In wintertime, also, concerns with ice formation on gangways and marinas are substantial, and waiting outdoors for the arrival of a ferry could often be uncomfortable without enclosed waiting areas.

Vessel operation will also face specific winter-related difficulties. Sydney Harbour sometimes freezes over during the winter. Contacts suggest that this has occurred less often in recent years, although the Harbour was frozen from January through mid-March 2013 as this report was being prepared. The southern reach of the Harbour where it is fed by freshwater from Sydney River is particularly prone to freezing and this includes the waters that would be traversed by a Westmount to Downtown route. The historic Westmount to Sydney ferry used to suspend operations from January until the ice melted, which was usually in March.

If the ferry were to operate at any time between November and May, it would be desirable that the vessel be fully enclosed. Wind and spray would be likely to create extreme discomfort for passengers on an open boat in the winter and would possibly be dangerous. Additional dangers would also be present for crew. Long periods of exposure and the hazards of working on icy decks and docks would be a concern, particularly if the vessel is operated by a single crew person. Malfunctions during winter would also be a heightened concern given their increased probability in cold weather conditions and the threat of exposure as well as the likelihood that assistance would be much less readily available in the winter when the ferry might well be the only vessel active in the lower reaches of the Harbour. In short, winter operation will considerably increase the risks of ferry operation for the operator as well as passengers and would likely require substantial additional expenditures for terminal improvements, a more elaborate vessel, and additional crew.

Respondents also favoured daytime operation only. Most felt that operation during commuting peaks would be insufficient. As a matter of fact, the consensus appeared to be that commuters would not be the key user group. Most respondents felt that the ferry would be most attractive to casual users who would be inclined to use it on pleasant days to visit or shop across the Harbour, or, perhaps, to access Petersfield Provincial Park from the Downtown.

Most interview respondents appeared to regard evening entertainment opportunities in the Downtown as limited and unlikely to generate large numbers of riders for a ferry. Evening operation would also raise complications with docking and operation similar to conditions for winter operation. If operation were to be limited to periods when running lights are not necessary, it would mean shutting down shortly after 6:00 pm in late October, although 8:00 pm or later would be feasible in July and August.

Discussions of fares were limited. Those who addressed the subject generally suggested $2 to $2.50 each way. One, however, noted that Downtown Sydney has a limited supply of long-term parking, which could make the ability to commute downtown without a vehicle attractive. Most existing parking lots are on the waterfront and are likely to be redeveloped. One contact, though, noted that meter users could expect to pay $8 to $10 to park over the course of a day and any fare less than that amount would make sense for commuters to the Downtown.

The question of fares was posed more directly in the focus group sessions. Like interview contacts, focus group participants tended to use transit rates as a reference for determining the appropriate ferry fare. Transit representatives who attended both focus groups noted that the ferry would cover two transit zones so that the equivalent transit trip would cost $2.25. Most participants agreed that $2 to $2.25 one-way would be appropriate, most, in fact, deemed a $5 round trip to be reasonable. The lowest fare suggested was $1 one-way and the highest that any of the more than 30 focus group participants expressed a willingness to pay was $5 one-way.

Most participants felt that the ferry should also provide discounts for children and, perhaps, accept very young children for free. Most also endorsed discounts for seniors, which are a feature of local transit fares as noted above. Finally, many focus group members suggested volume discounts through passes or sales of multiple tickets. A considerably higher price for purchasers of one or two tickets would make sense to facilitate a higher price for tourists. One member suggested that a one-way fare of $10 would compare very well with the price of typical cruise ship excursion packages, although it should be recognized that the fare would likely be marked up by the tour packager and again by the cruise line before it was sold to passengers.

Interview and focus group contacts generally favoured contracting the ferry operation out. Some suggested that current financial strains on the Municipality would not allow it to take on the cost. Others asserted that a private sector operator would be more effective and efficient. Operation by a private company would mollify most of the individuals who oppose the idea of a ferry service on the grounds that it is financially risky. However, coordination with Transit Cape Breton could prove more difficult with a private sector operator.

3.4 Passenger Only Ferries

There are over 50 operators of passenger-only ferries in North America, mainly in the Pacific Northwest (British Columbia and Washington), the San Francisco Bay area, the Great Lakes, and the waterways of the US Northeast (particularly in and around New York City). Of the 25 ferry companies identified by Stantec that operate passenger-only ferries, twelve were on the West Coast and thirteen were on the East Coast. Vancouver, San Francisco, and New York City were the cities with the largest number of passenger ferries (see **Appendix C** for profiles of select ferry services and a table summarizing of all 25 services reviewed).

Most of the passenger-only ferries surveyed were reintroduced in the past 30 years as road congestion has increased and travelers have been looking for faster, cheaper alternatives to using personal vehicles. As well, public transit has improved in many cities, allowing passengers easier transfers to and from the ferries. However, no commuter-focused, passenger-only ferries were found that operated in areas with a population base as small as Sydney's. Ferries that served small towns focus on the tourist market and operate from late spring to early fall. Examples include the Newcastle Island Ferry near Nanaimo, BC, and the Kitsap Transit Foot Ferry in Washington State. Ferries that operate year-round were all located in major cities, with the exception of the Lasqueti Island Ferry in British Columbia, which is the only connection between Lasqueti Island and mainland BC. The majority of ferry operators charged between $5 and $10 for a one-way ticket.

CBRM residents will also be familiar with the Halifax-Dartmouth Ferry operated in Halifax Harbour by Metro Transit. The service is the oldest continuously operating saltwater ferry in North America. It provides two routes: from Downtown Dartmouth to Downtown Halifax and from Woodside in south Dartmouth to Downtown Halifax. The Downtown to Downtown route runs from 6:30 am to 10:30 pm Monday through Thursday, and from 6:30 am to 12:00 midnight on Fridays and Saturdays. It runs from 11:30 am to 12:00 midnight on Sundays. The Woodside route is focused on commuters and runs from 6:30 am to 6:20 pm Monday through Friday. No service is provided from Woodside on weekends or holidays. Both ferries run on the half hour at most times but the Downtown to Downtown route runs on the quarter hour during the weekday morning and afternoon peaks (6:30 am to 9:00 am, and 3:00 pm to 6:00 pm).

Fares are $2.25 for students and adults, and $1.50 for children and seniors. Current vessels carry 395 passengers per trip and can accommodate bicycles but not larger vehicles (**Figure 3.7**). According to the Halifax Regional Municipality Web site, the ferries carry 3,000 passengers daily. They are integrated with other Metro Transit routes such that transit riders can transfer onto the ferries and from the ferries onto other buses without additional charges.

Figure 3.7 Halifax-Dartmouth Ferry, 2012

HRM recently reduced the period of operation for both ferries as a cost-saving measure, although the decision caused some controversy. The ferries collect between 68 and 70 per cent of their operating costs, compared with 40 per cent recovery for Metro Transit buses. The ferry has an additional benefit in reducing the need to build new roads, and widen and repair roads by reducing traffic. In particular in Halifax, it relieves congestion on the two harbour bridges, which are the most expensive components of the roadway infrastructure serving HRM.

A pedestrian ferry was established in Halifax to cross the Northwest Arm about five years ago. It operated on a very short route from Fleming Park to South Street but was not successful. Dave McCusker, Manager of Strategic Transportation Planning with HRM, suggested that one reason for

the failure of the initiative was the inability of HRM to support the route with transit because the roads approaching the ferry landings were too steep for transit buses to negotiate. He also suggested that the neighbourhoods on either side of the Arm would have objected strongly to buses operating in their neighbourhoods had they been introduced. In any case, ridership was inadequate and Mr. McCusker suggested that the operators may have faced challenges satisfying Transport Canada regulations.

Having a public transit service to connect to on the Westmount side, if cost effective, will help to shift some trips from vehicles to the ferry service. On the Sydney side of the Harbour, it will be important to coordinate bus arrivals with ferry departures and arrivals so that riders can make a seamless transition to transit buses. An example of this is the SeaBus in Vancouver, where all bus routes connecting to the ferry terminal at Lonsdale Quay operate on a timed transfer system that allows SeaBus riders to transfer to buses without any wait time. An integrated fare system that allows free transferring between the ferry service and CBRM Transit, identical or at least coordinated branding, and park and ride services at the ferry terminals would also encourage the use of both systems.

3.5 Vessel and Transport Canada Regulations

All ferry route options discussed above fall under Transport Canada's definition of a "near coastal voyage, class 2." To be classified as near coastal the voyage must be in sheltered waters and the vessel must always stay within 25 nautical miles (46.3 km) of shore in waters contiguous to Canada and within 100 nautical miles (185 km) of a place of refuge. The anticipated operation would meet these standards so long as its operations are confined to Sydney Harbour. The only potential application that might exceed the "near coastal" definition might arise if the operator chose to use the vessel for fishing or nature tours outside the harbour limits.

The following subsections address only two aspects of the regulations applicable to potential ferry vessels. It is assumed based on preceding analysis that the proposed ferry should qualify as a *small commercial vessel*. Under Transport Canada regulations a small commercial vessel is one that is no larger than 15 tons gross tonnage and carries no more than 12 passengers. Vessels of all types are subject to detailed Transport Canada requirements governing not only operating personnel and their qualifications, and safety equipment briefly described in the following three subsections but also concerning vessel design and power requirements, operating procedures, and other considerations that vary dependent on the type on boat and its intended application(s) (*e.g.*, passenger carrying, fishing, cargo carrying). A good publication providing a reasonable overview of Transport Canada requirements is the *Small Vessel Compliance Program (SVCP) Detailed Compliance Report and Guidance Notes*, the 2012 edition of which is currently available at http://www.tc.gc.ca/media/documents/marinesafety/TP15111E.pdf. Readers should however be aware that full understanding of Transport Canada specifications requires cross referencing to legislation and regulations and, often, direct consultation with department staff.

3.5.1 Vessel Size and Number of Passengers

The crew requirements for small commercial vessels are set out in Sections 213 through 216 of the Marine Personnel Regulations. If the vessel is less than 5 tons gross tonnage, the Captain/Master is the only person required on the ferry (**Table 3.1**). Between 5 and 500 tons a minimum of two

crew persons is required to maintain deckwatch *unless* the vessel operates only in periods of good visibility between sunset and sunrise, and its design provides an unobstructed 360-degree view from the steering position.

The financial analysis in **Chapter 4**, following, assumes there will be two crew members on board the vessel during operation: one Master and an additional person to assist passengers during docking operations and to keep watch. Only if there are more than 50 passengers would a third crew member (Chief Mate) be required. A ferry between 15 gross tons and 150 gross tons can carry up to 100 passengers.

We also assume in our analysis the engine size will be less than 100 horsepower. If the engine is larger than this, Transport Canada regulations require a *person in charge of the machinery*. As well, the vessel should be kept under 20 meters (65 feet) length overall. For longer vessels, an engineering watch is required. An engineering watch requires a fourth-class engineer certificate. The person on watch may act in dual capacity as both master and engineer if the vessel is less than 20 meters long.

Table 3.1 Minimum Crew Required for Normal Operation

Tonnage	Number of Passengers	Master	Chief Mate	Additional Person	Second Additional Person
< 5	N/A	1*	Not required	Not required	Not required
≥ 5 and < 500	≤ 50	1*	Not required	1**	Not required
≥ 5 and < 500	> 50	1*	1	1**	Not required

* The Master may be counted as a member of the deck watch
** An additional person is not required if the criteria of the Marine Personnel Regulations s. 216 (3) are met.

Source: Transport Canada Minimum Safe Manning Evaluation Form

3.5.2 Certification

Captains/Masters of small commercial vessels are required to have a Small Vessel Operators Permit (SVOP), a Marine Emergency Duties A 3 Course (MED A 3), a VHF Radio License, and First Aid training. The second crew person or other Deckhands would be required only to have their MED A 3. The SVOP qualification is one step up from the Pleasure Craft Operators Card (PCOC) now required for operation of recreational boats. To qualify for an SVOP, personnel must pass a 50-question multiple-choice exam following a 26-hour course. Course content covers basic boat operation, navigation, weather, search and rescue, and applicable legislation. The MED A 3 course requires eight hours of training and provides personnel with basic training for response to marine emergencies and skills for their own survival and rescue of others.

Table 3.2 Certification Requirements for Small Commercial Vessels Carrying Passengers, Transport Canada, 2013

Vessel Size	Vessel Power	Area of Operation	Certified Master	Certified Engineer	Crew MED Training	Other Requirements
< 5 ton	< 75 kW	Any voyage	Not required	Not required	Required	Person in charge demonstrate proficiency per CSA 335
< 5 ton	< 75 kW	According to voyage class	Not required	May be required	Required	Person in charge demonstrate proficiency per CSA 335
< 5 ton	< 75 kW	According to voyage class	Required	Not required	Required	-
< 5 ton	< 75 kW	According to voyage class	Required	Required	Required	-

Source: Transport Canada, http://www.tc.gc.ca/eng/marinesafety/tp-tp14070-2904.htm

3.5.3 Safety Equipment

Transport Canada also specifies a range of safety equipment required by marine vessels. Requirements escalate by boat size with minor exceptions and qualifications. **Table 3.3** summarizes requirements for boats covering the size range likely to be considered for the shuttle ferry in CBRM.

Table 3.3 Required Marine Safety Equipment by Boat Type and Length, Transport Canada, 2013

Boat Type and Length	Personal Lifesaving Appliances	Vessel Safety Equipment	Visual Signals	Navigation Equipment	Fire Fighting Equipment
Sail and Power Boats up to 6 m (19'8")	1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 15 m (49'3") long 3. *One (1) reboarding device	4. One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination 5. One (1) bailer or manual bilge pump	*If boat is equipped with a motor:* 6 . One (1) watertight flashlight OR Three (3) flares of Type A, B or C	7. One (1) sound-signalling device or appliance 8. **Navigation lights 9. ***One (1) magnetic compass 10. One (1) radar reflector (See Note 3)	11. One (1) 5BC fire extinguisher if equipped with an inboard engine, a fixed fuel tank of any size, or a fuel-burning cooking, heating or refrigerating appliance
Sail and Power Boats over 6 m and up to 9 m (19'8" - 29'6")	1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 15 m (49'3") long OR 3. One (1) lifebuoy attached to a buoyant line at least 15 m (49'3") long 4. *One (1) reboarding device	4. One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination 5. One (1) bailer or manual bilge pump	6. One (1) watertight flashlight 7. Six (6) flares of Type A, B or C	8. One (1) sound-signalling device or appliance 9. **Navigation lights 10. ***One (1) magnetic compass 11. One (1) radar reflector (See Note 3)	12. One (1) 5BC fire extinguisher if equipped with a motor 13. One (1) 5BC fire extinguisher if equipped with a fuel-burning cooking, heating or refrigerating appliance
Sail and Power Boats over 9 m and up to 12 m (29'6" – 39'4")	1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 15 m (49'3") long 3. One (1) lifebuoy attached to a buoyant line at least 15 m (49'3") long 4. *One (1) reboarding device	5. One (1) anchor and at least 30 m (98'5") of cable, rope or chain in any combination 6. One (1) manual bilge pump OR Bilge-pumping arrangements	7. One (1) watertight flashlight 8. Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D	9. One (1) sound-signalling device or appliance 10. Navigation lights 11. One (1) magnetic compass 12. One (1) radar reflector (See Note 3)	13. One (1) 10BC fire extinguisher if equipped with a motor 14. One (1) 10BC fire extinguisher if equipped with a fuel-burning cooking, heating or refrigerating appliance
Sail and Power Boats over 12 m and up to 24 m (39'4" – 78'9")	1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 15 m (49 '3") long 3. One (1) lifebuoy equipped with a self-igniting light or attached to a buoyant line at least 15 m (49'3") long 4. *One (1) reboarding device	5. One (1) anchor and at least 50 m (164'1") of cable, rope or chain in any combination 6. Bilge-pumping arrangements	7. One (1) watertight flashlight 8. Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D	9. One (1) sound-signalling appliance that meets the applicable standards set out in the Collision Regulations 10. Navigation lights 11. One (1) magnetic compass that meets the requirements set out in the Navigation Safety Regulations 12. One (1) radar reflector (See Note 3)	13. One (1) 10BC fire extinguisher at all of the following locations: at each access to any space where a fuel-burning cooking, heating or refrigerating appliance is fitted; at the entrance to any accommodation space; and at the entrance to the machinery space. 14. One (1) axe 15. Two (2) buckets of at least 10 L each

Source: Transport Canada, http://www.tc.gc.ca/eng/marinesafety/tp-tp511-equipment-1140.htm#vessel_safety_equipment

3.6 Vessel Selection

The required crew complement, and qualifications will be an important consideration in determining the type of vessel to be used for the service (**Table 3.2**, above). Focus group participants all appeared to agree that a 12-passenger boat would be adequate to serve between Westmount and Downtown Sydney. The only issue that was raised was the concern that a 13th and 14th passenger might occasionally be left waiting. It seems likely that this would be an infrequent issue, though, and would not lead to undue waiting time given the short run across the Harbour.

3.6.1 Vessel Options

As noted, 12-passenger vessels can be operated by a single person provided the vessel is less than 5 tons and the operator has an unobstructed view in all directions. Examples of ferries that satisfy conditions for single person operation are the False Creek Ferry, Cyquabus 2 & 3, and the Victoria Harbour Ferry illustrated in **Appendix C**. It should be noted, however, that all three boats are small (19 to 22 feet) and allow the driver unobstructed access to the dock so that he or she can readily disembark to secure the boat at one point on landing. All three vessels also include panels next to passengers that not only shelter them from waves and splashing water but also ensure that they are channeled to and from their seats past the driver. One difficulty with open boats that the consultants have observed is the tendency of passengers to leave the vessel before it is secured and, in some cases, before it has even fully come alongside.

Figure 3.8 Recreational Pontoon Vessel

The Cyquabus pictured in **Appendix C** is a pontoon boat. Although it appears to be a custom design, its application as ferry raises interesting possibilities. Pontoon vessels are popular and inexpensive recreation boats. Pontoon boats in the 20 to 25-foot range are capable of carrying 10 to 12 passengers in addition to a driver, and can be bought new for less than $25,000, including an outboard engine and canopy (**Figure 3.8**). The boats normally provide the unobstructed wraparound view for the driver required by Transport Canada and allow the driver to disembark almost as conveniently as appears possible with Cyquabus and the other two single operator examples cited above. They are also very stable and will not roll significantly even in heavy seas. Their inherent stability also provides a steady platform for

passengers to come aboard and leave the vessel, even elderly and disabled users. Side railings offer good attachment points for bicycle racks either on the outside or inside.

A key issue may however be the maneuverability of the boat and its ability to handle rougher conditions in the Sydney Harbour channel. Pontoon boats are most popular on inland rivers and lakes where waves are usually more moderate. The same issue may also present a challenge for the smaller, single crew ferries referenced. The smaller vessels shown in **Appendix C** operate in more sheltered locations on the West Coast where winds are not generally as strong as in Cape Breton. Nonetheless, they do run routes in open areas and can encounter strong winds on occasion. One interview subject who advocated strongly for a pontoon vessel contended that they are easy to maneuver provided they have twin engines, which will allow one engine to be reversed to assist turns, with sufficient power. The contact felt that a 30-foot pontoon boat with twin 70-hp engines would make an excellent ferry, although he acknowledged it might be challenging to operate in the more open waters that would have to be traversed to get to North Sydney.

Larger vessels and even relatively small boats in which the driver is housed in a cabin will require at least one deckhand to assist with docking operations and control passengers. While the inclusion of an additional crew member will obviously add to operating costs, it may have peripheral benefits. In addition to providing support to the captain, a deckhand provides a second set of eyes in all phases of operation, in particular, to see behind the boat, while the captain looks forward to drive the boat. Having a crewperson would also be beneficial in a situation where the operation involves a single ferry and its operator might be alone for some periods of time. Having a colleague would have obvious benefits for loading material on the boat, controlling passengers, and providing a sounding board for whatever issues might arise.

A deckhand would also be required by regulation for most recreational and commercial vessels that might be considered for the service. Few of these types can provide an unobstructed 360 degree view but most will generally be cheaper than a purpose designed ferry boat – even relatively small vessels similar to the three examples noted in **Appendix C**. The tradeoff between the ongoing costs and benefits of a deckhand and the likely cost and value of the vessel to be used is an important financial consideration.

One attractive ferry boat option would be a Cape Islander. Cape Islanders have high bows and broad flat sterns (**Figure 3.9**). The general configuration should work well to shelter the ferry driver and passenger from waves and spray. The flat and wide after section is well-suited to positioning seating for passengers. The freeboard is also relatively low behind the cabin in most versions. This feature, which facilitates hauling fish and lobster pots over the side, makes the boat reasonably easy to step onto from a floating dock as well as to disembark from. Railings on the sides of the passenger area, as illustrated by **Figure 3.9**, would however be desirable to ensure passengers stayed in the boat. As with pontoon boats, a reasonably sized Cape Islander should provide several surfaces to which bike racks or similar storage facilities can be attached. In larger vessels it is likely that bicycles could be stored in the cabin, if one is present, although the aft portion of the cockpit area is probably an ideal location to keep bicycles out of the way but quickly accessible to their riders. Most Cape Islanders will have more than enough width in this area for a bicycle.

Figure 3.9 Cape Islander

Source: courtesy Scuba Tech Ltd.

Other boat types may be suitable and should not be precluded from consideration, particularly the Northumberland variation on the Cape Island style, which puts the cabin farther forward and, as a result, would provide more space for accommodation passengers and bicycle racks. The Northumberland style is also specifically designed for choppy water, which can be expected in Sydney Harbour as opposed to the large rollers found in offshore in areas such as Georges Bank, for which the Cape Island design was specifically developed. Either a Cape Islander or a Northumberland style boat would not only be likely to be adaptable to the requirements of a small-scale pedestrian ferry, they are both instantly recognizable as native to Nova Scotia and symbols of the East Coast, which would augment the secondary role of the ferry as an attraction for tourists. Both types, furthermore, are very stable, reliable, and seaworthy.

3.6.2 New Versus Used Boats

Although originally made from wood, most fishing vessels are now built from UV resistant fiberglass. A number of manufacturers in Nova Scotia produce Cape Islander and Northumberland boats that could be purpose built for ferry use. Some manufacturers will also provide bare hulls or hull and superstructure for finishing by the owner or by the manufacturer to the owner's specifications. As well, because of the ubiquity of the Cape Island and Northumberland designs as fishing vessels, used boats are readily available for retrofit.

Focus group participants familiar with boats and with wind and wave conditions on Sydney Harbour favoured fishing vessels over the other ferry options discussed. They argued that smaller ferry vessels and pontoon boats would find the open water between DYC and RCBYC challenging, whereas Cape Islanders and other types of fishing boats are designed for offshore water conditions and must deal with extreme weather events beyond levels that a short-run ferry route would never be expected to operate in.

Keith Boutilier, the proprietor of Port Morien-based boatbuilder Long Beach Boat Building, indicated that a Cape Island type vessel purpose-designed and built for use as a ferry capable of carrying 12 passengers would cost between $250,000 and $300,000. The builder suggested that a major component of the cost would be the satisfaction of safety regulations. He also recommended a single Cummins 220-hp diesel engine, which he indicated can be fitted under the floorboards (*i.e.*, without a housing, which would take up valuable passenger space). He suggested that an outboard or outboards would consume considerably more fuel and that an inboard engine of the type he recommends. He also asserted that a diesel engine would be very reliable over the first 15 years of its operation.

Used vessels are considerably cheaper. It is not difficult to find a fiberglass Cape Islander or similar boat online for less than $10,000. Many boats in apparently good condition are available for less than $50,000 and brand new bare hulls can be obtained from at least one American builder for $37,000. **Table 3.4** provides a list of boats available online at the time of writing taken from the well-known brokerage site Yachtworld.com and from Kijjiji Cape Breton. As can be seen, many substantial vessels are available for surprising prices, including boats specifically outfitted to carry passengers. None is specifically recommended by the consultants as a harbour ferry but all appear to have the potential to be applied for the purpose.

Consultation with an individual in Halifax with extensive experience in boat repair and refitting suggested that a bare hull either bought new from a manufacturer or recovered from a used boat can be upgraded to the necessary standard for $50,000 or less depending in the case of a recovered hull on the usability of other components (*i.e.*, engine, drive train, electrics, electronics, *etc.*). Mr. Boutilier provided a similar estimate, although with more emphasis on the risks involved and the warning that even after refit an old boat “is an old boat” subject to the inherent problems of age. A Cape Islander or Northumberland hull can also be built or remodeled to provide 360-degree visibility by excluding or removing the cabin superstructure. In such instances a canopy of some sort would be desirable to shelter passengers and crew from the elements when necessary.

A used boat can be expected to incur higher costs for operation and maintenance than a new boat, as well as being less reliable. It will be important, if consideration is given to acquiring a new vessel for ferry service, to consider its adaptability to passenger requirements and the likely cost of retrofitting. This includes right sizing the vessel. Larger vessels are sometimes available at very attractive prices precisely because of the burden they represent. While a larger boat may seem likely to provide more flexibility and comfort, it can also be expected to be considerably more costly to operate and may present additional challenges for hauling, storage, and parts replacement.

Table 3.4 Selected Vessels for Sale, Northeast US and Atlantic Canada, February 2012

LOA	Type	Location	Built	Price	Comments
26 ft	Ocean Technical Services Motor Surf Boat	Gloucester, MA	1997	$22,500	Open water taxi, complete refit in 2012
28 ft	Lobster Style	Nova Scotia	1992	$28,000	Standard boat in good condition
32 ft	Cabin Cruiser	Sydney, NS	1986	$6,100	Needs clean up and refit
32 ft	Pilot House	Birch Grove, NS	2012	$50,000	Open after area with enclosed cabin, ad says both 1993 and new. Looks new
33 ft	Downeast Lobster Boat	Tenants Harbor, ME	2012	$50,750	Kit boat, requires engine, can be finished to specs
34 ft	Mainship Passenger Water Taxi 6 Pack	Midcoast, ME	1977	$35,000	Open boat, specifically equipped as water taxi
37 ft	Repco Commercial Lobster Boat	East Port, ME	1981	$69,500	Equipped and US inspected for 20 passengers
40 ft	Magna Marine	New Brunswick	2000	$60,000	Enclosed cabin and open after deck
42 ft	Mussel Ridge Lobster Boat	Midcoast, ME	2012	$37,000	Bare hull only
42 ft	Provincial Marine Northumberland	Digby, NS	2001	$149,900	23-passenger whale watching/tour boat. Meets Transport Canada regulations
44 ft	Hennessey	Nova Scotia	2002	$149,000	Very good condition
45 ft	Sea Craft	Dartmouth, NS	1996	$50,000	Includes seating (36-passenger capacity)

If a previously owned vessel is to be considered, it is strongly advised that the operator engage a marine surveyor before committing to a purchase. The used boat market in Atlantic Canada is varied and, while it offers many bargains, the quality of boats is very uneven and issues may be difficult even for current owners to be aware of. The integrity of the hull and superstructure, engines and other mechanical components, electronics, and safety equipment should all be verified before committing to purchase. Particular attention should be paid to potential deformation of the hull, which is a common issue for boats that have been placed on cradles for extended periods, and the hours of operation on the engine and its maintenance record. Consideration also has to be given to the location of the boat as long distance transport can be a significant additional cost (although delivery can often be negotiated as a condition of sale).

3.6.3 Summary Comparison

Table 3.5 presents a Multiple Account Evaluation of the key vessel options considered. The evaluation compares three options: a new fishing boat, which would presumably be a Cape Islander or Northumberland type, if built in Nova Scotia; a used fishing boat, which would most likely also be a Cape Islander or Northumberland design, although other types such as a Pilot House or Downeast design might be considered if they represented good value; and a pontoon boat, which is assumed to be a new boat bought at retail with modifications to enhance its durability and usability as a passenger vessel.

The options are evaluated on the basis of six criteria. All three can be considered satisfy all six criteria to a degree. Ratings by each criterion reflect the judgement of Stantec team members.

Other analysts might reasonably assign different ratings in some categories depending on personal perceptions.

Table 3.5 Multiple Account Evaluation, Selected Vessel Types

	Criteria						
Vessel	**Stable in rough/ open water**	**Ease of loading/ unloading**	**Length of time to build/ retrofit**	**Supports local boatbuilders**	**Celebrates heritage**	**Cost effective investment**	**Overall**
Cape Islander/ Northumberland – New							
Cape Islander/ Northumberland – Used							
Pontoon Boat							

Key:				
Excellent	**Good**	**Okay**	**Poor**	**Fails**
				
Score:				
4	3	2	1	0

Based on ratings by Stantec, the best scoring option is a used fishing-type vessel by a very narrow margin over a new fishing vessel (average rating of roughly 3.2 for used as opposed to 3.0 for new). A used boat is considered to take less time to secure and is expected to be considerably less expensive, allowing that there are clearly risks in terms of reliability and operating costs with a used boat. The average rating for a pontoon boat was 2.5, which is significantly less. Arguably, however, the most important single criterion is cost-effectiveness and a pontoon boat may well be seen as the best in that regard, as a new pontoon vessel can likely be purchased for a very similar price to a used Cape Islander or similar boat and will enjoy the benefits more reliable operation and lower maintenance costs associated with new vessels.

4.0 FINANCIAL SUMMARY

Table 3.5 following provides a preliminary summary of ferry costs and revenues. It assumes the purchase of a previously owned Cape Islander retrofitted for use as a passenger ferry capable of carrying no more than 12 passengers.

4.1 Costs

Research for this study has identified the following costs that may have to be addressed and factors that appear likely to influence them for a ferry serving the Westmount to Sydney route from July through October:

- *Landings* – It appears that ferry landings are available on either side of the Harbour at the Dobson Yacht Club in Westmount and the former Royal Cape Breton Yacht Club in Downtown Sydney. The owners of boat sites appear to be willing to provide access free of charge although no formal commitment to do so has been provided in either case. Wharves and related facilities appear more than adequate in both locations for the type of ferry envisioned. The only notable upgrades that may be required are the provision of seating and or shelter at DYC and upgrades to ensure accessibility for mobility impaired passengers at RCBYC. These costs are likely to be modest and could probably be avoided until the service is well established. Funding assistance may also be available to assist with improvements of this type. A typical urban bus shelter costs between $6,000 and $10,000, and would be large enough to handle typical passenger volumes.

- *Vessel Acquisition* – As discussed above, a new ferry vessel specifically designed for the proposed service will likely cost between $250,000 and $300,000. An exception may be a manufactured pontoon boat, which can be obtained at a suitable size for less than $50,000, taking into account the need for some modifications that would likely be required to make one suitable for ferry use (*e.g.*, passenger, seating, bicycle racks, safety equipment). A used fishing or recreational vessel can be obtained for very little money but it is reasonable to assume that upgrades necessary to handle passengers efficiently and comfortably, and to meet all safety standards will take the cost to at least $50,000 and, possibly, to $100,000. Fiberglass is the most common material and is recommended, although aluminium would also be acceptable. Wood should be avoided because of the much higher degree of maintenance it requires.

- *Labour* – We have estimated the cost of the ferry master at $25/hour based on consultation with an interview contact qualified to hold the position who also employs several people in similar marine industry roles. A deckhand, if required, would be expected to receive close to the Nova Scotia minimum wage of $10.30/hour. For some vessel types, it is anticipated a deckhand will not be necessary. Operation by a single person would also restrict operation to daylight and good weather conditions.

  It is not expected that administration or maintenance staff would be necessary. If the ferry service was offered through a larger organization, particularly one involved in other marine activities, such staff might well find some work in assisting with the ferry operation. If, however, the ferry were to be offered by a small business primarily focused on its operation, the overhead would not be likely to be affordable. A qualified master should be capable of doing basic maintenance work and identifying maintenance problems. The lack of an administrative staff person could be an issue for the operation particularly with respect to promotion of the service. This is an area in which CBRM or Transit Cape Breton might well be able to provide useful support.

- *Fuel* – One contact with extensive experience owning and operating marine vessels estimated that a six-cylinder turbo diesel in the 200-hp range will consume about 8 litres per hour of operation. The same individual suggested that a pontoon boat with twin 70 hp outboards would also use about 8 litres per hour of running time, although the fuel would be gas as opposed to diesel. The assumed price of gas and diesel is $135/litre.

- *Maintenance* – Maintenance is assumed to vary considerably depending on whether the vessel to be used by the ferry service is new or used. Contacts have generally agreed that a new boat would incur very little maintenance expense in its first ten years of use. Depending on the age of critical components, used boats will incur more substantial annual costs.

  Assuming the boat material is fiberglass or aluminium as opposed to wood even older hulls should require little more than cleaning and annual or biannual renewal of anti-fouling paint. For a 30 to 35-foot vessel this should not cost more than $500 per year based on scraping and painting every second year, with an additional $2,000 every 8 to 10 years to cover comprehensive renewal. The blended cost of these two components would be $700 per year.

  Engines are however less predictable. After extended operation marine engines require more frequent attention and are more prone to breakdown. A very conservative allowance of 10 per cent per annum is provided for the mechanical components of all used boats based on a rough assessment of the typical risk. The typical cost of a new marine diesel engine in the 200-hp range is $10,000 to $15,000. The cost of a new 70-hp outboard engine, which our contact strongly suggested would be the most appropriate engine to power a pontoon boat, if run in tandem, is typically in the $7,000 to $7,500 range, which results in a similar total cost and an annual maintenance allowance of $1,500/year.

- *Insurance* – To determine likely insurance costs, Stantec contacted Bluenose Insurance Brokers in Sydney whose representative consulted with a marine underwriter. The broker provided a ballpark estimate of $3,000 per year to insure a vessel valued at approximately $100,000, although exact premium would also be influenced by the type of boat and its age. A vessel is also required to have Protection and Indemnity Insurance to cover legal liabilities for bodily injury or property damage (including environmental contamination and wreck removal). The broker suggested coverage of $350,000 per passenger or roughly $4 million for a 12-passenger vessel would cost an additional $5,000 per year. He added that only a small number of insurers offer this type of coverage. Total annual insurance costs would therefore be $8,000.

  One experienced contact who owns several boats suggested that insurance would probably run by between $5,000 and $10,000. A marine insurance broker in Sydney recommended by the same individual estimated the cost of insuring a 30 to 35-foot ferry carrying a maximum of 12 passengers at $3,000 per year.

- *Other* – Winter storage and similar incidentals are included under "Other" costs. No costs are assumed for dock use or maintenance based on the assumption that the required facilities can be secured free of charge at the primary landing sites. It is assumed that the ferry operator would become a member of DYC to gain access to its facilities. Based on current fees listed on the DYC Web site, the operator would pay $115 annually for membership dues (plus a "one-time, non-refundable administration equity fee" of $110 to be paid on initial admission); $300 for annual launch and haul-out; and $550 for summer and winter storage on-site, for a total of $1,075 in the first year and $965 each year thereafter. Another $1,000 per year is provided for contingencies, which might include additional yacht club fees but could also include equipment and other unanticipated incidentals.

4.2 Revenues

As discussed, local contacts are comfortable with fares of, perhaps, $5 for a round-trip with discounts for youth and seniors but, possibly, a premium charge for one-time users. For the purposes of revenue calculations, we have assumed $2.50 one-way for adult passengers and $2.00 one-way for youth and seniors. It is assumed that infants who could be carried on the lap of an adult would be permitted to ride for free but this would likely be a very infrequent event.

Maximum revenue potential is assumed based on 80 per cent adult full-fare ridership. With an average of 9.6 passengers paying $2.50 and the remainder $2.00, the ferry can generate no more than $28.80 per trip.

It is assumed that the ferry vessel would run on a half-hour cycle (*i.e.*, one trip each way per half hour) during peak periods (7:00 am to 9:00 am and 4:00 pm to 6:00 pm). Nine trips during this four-hour period could generate $259.20 daily, if full capacity is achieved, which is unlikely.

During the rest of the day, it is assumed the ferry would operate as a water taxi on an on demand basis. It is difficult to fix on a rate for the ferry to operate of a taxi basis. A base rate such as $5

might be appropriate as it would represent the minimum revenue for the ferry on a scheduled run during peak periods. Passengers might then be levied a charge based on distance covered by the ferry on their behalf. If a charge of $2.50 per kilometer were applied, a round trip to North Sydney from Downtown covering roughly 2.5 kilometers each way would cost $17.50. A similar return trip to Sydney River would cover closer to 7 kilometers each way and would therefore cost $22.50. Petersfield Provincial Park, which is about 2 kilometers from RCBYC by water, would cost $15.

Considering a trip to North Sydney and back would take more than an hour (*i.e.*, about 40 minutes each way), it is reasonable to assume that the ferry could return no more than $20/hour over the six and a half hours available between 9:00 am and 4:00 pm, recognizing that some time would be required for positioning after the morning schedule was complete and before the afternoon schedule began. This would provide an additional $130 in gross revenue. If the operator chose to operate to 8:00 pm in the evening, this could be augmented with another $40 very optimistically providing total daily proceeds of $430.

4.3 Environmental Evaluation

The environmental benefit from savings in the development of additional infrastructure required to accommodate increasing vehicle travel is unfortunately expected to be modest. Substitution of ferry travel for automobile trips offers the potential to reduce peak period congestion and thereby reduce road construction needs. In CBRM, however, while data on current levels of traffic in CBRM is not available, declining local population supports the observation that serious congestion is rare, making the need to expand existing major road links unlikely.

Effects on energy emissions will also be moderate. The ferry as conceived will be a small vessel capable of carrying no more than 14,760 passengers over the course of a season and, therefore, replacing no more than 14,760 vehicle trips per year under the extreme assumption that each ferry passenger would otherwise make the trip from Westmount to Downtown Sydney in an automobile without any additional passengers. These vehicle trips can be expected to each cover 8 kilometers, the road distance between Westmount and the Downtown.

Nearly 15,000 8-kilometer trips (115,080 total kilometres of vehicle travel) will of course consume substantial quantities of fuel and thereby generate significant carbon dioxide (CO_2) emissions (CO_2e), which are greenhouse gases regarded as being a critical cause of global climate change. **Table 4.1** summarizes CO_2 emissions in terms of three components: CO_2, methane (CH_4), and nitrogen dioxide (N_2O). Ferry emissions are based on ten daily roundtrips for 123 days of operation per year and are provided for the 210-hp diesel and twin 70-hp gasoline engine options outlined above. Automobile emissions were assumed for light duty gasoline vehicles equipped with catalytic converters.

Transit alternatives to the automobile typically have benefits in reducing the quantity of these undesirable emissions. The ferry however will have a fixed level of fuel consumption so that the benefits of its operation will depend on its ridership. At 100 per cent ridership, the ferry is clearly superior to automobile travel whether it is configured with diesel or gasoline engines, respectively producing 35 per cent or 58.5 per cent as much CO_2e as the equivalent number of automobiles.

Table 4.1 Estimated GHG and Pollutant Emissions, Shuttle Ferry Options, CBRM					
Travel Options	Annual Fuel consumption (liters)	Emissions (kg)			
		CO_2	CH_4	N_2O	CO_2e
Ferry (diesel)	3,267.6	8,788.6	0.5	3.6	**9,913.2**
Ferry (gasoline)	7,013.4	16,214.2	9.1	0.5	**16,549.1**
Equivalent Automobile Travel					
100% ridership	11,513.0	26,616.7	2.6	5.4	**28,349.8**
75% ridership	8,634.7	19,962.6	2.0	4.1	**21,262.3**
50% ridership	5,756.5	13,308.4	1.3	2.7	**14,174.9**
35% ridership	4,029.5	9,315.9	0.9	1.9	**9,922.4**

With lower levels of ridership, however, fewer automobile trips will be required to substitute for ferry rides. Census journey-to-work-data for CBRM suggests that about 75 per cent of work trips in CBRM are made by individuals driving their own cars. This would be equivalent to 11,070 8-km trips if the ferry were running at full capacity. At that level, the ferry would still generate significantly less emissions than the equivalent automobile trips. It is, however, unlikely, as previously acknowledged, that the ferry will run at capacity. With each successive reduction of potential trips handled by the ferry, its edge over automobile travel will fall. At 50 per cent ridership (7,380 trips), a gasoline powered ferry will generate more CO_2 emissions than the equivalent automobiles and at 35 per cent ridership even a diesel ferry will generate slightly more emissions than the equivalent automobiles (see **Table 4.1**).

The ferry, nevertheless, can play a positive environmental role as well as contributing to the overall health of CBRM residents. The ferry, as noted in several locations above, will complement existing and proposed trail and bicycle routes on the harbour's edge. As such, it will facilitate walking and bicycle trips for which alternative automobile trips may well considerably exceed 8 kilometers in length. As well, the presence of the ferry will enhance the practicality and attractiveness of walking and bicycling in CBRM stimulating environmentally beneficial travel and healthy physical activities.

4.4 Breakeven Analysis

The foregoing analysis suggests that it will be challenging to generate a profit with a shuttle ferry as defined for this study. Covering costs will require fare levels that are likely to be beyond the tolerance of local residents. Acceptable fares, on the other hand, will only cover costs at unrealistic levels of ridership.

Public transportation options are not typically profitable. Transit Cape Breton and most transit systems, even in much larger urban markets, are subsidized. The justification for subsidizing these services is normally found in the benefits they offer to residents who are less mobile for reasons of age, infirmity, or financial means, as well as for the environment.

The proposed shuttle ferry will have limited benefit for the mobility challenged. Although provision for handicapped riders has been discussed and can be provided, the ferry was conceptualized as a complement to the Municipality's active transportation network. Wheelchair users and others with mobility challenges will have to arrange transportation to and from the ferry landings. In most cases, it will be more convenient to arrange use of the Municipality's well-established Handi-trans service. The ferry primarily target pedestrians and cyclists, although it can integrate with transit connections in Downtown Sydney, and automobile riders and passengers will be welcomed. **Table 4.2** summarizes costs and potential revenues for the three vessel options discussed above: a new Cape Islander or similar fishing vessel, a used equivalent, and a pontoon boat bought new. All three vessels are assumed to be capable of carrying 12 passengers and no more. By most cost parameters, in fact, all three are equivalent. Critical differences are vessel acquisition and refit, and maintenance costs. Costs for labour and other inputs are assumed to be the same.

Shoreside improvements and some labour costs are assumed to be cancelled by in kind contributions and/or grants. A variety of programs are available to assist with transit programs and employment programs that would provide assistance with labour costs are well established. It seems particularly likely that assistance could be obtained to pay for passenger shelters and/or that volunteer assistance might be available in the community to help with construction of shelters and improvements to docks (alternatively, shelters are not essential given the summer/early fall schedule anticipated). It also seems likely that the deckhand position would be eligible for student employment programs as it would be a summer position and skill requirements would be moderate.

The least expensive option is a pontoon boat, largely because it combines low initial cost for acquisition and refit (which would strictly be customization of a new vessel as opposed to adaptation of an existing one) and lower operating costs. The spread between the most expensive option (a purpose-built Cape Islander) and the least (a new pontoon vessel) is however only about $30,000 per year after amortization of the capital costs at 4.0 per cent annually.

Revenue is calculated on the basis of maximum potential ridership, which is identical for all vessel options, given that all are expected to carry the same number of passengers and charge the same fares. It is assumed that the ferry will run ten roundtrips daily for all seven days of the week over the period from July through October (*i.e.*, 123 days). Maximum annual ridership, therefore, is based on 12 riders x 10 roundtrips x 123 days or 14,760 roundtrip fares. At the fare level generally deemed acceptable by focus group participants -- $2.50 one-way or $5 per roundtrip – maximum revenue potential would equal $68,634, taking into account a 7 per cent allowance for discounts to children and seniors (based on an average 20 per cent discount applied to one-third of all fares).

This is not a sufficient sum to cover total estimated costs. Even if all available seats could be sold, a ferry relying on a new built Cape Islander or similar type vessel would lose $18,258 per year. Reliance on a less expensive used vessel or pontoon boat could put the service into the black but for a used fishing vessel would need to sell 93 per cent of seats and a pontoon boat would require 82 per cent ridership, levels of ridership that will likely be very difficult to attain. Raising the roundtrip fare to $7.50 would increase potential revenue to $102,951. This would be sufficient to cover costs under all three scenarios considered, although ridership levels of 54 per cent for a pontoon boat and 81 per cent for a new fishing type vessel would be required.

Table 4.2 Breakeven Assessment, Shuttle Ferry Options, CBRM, 2013				
	Cape Islander New	Cape Islander Used	Pontoon Boat	Details
Capital Costs				
Vessel Acquisition	$300,000	$50,000	$40,000	
Vessel Refit	$0	$50,000	$10,000	
Passenger Shelters	$15,000	$15,000	$15,000	
Dock Upgrades	$1,500	$1,500	$1,500	
Less grants/contributions	$16,500	$16,500	$16,500	For shelters and docks
Total Expected Capital Cost	$300,000	$100,000	$50,000	
Annual Expected Capital Cost	$36,987	$12,329	$6,165	10-year loan @ 4.0%
Operation Costs				
Captain/Master	$24,600	$24,600	$24,600	$25/hour
Deckhand	$10,135	$10,135	$10,135	$10.30/hour
Fuel	$14,529	$14,529	$14,529	123 days @ 5 hrs/ day 17.5 litres/hr fuel $1.35/litre
Maintenance	$700	$2,200	$700	Assume used vessel is 10+ plus years old
Insurance	$8,000	$8,000	$8,000	
Other (storage and contingencies)	$2,075	$2,075	$2,075	
Less grants/contributions	*$10,135*	*$10,135*	*$10,135*	Employment grant for deckhand
Annual Expected Operating Cost	$49,905	$51,405	$49,905	
TOTAL COST	**$86,892**	**$63,734**	**$56,070**	
Potential Revenue				
Maximum Annual Riders	14,760	14,760	14,760	12 passengers 123 days 10 round trips/day
Maximum Revenue ($5 roundtrip)	$68,634	$68,634	$68,634	-7% allowance for discounts
Required Ridership	127%	93%	82%	
Maximum Revenue ($7.5 roundtrip)	$102,951	$102,951	$102,951	-7%
Required Ridership	84%	62%	54%	
Maximum Revenue ($12 roundtrip)	$164,722	$164,722	$164,722	-7%
Required Ridership	53%	39%	34%	

A roundtrip fare of roughly $12 would be necessary to cover costs under all scenarios. Required ridership would fall to 53 per cent for a new Cape Islander and to less than 40 per cent for both a used Cape Islander and a pontoon boat. A $6 one-way fare is however high by comparison to ferry services summarized in **Appendix C** and considerably outside the range that focus group participants considered acceptable.

Viability could be more realistically enhanced by reducing costs or obtaining assistance to mitigate specific costs. The cost of vessel acquisition could, for example, be reduced in a variety of ways such as simplifying its requirements or, simply, by finding or negotiating a better deal. The operator might also be able to obtain funding support for some items.

The beneficial environmental role of the ferry is primarily to facilitate the use of active transportation. The more general role of the service will be the convenience and comfort that it could offer to residents and the attraction it may offer to visitors are the fundamental justifications for the ferry link. Its viability will depend on the ability of its operator to implement the service at minimal cost and the interest of the public in using the service. Assistance has been offered to establish necessary terminals and an appropriate vessel may be available at a reasonable cost, particularly through an operator who is established in a marine business.

One potential operator with the necessary resources and appropriate experience has offered to establish a ferry service on a pilot basis. We would advise that CBRM should encourage this individual to pursue his interest with all reasonable facilitation and assistance. A trial over a two-week to one month period in the early summer of this year would allow the potential operator and other stakeholders to gauge the market potential of the service without significant public investment. It should be recognized in doing this, however, that transit routes, of which the ferry is a form, normally take time to build ridership and that significant numbers of tourists will not be available to supplement domestic ridership until August.

APPENDIX A INTERVIEW CONTACTS

Interview Contacts		
Name	**Affiliation/Title**	**Date of Contact**
Ross Aitkens	Citizen (knowledgeable concerning history of ferries in Sydney Harbour)	Interviewed 02/07/2013
Keith Boutilier	Long Beach Boat Building Ltd.	Interviewed 02/20/2013
Paul Carrigan	Manager, Sydney Ports Corporation	Interviewed 02/04/2013
Claire Detheridge	CBRM Councillor (Westmount area)	Interviewed on 01/28/2013
Ken Heaton	Board Member, Dobson Yacht Club	Interviewed 01/22/2013
Ken Jardine	Scuba Tech Ltd.	Interviewed 03/18/2013
Brian LeBlanc	Executive Director, Canadian Coast Guard College	Interviewed 02/06/2013
Darcy MacDonald	Manager, Holiday Inn	Interviewed 01/25/2013
Eldon MacDonald	CBRM Councillor (Downtown Sydney)	Interviewed 01/22/2013
Carolyn Markotich	Program Coordinator, CBRM Recreation	Interviewed 02/22/2013
Bernadette MacNeil	Cruise Marketing Manager, Sydney Ports Corporation	Interviewed 03/08/2013
Darren MacNeil	Bluenose Insurance Brokers, Sydney	Exchanged emails 03/20/2013
Luke Porter	Shoreside Marine Services, Halifax	Interviewed 03/01/2013
Jennifer Rowe	Former Manager, RCBYC	Interviewed 02/06/2013
Gerard Shaw	Manager of Property, ECBC	Interviewed 01/22/2013
Bernie Steelwe	Supervisor of Transit, Transit Cape Breton	Interviewed 01/10/2013 & 02/05/2013
Mary Tulle	CEO, Destination Cape Breton	Interviewed 02/11/2013

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APPENDIX B SURVEY SUMMARY

TRANSPORTATION SURVEY: WESTMOUNT AREA

Questionnaire Preamble

The purpose of this questionnaire is to collect information on **existing travel patterns and needs in the Westmount area**. Please help us by completing the questionnaire and returning it to the survey coordinator. Try to be as accurate as possible when answering the questions. The survey results will be confidential so please do not write your name on the questionnaire. If you have questions or concerns about the questionnaire, please contact Rick McCready, CBRM Planner, at the CBRM Planning Department at 902-563-5072 or by email: rgmccready@cbrm.ns.ca.

The survey coordinator will drop by your home to pick up the completed survey. If you would prefer to mail the survey back, please send it to: CBRM Planning Department, 320 Esplanade, Sydney, N.S. B1P 7B9. You are also welcome to drop the completed survey off at the Civic Centre, 320 Esplanade.

Survey Background:

The Cape Breton Regional Municipality (CBRM) Active Transportation Plan was adopted by the CBRM Council in 2008. One of its recommendations was to conduct a study to determine the feasibility of establishing a ferry service in Sydney Harbour for pedestrians and cyclists that would operate between Downtown Sydney and Westmount. The study will investigate the costs associated with purchasing a small vessel, operating costs, potential length of season, and docking facilities. CBRM has recently secured funding to carry out this study. Please note that the CBRM commitment is limited to carrying out the study and that by coordinating the study the CBRM is **NOT** indicating that the Municipality will operate the service if it is determined that the service is feasible.

Survey Response

The survey obtained 337 responses. We are uncertain of the total population of the Westmount area but are confident that the sample represents a substantial proportion of its households. Independent of the population from which the sample was drawn a sample of 337 is considered accurate within ±5.3 per cent 19 times in 20.

For the purposes of carrying out the survey, Westmount was divided into four zones. Return envelopes were marked so that when the surveys were analyzed the zone could be identified without identifying the specific respondent. The survey results were compiled and reviewed by zone to determine of there were any significant differences in the results between different parts of the community. Responses were heavily weighted to Zone 3 (61.9 per cent of responses for which the zone could be identified).

In general, little difference was observed among the zones, suggesting Westmount is a very homogeneous community. The only exception to this was that the area of Westmount bordering Keltic Drive (the area closest to the Sydney River Bridge and farthest from the likely location of a ferry dock) reported a lower percentage of participants with positive comments on the ferry idea.

Even in this area, however, positive comments outnumbered negative comments by a ratio of more than 2 to 1.

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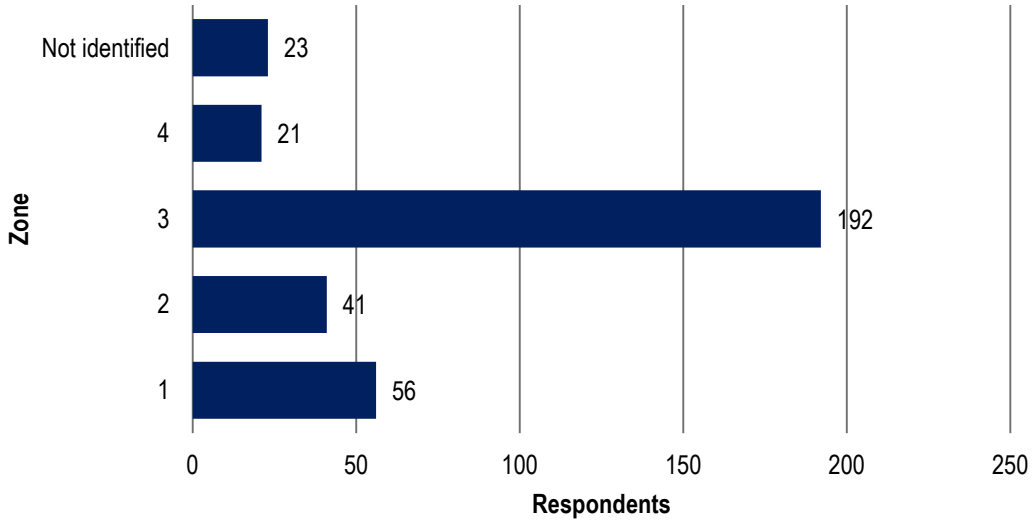
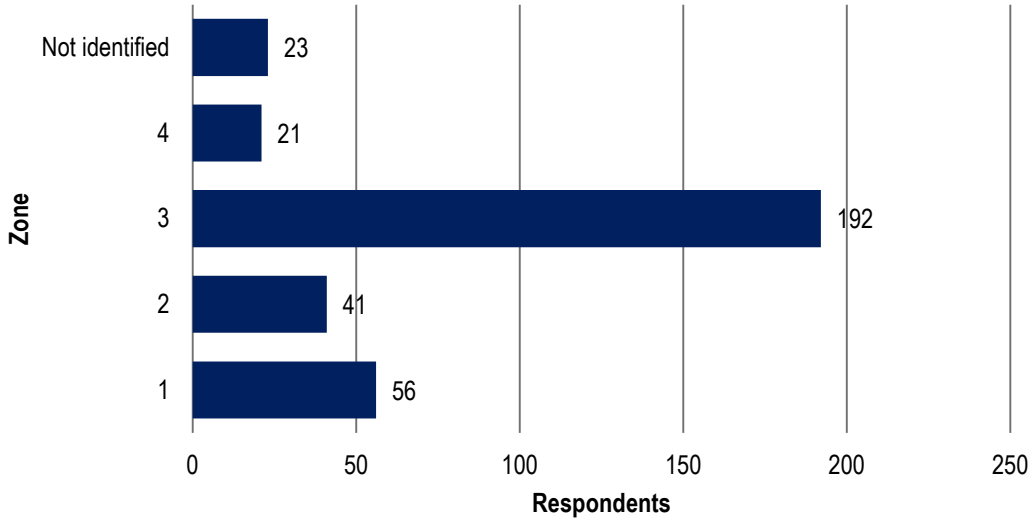


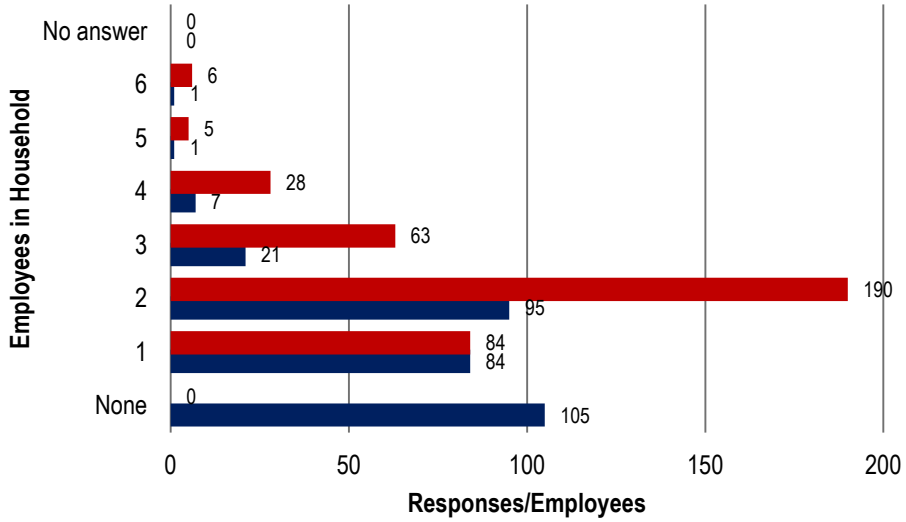
Please answer the following questions on your current travel patterns:

1. Please indicate the number of persons who live in your household. Include anyone boarding in your home that identifies your home as their principal residence. (circle number)
1 2 3 4 5 6 or more



2. How many persons in your household are currently employed (circle number)

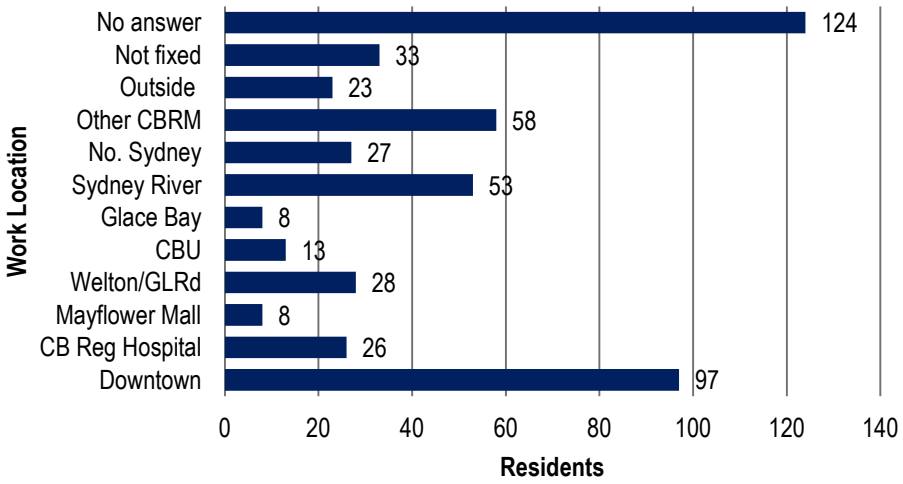
None 1 2 3 4 5 6 or more



If none, go to question 4.

3. Please indicate the number of persons in your household who have jobs in each of the following areas of CBRM. Example: if 1 person in your household works in Downtown Sydney and 21 person persons work at the Cape Breton Regional Hospital, put "1" next to Downtown Sydney and "2" next to the Cape Breton Regional Hospital.

Downtown Sydney, including the Sydney Shopping Centre _____
Sydney River _____
Cape Breton Regional Hospital (Sydney) _____
Mayflower Mall _____
Welton Street/Graarnd Lake Road area _____
Cape Breton University _____
Downtown Glace Bay _____
North Sydney (including Marine Atlantic) _____
Elsewhere in CBRM _____
Outside CBRM _____
No fixed location (such as driving a cab) _____

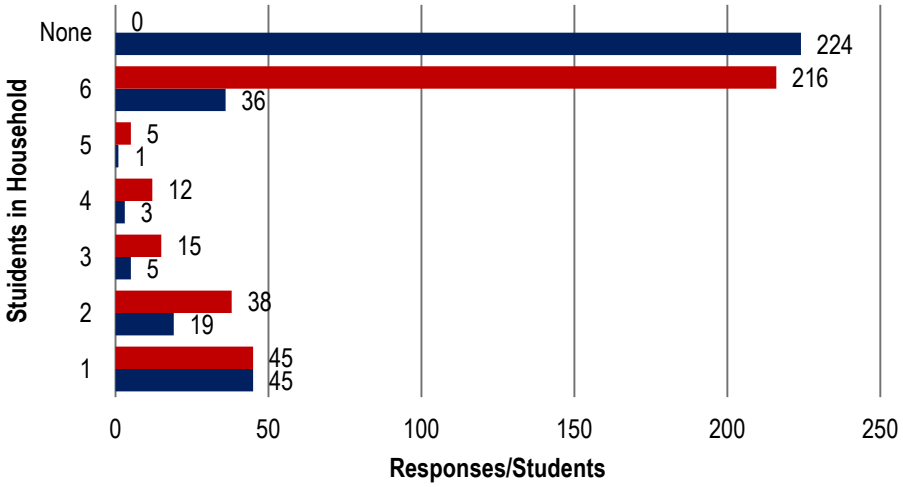


4. Not counting trips to work, how many total one-way trips do all members of your household travel make to Downtown Sydney each month? Count a trip to Downtown and back as 2 trips. Include ALL trips for any reason, including shopping, appointments with doctors or lawyers, recreational or gym trips (such as going to the YMCA or Ascendo Fitness), going to hockey games at Centre 200, going to movies, visiting friends, dining friends, dining out at restaurants, etc. Trips to the Sydney Shopping Centre area should be included, but do NOT include trips to locations outside the Downtown area.

In total, 323 respondents to the question indicated that they made 17,038 trips to Downtown. The average number of trips was 52.7 with a maximum of 300 trips identified by two different respondents.

5. Please indicate the number of persons in your household who are attend/who attend school full time.

None 1 2 3 4 5 6 or more



If none, go to question 7.

6. Please indicate how many persons in your household attend each of the following schools

Robin Foote Elementary, Westmount _____

MacLennan Junior High, Westmount _____

Harbourview Montessori School, Westmount _____

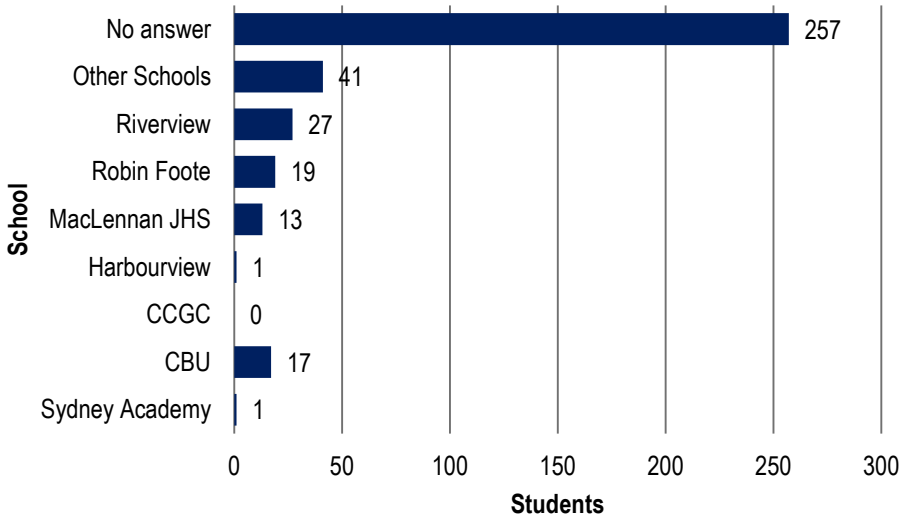
Cape Breton University or Marconi Campus, Nova Scotia Community College _____

Sydney Academy _____

Riverview Rural High School _____

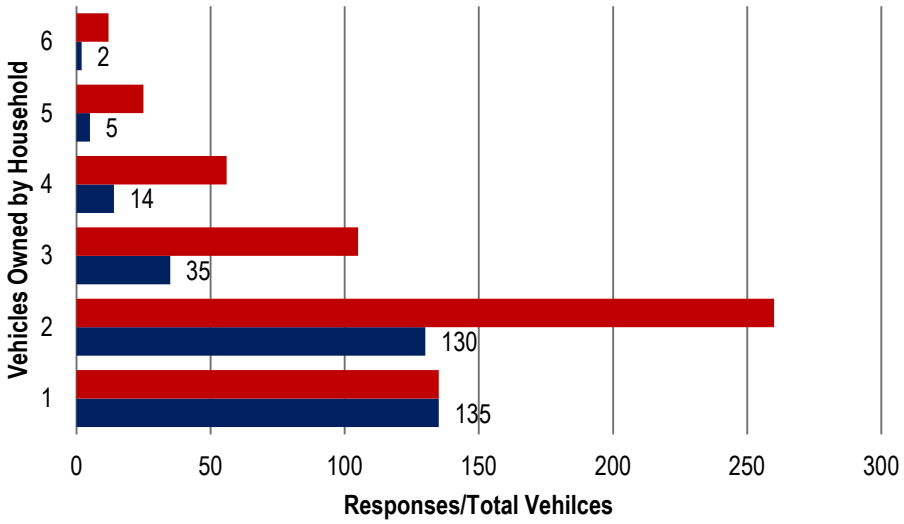
Canadian Coast Guard College _____

Other schools _____

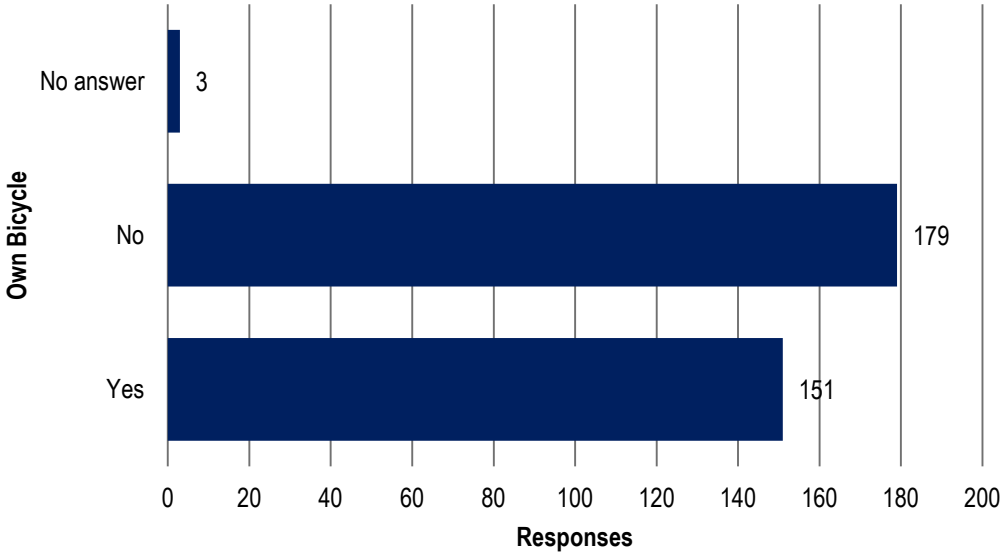


7. How many licensed motor vehicles are owned by members of your household? Include motorcycles but do not include off-highway vehicles. (circle correct number)

None 1 2 3 4 5 6 or more



8. Does anyone in your household own a bicycle? Yes____ No_____



Thank you for participating in the survey. If you have any other comments about the questionnaire or the Harbour shuttle idea, please use the space below to share your comments with us.

At the end of the survey, participants were provided an opportunity to comment on the idea of a pedestrian ferry. 143 decided to take us up on our offer. Of those who did, 91, or 63.6%, made positive comments about the ferry idea, and 16 (11.2%) made negative comments. 12 (8.4%) indicated that they were not necessarily opposed to the ferry, but felt that money would be better spent improving bus service to the area. The rest of the comments (24, or 16.7%) were miscellaneous, and were not specific to the ferry project.

APPENDIX C NORTH AMERICAN PASSENGER FERRY SURVEY

KITSAP FOOT FERRY		FALSE CREEK FERRY	
Location	Bremerton, Washington	**Location**	Vancouver, BC
First Year of Operation	2012	**First Year of Operation**	1979
Route	Bremerton/Seattle	**Route**	Multiple stops along False Creek
Public or Private	Public	**Public or Private**	Private
Route Distance (km)	25	**Route Distance (km)**	400 m to 2.5 km
Trip Time (minutes)	35	**Trip Time (minutes)**	Varies (2 to 15 minutes)
Months of Operation	June-October	**Months of Operation**	Year-round
Fare (one-way)	$3.50	**Fare (one-way)**	$3.25, $4.25 and $5.50 (varies by distance)
Frequency	2 round trips in both morning and afternoon	**Frequency**	15 minutes
Bikes Allowed	Yes	**Bikes Allowed**	No
Wheelchair Accessible	Yes	**Wheelchair Accessible**	No
Engine	Diesel	**Engine**	Diesel
Construction Material	Steel	**Construction Material**	Reinforced plastic
Speed	37 knots	**Speed**	6 knots
Capacity	117 passengers	**Capacity**	12 passengers
Length	29.3 m (96 feet)	**Length**	5.79 m (19 feet)
Width (Beam)	9.75 m (32 feet)	**Width (Beam)**	2.5 m (8.2 feet)
Draft	2.16 m (7.1 feet)	**Draft**	0.73 m (2.4 feet)

CYQUABUS 2&3		RIVERLINK FERRY	
Location	Vancouver, BC	**Location**	Camden, New Jersey
First Year of Operation	1986	**First Year of Operation**	1992
Route	Multiple stops along False Creek	**Route**	Camden, NJ / Philadelphia, PA
Public or Private	Private	**Public or Private**	Public
Route Distance (km)	200 m to 2.5 km	**Route Distance (km)**	650 m
Trip Time (minutes)	Varies (3-15 minutes)	**Trip Time (minutes)**	12 minutes
Months of Operation	Year-round	**Months of Operation**	April-October
Fare (one-way)	$2.50; $3.25; $3.50; $4.50; $5.50 (varies by distance)	**Fare (one-way)**	$3.50
Frequency	3 to 15 minutes	**Frequency**	30 minutes
Bikes Allowed	Yes	**Bikes Allowed**	Yes
Wheelchair Accessible	Yes	**Wheelchair Accessible**	Yes
Engine	Gasoline	**Engine**	Diesel
Construction Material	Aluminum	**Construction Material**	Steel
Speed	7 knots	**Speed**	-- knots
Capacity	12 passengers	**Capacity**	395 passengers
Length	6.71 m (22 feet)	**Length**	28.1 m (92.2 feet)
Width (Beam)	3.05 m (10 feet)	**Width (Beam)**	13.3 m (43.5 feet)
Draft	0.76 m (2.5 feet)	**Draft**	-- m (-- feet)

VICTORIA HARBOUR FERRY		LASQUETI ISLAND FERRY	
Location	Victoria, BC	**Location**	Lasqueti Island, BC
First Year of Operation	1990	**First Year of Operation**	1912
Route	Multiple stops around Victoria Harbour	**Route**	Parksville / Lasqueti Island
Public or Private	Private	**Public or Private**	Public
Route Distance (km)	600 m to 3.5 km	**Route Distance (km)**	16 km
Trip Time (minutes)	Varies	**Trip Time (minutes)**	60 minutes
Months of Operation	Mid-May to mid-September	**Months of Operation**	Year-round
Fare (one-way)	$5	**Fare (one-way)**	$9.50 (Sept-June); $10.50 (July-Aug)
Frequency	15 minutes	**Frequency**	3 times daily, but no service Tues/Wed
Bikes Allowed	Yes	**Bikes Allowed**	Yes
Wheelchair Accessible	No	**Wheelchair Accessible**	Yes
Engine	Diesel	**Engine**	Diesel
Construction Material	Wood	**Construction Material**	Aluminum
Speed	- knots	**Speed**	14 knots
Capacity	12 passengers	**Capacity**	60 passengers
Length	6.1 m (20 feet)	**Length**	20.88 m (68.5 feet)
Width (Beam)	2.44 m (8 feet)	**Width (Beam)**	5.49 m (18 feet)
Draft	0.61 m (2 feet)	**Draft**	2.32 m (7.6 feet)

Summary Features, Select North American Passenger Only Ferries, 2012

Name	Location	Community Size	Season	Pricing	Frequency	Trip Distance	Trip Time (Minutes)	Bikes	Accessible	Transit	Operating Structure	Vessel Size (passenger capacity)	Daily Ridership
The Aquabus	Vancouver, BC	500,000+	All year	$2.50; $3.25; $3.50; $4.50; $5.50/ Day Pass $14/ Monthly $60	3 to 15 min	200m-2.5 km	varies	Yes	Yes	Yes	Private	12 (7); ? (4)	N/A
False Creek Ferries	Vancouver, BC	500,000+	All year	$3.25, $4.25 and $5.50 One way/ Day Pass $15 / Monthly $60	15 min except 5 min on Route 1	400m-2.5 km	varies	No?	No	Yes	Private	3 classes: 20, 12 and open deck	N/A
Newcastle Island Ferry	Nanaimo, BC	50,000-100,000	Apr-Sep	$9.00 (one-way)	20 min	1.1 km	10	$1	No	Yes	Private		
Protection Connection Ferry	Nanaimo, BC	50,000-100,001	Apr-Sep	$8 one-way	?	1 km	10	Yes		Yes			
Lasqueti Island Ferry	Lasqueti Is., BC	<1,000	All year	$9.50 (Sep-Jun) $10.50 (Jly-Aug)	3 times daily, but no service Tues/Wed	16 km	60	Yes	Yes	No	Public	60s	Max 180
SeaBus	Vancouver, BC	500,000+	All year	$3.75 (90 min)	15 min	3.25 km	12	Yes	Yes	Yes	Public	385	50000
Victoria Harbour Ferry	Victoria, BC	100,000-500,000	May-Sep	$5 one-way	15 min (summer); 20-30 min (spring/fall)	up-3.5 km	varies		No	Yes	Private	12 (w 2 40-passenger vessels)	
Kitsap Transit Foot Ferry	Bremerton, WA	10,000-50,000	Jun-Oct	$7 round-trip	2 round trips in both morning/aft	25 km	35	Yes	Yes	Yes	Public	117	1250
King County Water Taxi	Seattle, WA	500,000+	All year	$3.50 or $4.25	3 (Vashon) or 6 (W Seattle) round-trips in both morning/evening	17 km (Vashon) 3.4 km (W Seattle)	22 (Vashon); 10 (W Seattle)	Yes	Yes	Yes	Public	172	750
Golden Gate Ferry	San Francisco, CA	500,000+	All year	$9 or $9.75 one way	18 or 9 trips per day	8 km	30	Yes	Yes	Yes	Public	715(2)	5600
Aqualink/Aquabus	Long Beach, CA	100,000-500,000	Summer	$5			45		Yes				
Blue & Gold Fleet	San Francisco, CA	500,000+	All year	$6.25 to $13	Varies - 3 to 6 times/day	1.4 km-42 km	25-60	Yes	Yes	Yes	Private		7000
Toronto Island Ferry	Toronto, ON	500,000+	All year	$7 return; $90 monthly	30 min from 6:30 to 23:30	1.6 or 2 km	$1-5	?	Yes		524 (2), 400 (1), 207(1)	75000	
MetroTransit Harbour Ferries	Halifax, NS	100,000-500,000	All year	$2.25	15 (peak), 30 or 60 min	1.5 and 1.7 km	8	Yes	Yes	Yes	Public	398	3800
Seastreak	Atlantic Highlands, NJ	500,000+	All year	$26 one way / $2 one way (Rockaway)	Every 1-2 hours	32 km	40	$5	Yes	Yes	Private	400	
Island Queen	Martha's Vineyard, MA	10,000-50,000	May-Oct	$12 one way	Every 2-3 hours	10 km	35	$3	?	Yes	Private	594	
Salem Ferry	Salem, MA	10,000-50,000	May-Oct	$27 round-trip	5 times daily	36 km	50	Yes	Yes	Yes	Private	149	500
Falmouth Ferry	Falmouth, MA	10,000-50,000	Jun-Sep	$25 one-way	4 times daily	21 km		$5					
MBTA Commuter Boat	Boston, MA	500,000+	All year	$3 one way	15-20 min peak; 2-3 hours off-peak	16 km	35	Yes	Yes	Yes	Public		4650
Casco Bay Lines	Portland, ME	50,000-100,000	All year	$8-12 round-trip (off-peak cheaper)	Every hour or 2 hours	3-7 km	30	$6.50	?	Yes	Public	244-399s	N/A

Summary Features, Select North American Passenger Only Ferries, 2012

Name	Location	Community Size	Season	Pricing	Frequency	Trip Distance	Trip Time (Minutes)	Bikes	Accessible	Transit	Operating Structure	Vessel Size (passenger capacity)	Daily Ridership
Liberty Landing Ferry	Jersey City, NJ	100,000-500,000	All year	$7 one way	30 min - 6:00 to 20:30	2 km				Yes	Private		
Riverlink Ferry System	Camden, NJ	50,000-100,000	Apr-Oct	$7 round-trip	30 min - 9:30 to 5:30	650 m	12	Yes	Yes	Yes	Public	600	1140
Fire Island Water Taxi	Bay Shore, NY	<1,000	All year	$9 One Way; $4.50 Child	On Call - 2 person min	9 km	30	No	No	No	Private	382	?
New York Water Taxi	New York, NY	500,000+	All year	Varies		560 m-10 km	varies	Yes	Yes	Yes	Private	74 or 149	1370
New York Waterway - East River Ferry	New York, NY	500,000+	All year	$4 One Way Day pass $12/ Monthly $140	Hourly	1.75 km-12 km	varies	$?	Yes	Yes	Private		30000

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