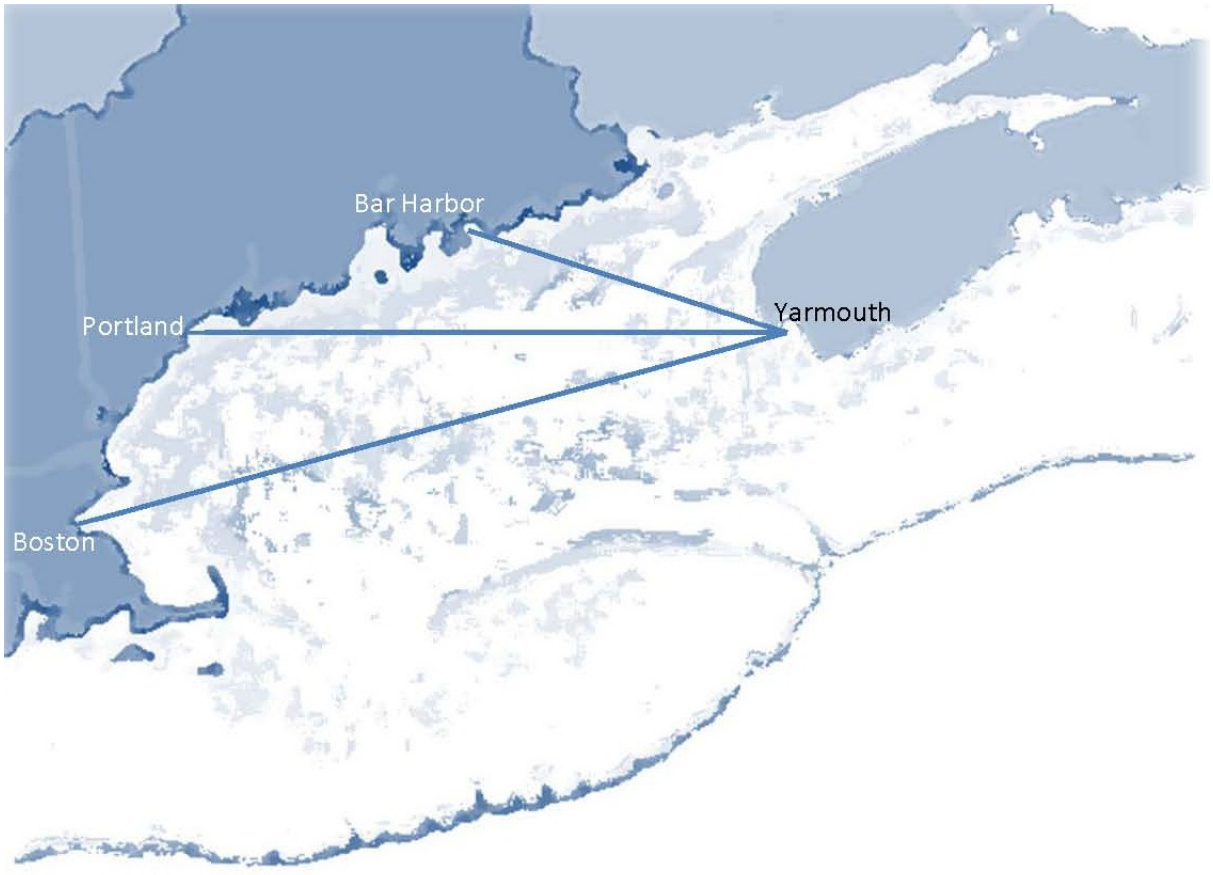
RE-ESTABLISHING A YARMOUTH-US FERRY?

An Analysis of the Issues

August 2012



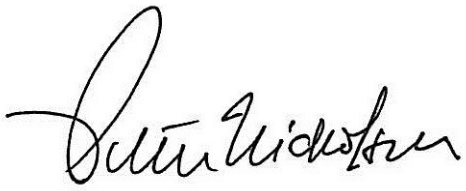
Report of the Expert Panel on a Yarmouth-US Ferry

Acknowledgments

It is a pleasure to take this opportunity to thank my fellow panellists—Elizabeth Beale, Michele MacKenzie and Peter Wild—for their wisdom, diligence and unfailing good humour during the ten short weeks from our first meeting on June 18 through the completion of this report. Their summer has not exactly been a holiday.

The panel owes a debt of gratitude to our supporting secretariat in the Centre for International Trade and Transportation in the Faculty of Management at Dalhousie University and especially to Professor Mary R. Brooks who brought her extensive subject matter expertise and organizational talent to our task. Thanks are also due to the staff of the Atlantic Provinces Economic Council, and to Donal Power in particular, for putting a professional polish on this document.

We want especially to thank those individuals and organizations with whom we met in Yarmouth, Shelburne, Digby and Halifax, or communicated with during the course of our work—they are identified in an annex to this document. Some have provided, through previous studies, the analytical foundation for our work, while others conveyed to us the economic, social and human dimensions of the issue. We hope we have reflected well what you have taught us.



Peter J. Nicholson, Chair
Expert Review Panel on a Yarmouth-US Ferry

Source for map of the Gulf of Maine on the report cover—U.S. Geological Survey.

Executive Summary

Re-Establishing a Yarmouth-US Ferry?

An Analysis of the Issues

On December 18, 2009, Bay Ferries Limited announced the cessation of its Yarmouth-Maine ferry (the *CAT*) after the Province of Nova Scotia decided to cease subsidizing the mounting losses of the service. This ended a sea link between Yarmouth and the US going back to the 1880s and that had been in continuous operation since the *Bluenose* service was initiated in 1956.

In 2002, more than 95,000 visitors to Nova Scotia entered the province via the Yarmouth-Maine ferry connections. By 2005, after the *Scotia Prince* service between Portland and Yarmouth ceased operation, the number had fallen to under 55,000. The decline continued and by 2009 only 26,000 visitors arrived in Nova Scotia via Yarmouth—73% fewer than in the 2002 heyday when two ferries operated.

The decline in visitation through Yarmouth has severely affected many businesses in southwestern Nova Scotia that rely heavily on a short seasonal influx of tourists, primarily from the northeastern United States. Nevertheless, restoration of a ferry cannot, by itself, be seen as a panacea since tourist visitation through Yarmouth was already declining steadily between 2002 and 2009 despite the availability of ferry service. In fact, US tourism to the rest of Nova Scotia, and to Canada as a whole, has been on a downtrend for the past decade.

The causes and potential remedies are varied and complex and have been the subject of highly competent studies since the *CAT* ceased operation. These studies have analyzed the business feasibility of various options for the re-introduction of a Yarmouth-Maine ferry service, but with varying assumptions and conflicting conclusions as to commercial viability or required subsidy.

Speaking in Yarmouth on April 23, 2012, Nova Scotia Premier Darrell Dexter announced the creation of an arm's-length panel "to clearly define the requirements for a viable ferry service between Yarmouth and the United States." This document is the report of that panel whose four members are:

> *Elizabeth Beale*, President and CEO of the Atlantic Provinces Economic Council;
> *Michele McKenzie*, President and CEO of the Canadian Tourism Commission;
> *Peter Nicholson* (Panel Chair), Founding President and CEO of the Council of Canadian Academies (retired); and
> *Peter Wild*, Founder of UK-based G.P. Wild (International) Limited, a consultancy specialized in ferries and tourism.

The panel has been supported by an expert secretariat from the Centre for International Trade and Transportation at Dalhousie University.

The Panel's Terms of Reference and Process

The formal charge to the panel consisted of five questions:

1. What are the key factors that would determine the long-term economic viability of a ferry service between Yarmouth and the United States?

2. What type of ferry service, if re-established, would be most appropriate?

3. What annual number of net new visitors to Nova Scotia, within an estimated range, would likely be attracted if a ferry service between Yarmouth and the US were re-established?

4. If a Yarmouth-US ferry service were re-established, what would be the likely impact on the existing service between Digby and Saint John?

5. Across a range of reasonable assumptions as to future trends in the key factors affecting the viability of a Yarmouth-US ferry service, what amounts of initial and on-going government support would likely be needed to secure a commercial operator?

It is emphasized that the panel was not asked to make a *policy* recommendation to the Government of Nova Scotia as to whether a ferry should or should not be re-established. Consequently, this report does *not* include such a recommendation. Rather, we were asked to undertake a technical assessment of the potential for the business viability of a re-established ferry operation. Our objective has been to provide government with one important input to a policy decision as to whether to make available public assistance to support resumption.

We have worked independently of government. No government officials participated in the panel's discussions nor did the government review drafts of this report prior to its submission. We have based our findings on a thorough review of relevant studies and background material together with the informed judgement of the individual panel members, assisted by the Dalhousie-based secretariat.

The panel was not expected to undertake a new study from scratch, but rather to work largely from the extensive existing record. Accordingly, we did not initiate a new round of broad public consultation but instead met with a representative number of key stakeholders to receive any new information; to clarify issues in the existing record; and to develop a feel for the situation in the most affected communities.

Main findings in summary

(1) A re-established ferry service between Yarmouth and Maine could become commercially viable, but viability hinges on being able to build passenger traffic back at least to the 130-135,000 level. This is the critical uncertainty. (In 2002, the *CAT* and *Scotia Prince* each carried 165,000 passengers, but by 2009 volume on the one remaining service had collapsed to just over 75,000.)

(2) The key market for a Yarmouth ferry is New England and the mid-Atlantic states, an affluent population of 70 million. Although some of the factors that have been discouraging US tourism to Nova Scotia and to Canada since 2002 have eased, the competition for the potential visitor's time and money has increased—the short cruises out of Boston and New York to Canada's east coast being among the latest examples.

(3) We believe, nevertheless, that enough passengers could be attracted to a Yarmouth ferry to bring about un-subsidized viability in the medium term, but only under the following conditions.

- The ferry's business model needs to be built around the passenger's on-board experience rather than simply offering another transportation route from the US northeast to Nova Scotia. A 'cruise ferry' between Yarmouth and Portland (of which the *Scotia Prince* was an old example) is the only suitable service model.
- The business strategy must emphasize a sophisticated approach to marketing by the ferry operator, complemented by renewal of substantial *in-market* promotion of Nova Scotia by the government.
- There has to be greater development of the destination experience in Nova Scotia, and particularly in the southwestern area, to encourage more and longer stays. In other words, the marketing message needs to be validated by the visitor's experience.

(4) The panel's financial analysis of a potential ferry is built on the foregoing conditions. It projects that the business would break even around the seventh year and achieve a modest profit thereafter. The projection is subject to considerable uncertainty related not only to passenger volume but also to vessel and crewing cost, fuel prices and to the effect of competition on achievable fare revenue. While there is significant downside risk there is also real upside potential if a market-savvy operator is able to boost passenger volume beyond the panel's relatively modest projection.

(5) We believe that In order to initiate a service and attract a suitably experienced operator, governments (federal and provincial) would have to provide roughly $30-$35 million of support:

- to repair and refurbish the federally-owned Yarmouth terminal facilities;
- to provide start-up funds, estimated to be roughly $5 million—e.g., to assist with baseline market research; support an initial advertising campaign; defray certain costs associated with vessel acquisition and financing; and
- to share/cover the early years of operating losses that are likely to total in the $20 million range.

(6) A Yarmouth ferry would not have a major impact on the existing Digby-Saint John service since the markets being served by each vessel are substantially separate.

(7) There are several vessels potentially available on the world market that could be physically accommodated in Yarmouth and rendered suitable for a cruise ferry to Portland.

(8) Even if the government decided to support re-establishment of a Yarmouth ferry, it is very unlikely that an operation could be established for the 2013 season given the time needed to secure an operator and vessel, and to complete the immediately necessary repairs to the Yarmouth terminal. Extensive market research would be required before committing to re-establish a service, and a marketing campaign to promote the service should be launched a year before its initiation—i.e. in early 2013 for a spring 2014 start. We therefore believe that a 2014 launch would be more realistic.

Following is a highly compressed summary of the highlights of the panel's analysis.

Why did US tourists desert Yarmouth?

The question is best addressed in two stages: (1) Why has US tourism to Nova Scotia, and to Canada generally, declined since 2002? (2) Why did US visitation via Yarmouth fall even more steeply?

Regarding the first—between 2002 and 2010, overnight visits to Canada by US "leisure" travellers declined 14%, and to Nova Scotia by 36%. The factors principally responsible are familiar—the appreciating Canadian dollar; fuel prices (which discourage all discretionary travel); confusion over US passport requirements between 2004 and 2009**;** and since 2007, the weakened state of the US economy.

Overarching these has been the growing global competition for the tourist dollar—cheap airfares, exotic destinations, tourism facilities development, new experiences like the mass-market cruise vacation. Competition has been amplified by the empowerment of travellers by the Internet and social media. It's a new world and the traditional destinations, Nova Scotia very much included, will have to raise their game.

This still leaves the question as to why the decline of US overnight visitation via the Yarmouth gateway was so much steeper—down 74% between 2002 and 2009—than via either Amherst or Digby (see chart). The steeper decline was occurring despite ferry service still being in operation.

Several factors played a role though their *relative* importance cannot be untangled.

- The end of the *Scotia Prince* service after 2004 removed capacity and a presence in Portland that the *CAT* could not fully replace.
- Marketing support from the Province to promote Nova Scotia and the ferry services in the New England market was reduced and finally ended during this crucial period.
- The novelty attraction of the *CAT* inevitably diminished; its speed advantage became less compelling with greatly improved roads in NB and NS; there were increasing complaints about passenger

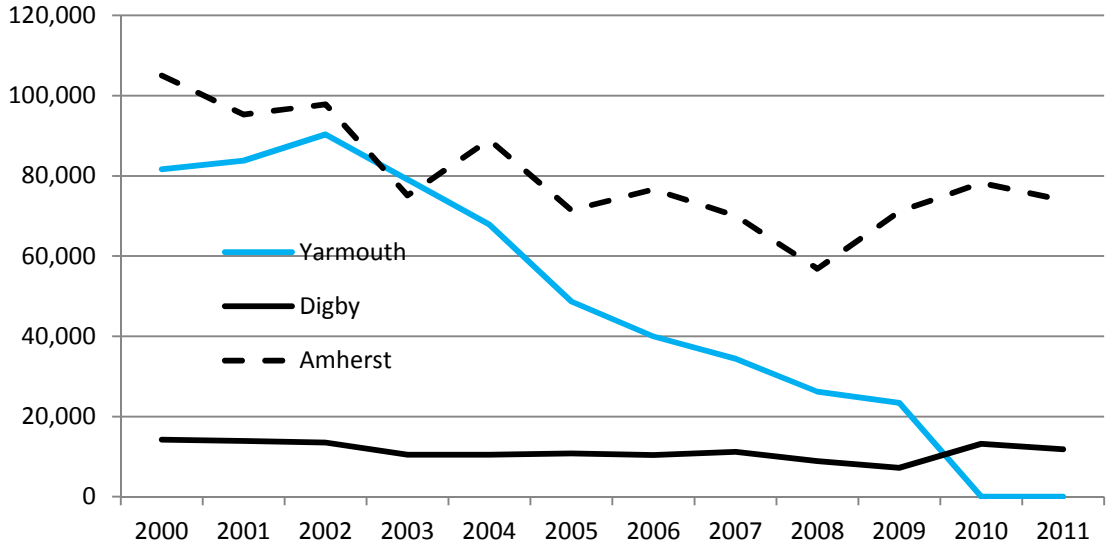
discomfort especially on the long run from Portland; and the schedule change to include both Bar Harbor and Portland was a source of some confusion in the market.

- Declining traffic and rising fuel cost forced the *CAT* to impose a fuel surcharge in 2006 and to raise prices thereafter. This appears to have contributed to further traffic decline especially as economic conditions deteriorated in 2008 and 2009.

In other words, the Yarmouth service was hit with a perfect storm of factors that were global, national and local. Many of the depressants are now unlikely to *worsen* and signs of slow recovery of the US economy and of consumer confidence are becoming more evident. The panel concluded that a re-established Yarmouth ferry that was designed to provide a compelling on-board experience, aggressively marketed, and supported with an up-graded tourism product, especially in the Yarmouth area, could attract enough passengers to become viable.

US visitor entry through Yarmouth declined sharply after 2002

US overnight visitors via various entry points



Source: Nova Scotia Economic and Rural Development and Tourism (2012), Tourism Research data supplied 12 July 2012.

Business and financial analysis in the CPCS and Gardner Pinfold studies

The CPCS and Gardner Pinfold (G-P) studies of a Yarmouth-Portland cruise ferry projected very different financial performance over a nine- year period. (The first year in each 10-year projection included one-time factors, so we have focussed on the nine subsequent years.) The CPCS assumptions imply losses of $4-$5 million(M) every year, while the G-P model projects profit from the outset, increasing from about $0.5M to $2.2M in the final year.

These contrasting results are almost entirely due to very different assumptions regarding:

- *Passenger volumes*—G-P assumes 110,000 to start; CPCS assumes 80,600. (Both incorporate only a 1% rate of growth.)
- *Vessel acquisition cost*—G-P assumes a six-month charter costing $3.8M per year; CPCS assumes purchase of a used vessel for $50M with a cost of $6.7M per year (12% financing over 20 years).

There is no objective way, without extensive market research, to provide more than a "guesstimate" of initial passenger volume and growth potential. The CPCS starting point was, by the authors' own admission, very conservative. The G-P assumption was based on the expectation that a combination of economic recovery in the US; a new type of service (cruise ferry); and plenty of marketing, could attract at least 110-120,000 passengers annually. (In 2002, about 330,000 passengers used the two Yarmouth-Maine ferries then operating.)

Without the benefit of current market research, the panel chose for its financial projection (see below) the relatively conservative assumption of 95,000 passengers in the first year.

Regarding the cost of a vessel; we concluded that G-P's assumed charter rate was too low. The CPCS assumption was likely somewhat high given the current weakness of the world market for ferries. The panel assumed a cost of vessel acquisition of $5.5M per year, whether structured as a charter or as the financing cost of a purchase. The actual cost could not be known until a ship was identified and a deal struck.

The panel's financial projection

The panel developed a 10-year "base case" that reflects our view of the best business model—ticket prices designed to attract traffic; emphasizing the on-board passenger experience and revenue generation from cabins, dining and entertainment (especially on the overnight run); and a heavy expenditure on marketing, particularly in the first several years. For example; we assumed annual marketing investment by the ferry operator averaging almost $3M during the first four years, which is triple the amount assumed by CPCS and double the G-P assumption. To reflect a return on this investment, the panel's projection incorporates a much faster ramp-up of passenger traffic than either CPCS or G-P.

The key results of our 10-year model, as compared with those of CPCS and G-P, are tabulated below. The panel's base case projects a loss of $6.4 million in the first year, but as traffic ramps up, break-even is reached in the seventh year and a modest profit of $1.3 million by the tenth. The cumulative loss peaks in Year 6 at about $21 million and has diminished to $18 million by Year 10.

Comparison of Financial Projections: Summary Results

	Panel	CPCS	G-P
Passengers: Year 1	95,000	80,600	110,000
Passengers: Year 10	132,500	87,200	121,500
P/L Year 1 ($M)	-$6.4	-$5.1	$0.5
P/L Year 10 ($M)	$1.3	-$4.6	$2.2
Cumulative P/L ($M)	-$18.1	-$44.9	$13.1
Break-even	Year 7	Never	Year 1

A projection is just a mechanical exercise. It is only as good as the assumptions on which it is based and those assumptions are always uncertain. Informed projections are nevertheless much better than pure guesswork. To give some flavour of the impact of uncertainty, we analyzed sensitivity to the key assumptions. The number of passengers is the pivotal variable. For example, if the starting traffic were to be 105,000 rather than 95,000—with all else held constant—the projected loss in the first year would be $2M less than in the base case and the profit in the tenth year would be $2.7M greater than the base case projection. (If instead, the initial traffic was only 85,000, and nothing else changed, the results would be the mirror image, but on the downside.)

The bottom line message in the panel's projection is that, on reasonable assumptions, a cruise ferry service between Yarmouth and Portland could eventually be profitable but the undertaking would be risky. Greater upside potential certainly exists, particularly with sustained and creative promotion of Nova Scotia tourism in the US east-coast market and with development of the tourist experience in the province to appeal to a wider range of potential visitors. There is, moreover, an opportunity to promote a "reverse flow" of tourists from Nova Scotia to Portland as a gateway to New England. This would bring extra travellers to southwestern Nova Scotia and more passengers to a ferry.

Possible next steps

In the event that the Government of Nova Scotia decided to explore further the requirements to re-establish a ferry operation between Yarmouth and the US, the panel would recommend the following steps.

(1) Identify at least one, and preferably two or more, experienced private sector operators that would agree, subject to certain undertakings by government, to establish a cruise ferry between Yarmouth and Portland. The success of the business would depend crucially on the commitment and capability of the operator and particularly on the operator's marketing skill.

(2) In view of the critical uncertainty regarding prospective passenger numbers, we would emphasize the importance of thorough market research before committing to re-establish a service. The research

should be done in collaboration with the prospective operator and with funding from government. It would be a good investment in risk mitigation.

(3) A critical issue in the context of selecting an operator would be to identify one or more vessels that can be accommodated in Yarmouth and that can also provide an attractive passenger experience. There are several ships operating today that could fulfill the requirements (possibly with some refit) provided they could be available for charter or purchase.

(4) Because there is unavoidable uncertainty as to the long-term commercial viability of a Yarmouth-US ferry service, a 5-year vessel charter, with an option to buy (say, after three years) would be the best risk-management approach.

(5) Before a service could resume, the Yarmouth terminal facilities will need considerable repair and refurbishment, the immediately necessary cost of which is uncertain. The financial participation of the Government of Canada, as terminal owner, will be required before a ferry service could be initiated. (A September 2010 federal inspection report estimated the cost of terminal repair at nearly $13 million over five years, but it could be that a significantly smaller amount would suffice in the near term.)

A concluding perspective

During the course of the panel's work, and as reflected in this report, we have come to appreciate the difficulty and complexity of the issues that need to be assessed by government in deciding whether to invest the public resources needed to re-establish a Yarmouth-Maine ferry service. The business case issues are tangible but fraught with uncertainties. The social and regional economic issues, and especially the sense of isolation felt by many communities in southwestern Nova Scotia, may not easily be quantified but are no less real.

We emphasize that the resumption of a ferry service would not be a panacea for the economic challenges facing southwestern Nova Scotia. A ferry would help but it is not a silver bullet. The economic spin-off, while important, would not by itself be transformative. The difficult economic circumstances facing communities in the southwestern area of Nova Scotia are shared by many rural regions in Atlantic Canada, and indeed throughout North America.

This report has focussed on the issues specific to the potential business viability of a particular ferry service. But that viability depends on the larger context of tourism development in Nova Scotia, and not least in the southwestern area of the province. It will take more than a ferry across the Gulf of Maine to bring back the visitors whose departure over the past decade is the reason there is no ferry service today. Nova Scotia is endowed with natural beauty, history and cultural diversity to an extent that is unsurpassed in Canada, but its unique tourism potential remains insufficiently developed. The commercial viability of a Yarmouth ferry rests ultimately on making Nova Scotia a place that everyone wants to visit.

Re-Establishing a Yarmouth-US Ferry?

An Analysis of the Issues

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Chapter 1 - Introduction

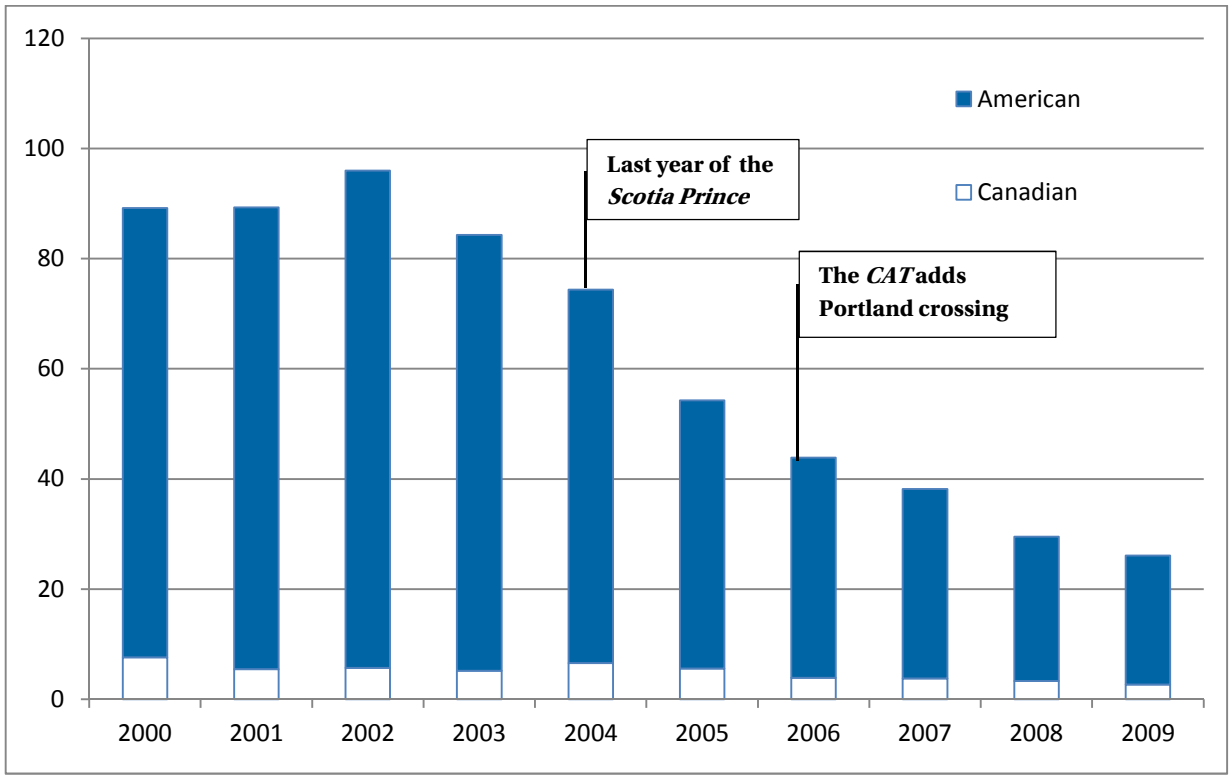
The issue

On December 18, 2009, Bay Ferries Limited announced the cessation of its Yarmouth-Maine ferry (the *CAT*) after the Province of Nova Scotia decided to cease subsidizing the mounting losses of the service. This ended a sea link between Yarmouth and the US going back to the 1880s and that had been in continuous operation since the *Bluenose* service was initiated in 1956.

In 2002, more than 95,000 visitors to Nova Scotia entered the province via the Yarmouth-Maine ferry connections. By 2005, after the *Scotia Prince* service between Portland and Yarmouth ceased operation, the number had fallen to under 55,000. The decline continued and by 2009 only 26,000 visitors arrived in Nova Scotia via Yarmouth—73% fewer than in the 2002 heyday when two ferries operated (Exhibit 1.1).

Exhibit 1.1 - Visits to Nova Scotia via Yarmouth fell steadily after 2002

Non-Nova Scotian overnight visitors to NS (000s)

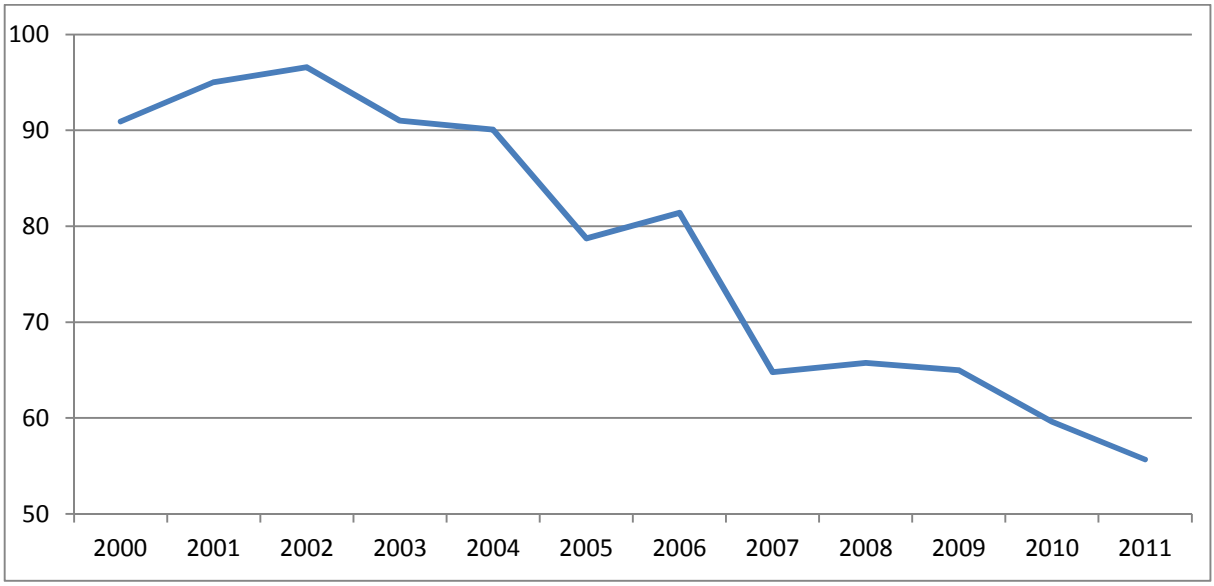


Source: Tourism Division, ERDT

The decline in visitation through Yarmouth has had a significant impact on businesses in southwestern Nova Scotia that rely heavily on a short seasonal influx of tourists, primarily from the northeastern United States (Exhibit 1.2).

Exhibit 1.2 - Room-nights sold in Yarmouth & Acadian Shores mirror the decline in ferry traffic

Room nights sold (000s)



Source: Nova Scotia Economic and Rural Development and Tourism (2012), tourism research data supplied 12 July 2012

Restoration of a ferry would not be a panacea. The trend in Exhibit 1.1 shows that passenger numbers had been declining more or less steadily since 2002 despite the availability of ferry service. In fact, US tourism to the rest of Nova Scotia, and to Canada as a whole, has been on a downtrend for the past decade.

The causes and potential remedies are varied and complex and have been the subject of highly competent studies since the *CAT* ceased operation. These studies analyzed the business feasibility of various options for the re-introduction of a Yarmouth-Maine ferry service, but with varying assumptions and conflicting conclusions as to commercial viability or required subsidy.

Speaking to the Yarmouth Chamber of Commerce on April 23, 2012, Nova Scotia Premier Darrell Dexter acknowledged:

"… that communities here in southwest Nova Scotia want to see a ferry return. So does the Province. However; our goal is determining a ferry service that will work in the future—not one that worked in the past. Economic conditions have changed. … The bottom line is any service would have to be economically viable in the long term."

Premier Dexter went on to announce that the Province was "… mandating an arm's-length panel of experts to review the best available data and consult with key business and community leaders to clearly define the requirements for a viable ferry service between here [Yarmouth] and the United States."

The panel members are:
Elizabeth Beale, President and CEO of the Atlantic Provinces Economic Council;
Michele McKenzie, President and CEO of the Canadian Tourism Commission;
Peter Nicholson (Panel Chair), Founding President and CEO of the Council of Canadian Academies (retired); and
Peter Wild, Founder of UK-based G.P. Wild (International) Limited, a consultancy specialized in ferries and tourism.
The panel has been supported by an expert secretariat from the Centre for International Trade and Transportation at Dalhousie University. (See Annex A for biographies.)

Terms of reference and procedure

The formal terms of reference of the panel are as follows.

"The Expert Review Panel on a Yarmouth-US Ferry Service is to provide the Government and citizens of Nova Scotia with a report that addresses the following questions.

1. What are the key factors that would determine the long-term economic viability of a ferry service between Yarmouth and the United States?

2. What type of ferry service, if re-established, would be most appropriate?

3. What annual number of net new visitors to Nova Scotia, within an estimated range, would likely be attracted if a ferry service between Yarmouth and the US were re-established?

4. If a Yarmouth-US ferry service were re-established, what would be the likely impact on the existing service between Digby and Saint John?

5. Across a range of reasonable assumptions as to future trends in the key factors affecting the viability of a Yarmouth-US ferry service, what amounts of initial and on-going government support would likely be needed to secure a commercial operator?

The panel is asked to develop its answers to these questions based on: (a) a thorough critique of the several existing studies in respect of ferry service between Yarmouth and the US; (b) consultations with key business and community leaders; and (c) any other relevant information that is readily accessible by the panel including, in particular, data and informed judgement as to projected tourism and other traffic that might use the ferry services."

It is emphasized that the panel was not asked to make a *policy* recommendation to the Government of Nova Scotia as to whether a ferry should be re-established. Consequently, this report does *not* include such a recommendation. Rather, we were asked to undertake a technical assessment of the potential for the business viability of a re-established ferry operation. Our objective has been to provide government with one important input to a policy decision as to whether to make available public assistance to support resumption.

The panel has worked independently of government. No government officials have participated in our discussions, other than to clarify the charge at the beginning of the first meeting. The government has not seen drafts of this report prior to its submission. We have based our findings on a thorough review of relevant studies and background material (see References) together with the informed judgement of the individual panel members, assisted by the Dalhousie-based secretariat.

The panel was not expected to undertake a new study from scratch, but rather to work largely from the extensive existing record. Accordingly, we did not initiate a new round of broad public consultation but instead met with a representative number of key stakeholders to receive any new information; to clarify issues in the existing record; and to develop a feel for the situation in the most affected communities. (Annex B lists the groups and organizations directly consulted.)

Outline of the report

The next chapter reviews very briefly the salient history of the Yarmouth-Maine ferry services since 2000 and summarizes the conclusions of the studies by consultants CPCS Transcom and Gardner Pinfold (G-P) regarding the potential viability of a re-established service.

Chapter 3 addresses the first question in the charge to the panel, focussing on the factors responsible for the decline, since 2002, in US tourism to Canada and more specifically why the number of passengers carried on the Yarmouth ferries fell even more sharply. The chapter concludes with the panel's observations on the type of ferry business model that might start traffic growing again.

Chapter 4 addresses the second question in our charge—*What type of ferry service, if re-established, would be most appropriate?*—by analyzing the pros and cons of the various potential combinations of ferry type and US port. We conclude that a "cruise ferry" between Yarmouth and Portland would have the best prospects for viability.

In Chapter 5 we assess, for the case of a Yarmouth-Portland cruise ferry, the business case assumptions and financial projections developed in the CPCS and G-P studies.

Chapter 6 draws on the foregoing critique to develop the panel's assumptions and 10-year financial projection for a potential cruise ferry operation between Yarmouth and Portland. In so doing, we address the question in the charge which asks: *Across a range of reasonable assumptions as to future trends in the key factors affecting the viability of a Yarmouth-US ferry service, what amounts of initial and on-going government support would likely be needed to secure a commercial operator?*

Chapter 7 is a short follow-up that discusses the considerations that would be involved in acquiring an appropriate cruise ferry and attracting a suitable operator.

Chapter 8 addresses the likely impact on the existing Digby-Saint John ferry of a cruise ferry from Yarmouth to Portland.

In Chapter 9 we provide an overview of the public benefit that could be created if a Yarmouth ferry were to return. Our observations draw on the analysis of public benefit in the CPCS and G-P studies. The issue is relevant because the justification for government assistance to re-establish a ferry depends on the extent of the resulting public benefit. This would include the net new jobs and income generated by a ferry. We therefore also address in this chapter the question in the charge that asks: *What annual number of net new visitors to Nova Scotia, within an estimated range, would likely be attracted if a ferry service between Yarmouth and the US were re-established?*

Finally, Chapter 10 summarizes the panel's responses to the five questions in our terms of reference and outlines our advice regarding the next steps if the government were to decide to pursue further the re-establishment of a Yarmouth-US ferry.

Chapter 2 - The Context

A car and passenger ferry service between Yarmouth and Maine has a long pedigree (Box 2.1), but the focus of this report is on the more recent era from about the year 2000. This will involve consideration of both the former *CAT* and *Scotia Prince* services as well as relevant implications for the existing ferry between Digby and Saint John, NB.

Box 2.1 - History of Ferry Service to Yarmouth Since 1956

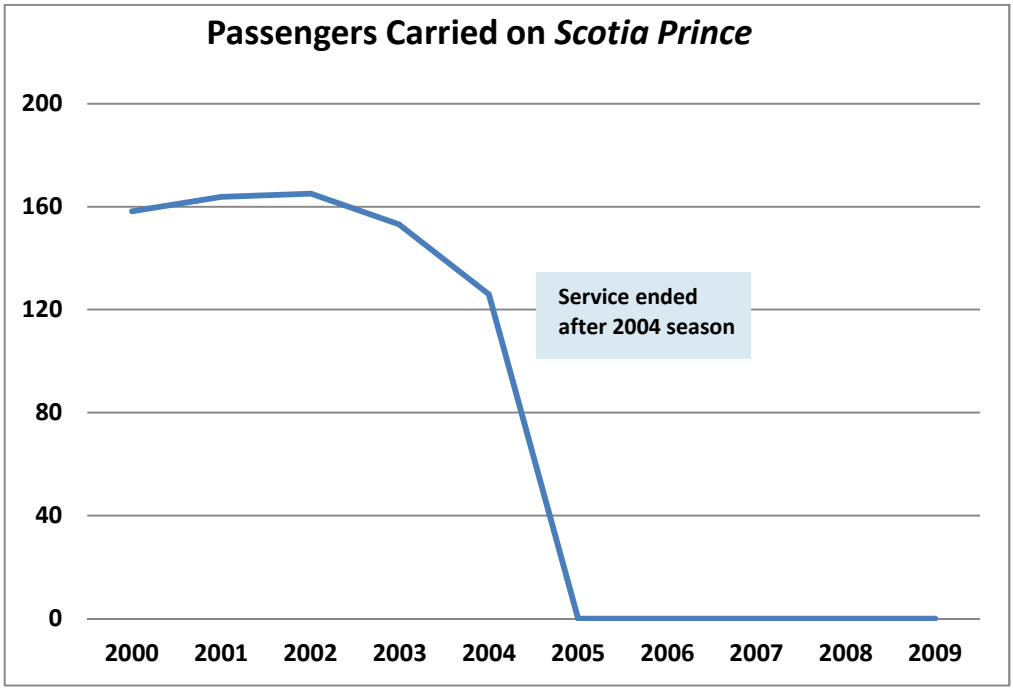
1956	Canadian National (CN) introduces the first regular ferry service via the *Bluenose* between Yarmouth and Bar Harbor, Maine.
1970	Lion Ferry, a European operator, establishes a seasonal ferry service between Portland, Maine and Yarmouth.
1976	CN introduces a seasonal, predominantly commercial freight ferry service between Portland and Yarmouth.
1982	Lion Ferry introduces the *Scotia Prince* on the Portland–Yarmouth seasonal service, replacing the various vessels that had been used each year since 1970.
1982	CN discontinues its freight-oriented ferry service due to "weak demand".
1986	In advance of the privatization of CN, the Government of Canada acquires CN's interest and Marine Atlantic (a federal crown corporation) takes over responsibility for the Yarmouth–Bar Harbor service.
1997	Marine Atlantic's Yarmouth–Bar Harbor service is taken over by Bay Ferries Limited as Marine Atlantic withdraws from all non-constitutionally-required ferry routes.
1998	Bay Ferries introduces the high-speed *CAT* ferry on Yarmouth–Bar Harbor using a vessel of Incat's catamaran hull design. The service is seasonal (May to October) and a crossing takes a scheduled three hours.
2002	A larger Incat vessel is introduced to the Yarmouth–Bar Harbor service in 2002. The second *CAT* has a capacity of 900 passengers and 240 cars or equivalent combination of cars, RVs and motorcycles and is capable of handling up to four motor coaches.
2004	At the end of the season, service by the *Scotia Prince* is terminated.
2006	The Province of Nova Scotia encourages Bay Ferries to use the *CAT* to provide a Yarmouth–Portland route in addition to Yarmouth–Bar Harbor. The *CAT* schedule is split with service between Yarmouth and Bar Harbor on Mondays through Thursdays and between Yarmouth and Portland Fridays through Sundays.
2009	At the end of the season, Bay Ferries terminates services on both routes between Yarmouth and Maine.

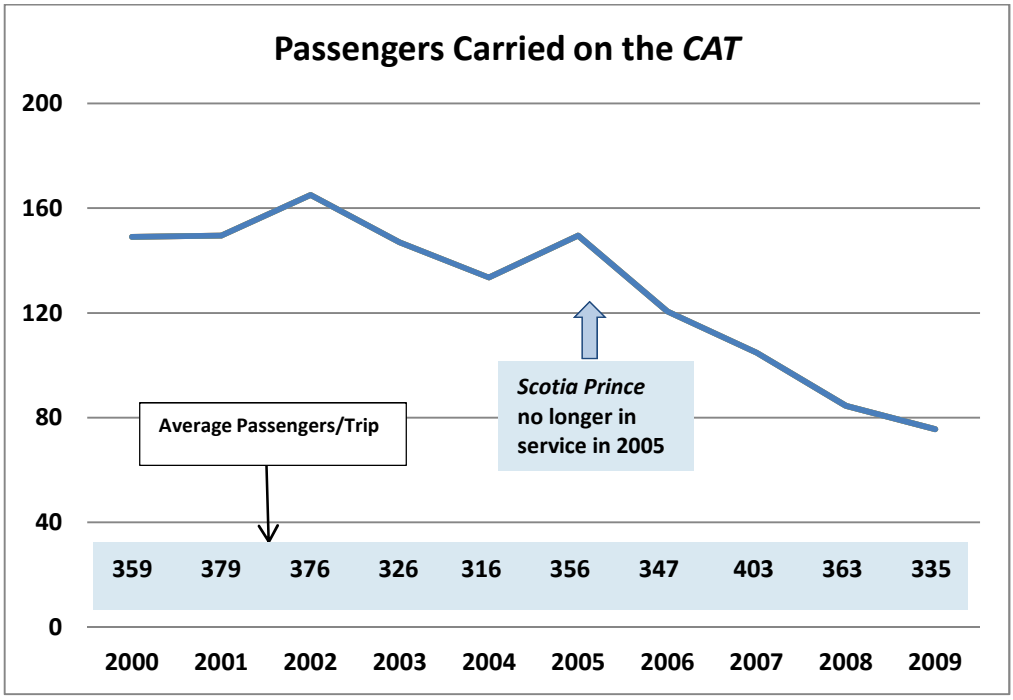
Until 2002**,** passenger volumes increased steadily on both the *CAT* (the high-speed catamaran service between Yarmouth and Bar Harbor) and the *Scotia Prince* (a "cruise ferry" between Yarmouth and Portland). In 2002, despite the shock of the "9/11" attack in the United States, the total number of one-way passenger trips on the two services peaked at about 330,000 (Exhibit 2.1).* The SARS outbreak in 2003 discouraged tourism to Canada as a whole and carriage on the two Yarmouth ferries declined by about 9% to 300,000. The next year, even though US visits to Nova Scotia increased slightly, the decline in the number entering via Yarmouth accelerated as ferry ridership fell a further 13% to 260,000. (The factors responsible are addressed in detail in the next chapter.) With the termination of the *Scotia Prince,* effective at the end of the 2004 season, and with only the *CAT* service to Bar Harbor operating, overall passenger volume between Yarmouth and Maine, despite a bump-up on the *CAT*, dropped sharply in 2005 to about 150,000. This was less than half the number only three years earlier.

* The standard measure of passenger traffic used in this report is the one-way trip. References to "passengers" are thus interpreted as fare-paying individuals on a single voyage. The same individual may of course make more than one trip—e.g., by taking the ferry coming and going—but this would count as two "passengers" for purposes of calculating the volume of traffic.

Exhibit 2.1 - Passenger volumes on the *CAT* and *Scotia Prince* trended down after 2002

(000s)





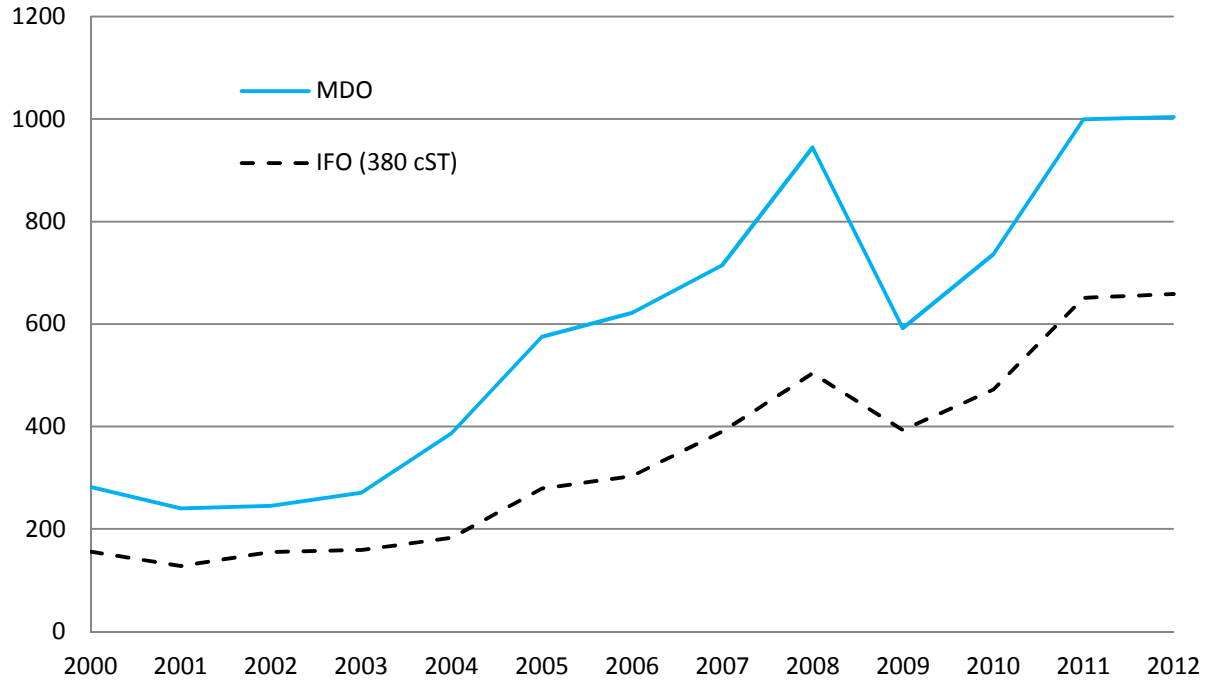
Source: For the data on the CAT, Bay Ferries Limited. For data on the Scotia Prince, the Nova Scotia International Ferry Partnership (2012), page 17.

The contraction of traffic on the *CAT* continued in 2006, falling by almost 20%; then by a further 13% in 2007. Meanwhile, marine fuel prices had been rising rapidly since 2003, more than tripling by 2008 (Exhibit 2.2). The commercially toxic combination of falling ridership and rising fuel cost (which is a particularly significant issue on a high-speed vessel) led to a series of agreements between Bay Ferries and the Government of Nova Scotia under which service was maintained—and in fact extended in 2006 to include Portland on certain days of the week—while the Government provided subsidies that increased from $1.25 million in 2006 to $8.9 million in 2009 for a total of $18.6 million. (The *CAT* service had operated without subsidy prior to 2006.)

By the time the *CAT* ceased operation at the end of the 2009 season, passenger volume had fallen to just over 75,000, which was 54% below its peak in 2002. Total ferry traffic—the *CAT* and *Scotia Prince* combined—had dropped by 77%.

Exhibit 2.2 - Marine fuel prices escalated sharply after 2003

($US per 1,000kg)



Source: G P Wild (International) Limited.

Note: MDO (Marine Diesel Oil) is primarily used for powering a vessel's engines in port and providing ancillary power for on-board electrical requirements. IFO (Intermediate Fuel Oil) is a blend of gasoil and heavy fuel oil and is primarily used for powering a ship when underway. (380cST is a grade of IFO.)

Key Studies: CPCS and Gardner Pinfold

The panel focused primarily on two studies—the CPCS Transcom study ("CPCS") undertaken for the Atlantic Canada Opportunities Agency (ACOA), and the Gardner Pinfold ("G-P") study for the Yarmouth Area Industrial Commission. These documents were the principal points of reference because they provided detailed analysis of service options with revenue and cost projections based on explicit assumptions. We also reviewed thoroughly the other documents listed as sources for the panel's work, several of which have influenced our findings.

The main results of the CPCS and G-P studies as they relate to the potential viability of a re-established ferry service between Yarmouth and Maine are summarized in Exhibit 2.3.* Based on an assessment of the suitability of potential service models in respect of US port and vessel type, three options were analyzed by CPCS—(1) a high-speed, *CAT*-like, service including both Portland and Bar Harbor (as in 2006-09); (2) a high-speed service only to Bar Harbor (as prevailed from 1998 through 2005); and (3) a "cruise ferry" to Portland (analogous in concept to the *Scotia Prince* service.) The G-P study analyzed only a cruise ferry option to Portland, comparable to CPCS option (3), and argued that it appeared to be the only potentially viable service model. The panel's observations on the various service options are presented in Chapter 4.

Exhibit 2.3 - Summary of Business Case Scenarios: CPCS and Gardner Pinfold

(Average of projected operating results)

	High-speed	High-speed	Cruise Ferry	Cruise Ferry
US Port	Portland and Bar Harbor	Bar Harbor	Portland	Portland
Passengers/Year	84,000	84,000	84,000	116,000
Revenue ($M)	$13	$10	$23	$26
Cost ($M)	$21	$21	$28	$24
Profit/(Loss)($M)	-$8	-$11	-$5	$2
Source	CPCS	CPCS	CPCS	G-P

The CPCS study projects that all three service models would lose money every year, but the cruise ferry much less than the high-speed alternatives. The G-P model, by contrast, projects a small profit each year and is differentiated from the comparable CPCS projection primarily by the assumption of much higher passenger volume (by 36%) and a much lower assumed cost of vessel acquisition. These and other assumptions of the two studies will be assessed in detail in Chapter 5.

A particularly significant issue which neither study addresses is the prospect of obtaining, at the cost assumed, a vessel with the desired characteristics. This could turn out to be a limiting constraint and is discussed in Chapter 7 below.

* Financial amounts are stated in $US throughout this report, unless explicitly indicated otherwise. With the $C at or close to par, the amounts are nearly equivalent in the two currencies.

Chapter 3 - Factors Affecting Commercial Viability of a Yarmouth-US Ferry

This chapter addresses the first question in the charge to the panel—*What are the key factors that would determine the long-term economic viability of a ferry service between Yarmouth and the United states?*

While it is obvious that factors such as fuel price and general economic conditions play a possibly crucial role, the over-riding issue is whether a re-established ferry service could attract enough passengers in a relatively short season to more than offset the high fixed costs of acquiring and operating a large vessel. In this sense the issue is simple and stark, but the considerations that come into play are complex and subtle.

The target market for the potential ferry service is primarily the US east coast leisure traveller. Almost 60% of the passengers on the CAT in 2008 and 2009 were from this source; a further 13% were from Nova Scotia and about 7% from Ontario. Approximately 20-25% of passengers were from elsewhere, including the other Atlantic Provinces. While the potential clearly exists for passenger growth from any location, the US east coast market is the core opportunity, just as it was the principal source of the decline in ferry use over the past decade.

The 12 states, stretching from Maine to Virginia, that comprise New England and the mid-Atlantic region have a population of 70 million. It is an accessible population—for example; the ferry terminal in Portland is less than a two-hour drive from Boston; six hours from New York; and a day from Washington, DC. There are several trains to Portland daily as well as an international airport. This affluent population concentration, with the heaviest density hugging the coast, is more than twice the size of Canada. Unfortunately, it also a population that largely deserted both the *CAT* and *Scotia Prince* in the years after 2002. Why?

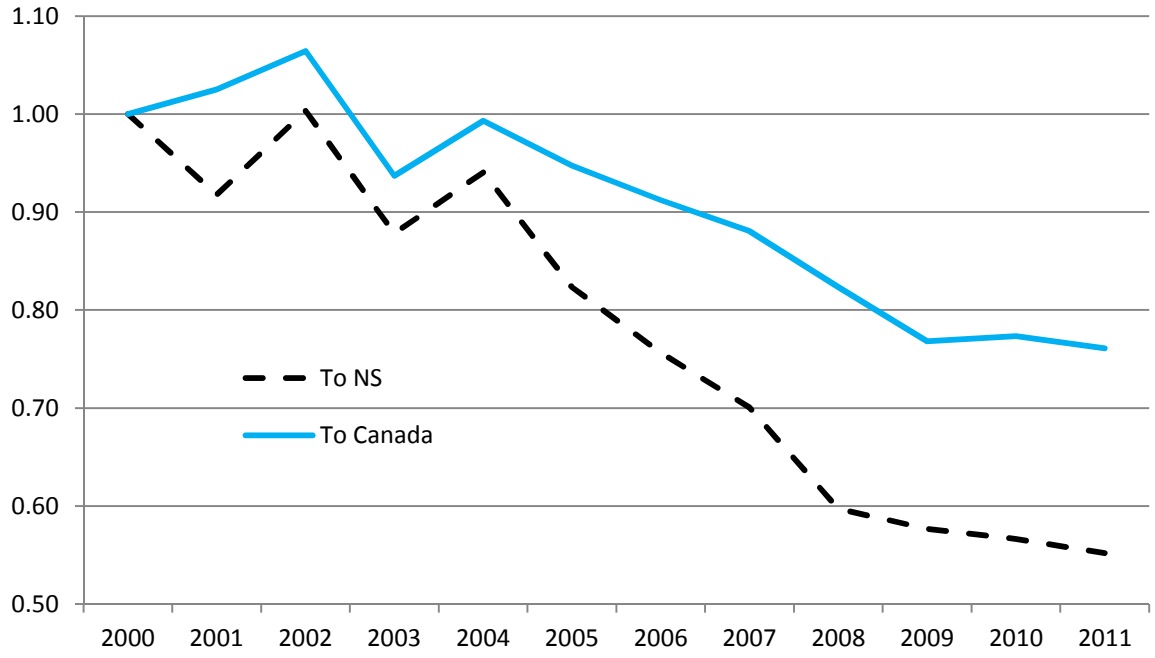
The question can be analyzed at two levels: (1) the general decline in US tourist visitation to Canada—and particularly to Nova Scotia and the other Atlantic Provinces; and (2) the factors responsible for the even steeper decline at the Yarmouth entry point.

Causes of declining US tourism to Canada

For many years, the US tourist traveller has been turning away from Canada and from Nova Scotia. Between 2000 and 2011, overnight visits by travellers from the US to Nova Scotia declined more than 40%, while those to the rest of Canada fell by about half as much in percentage terms (Exhibit 3.1).

Exhibit 3.1 - US overnight visitation to Canada and to Nova Scotia has been trending down for a decade

(Index: Year 2000 = 100)

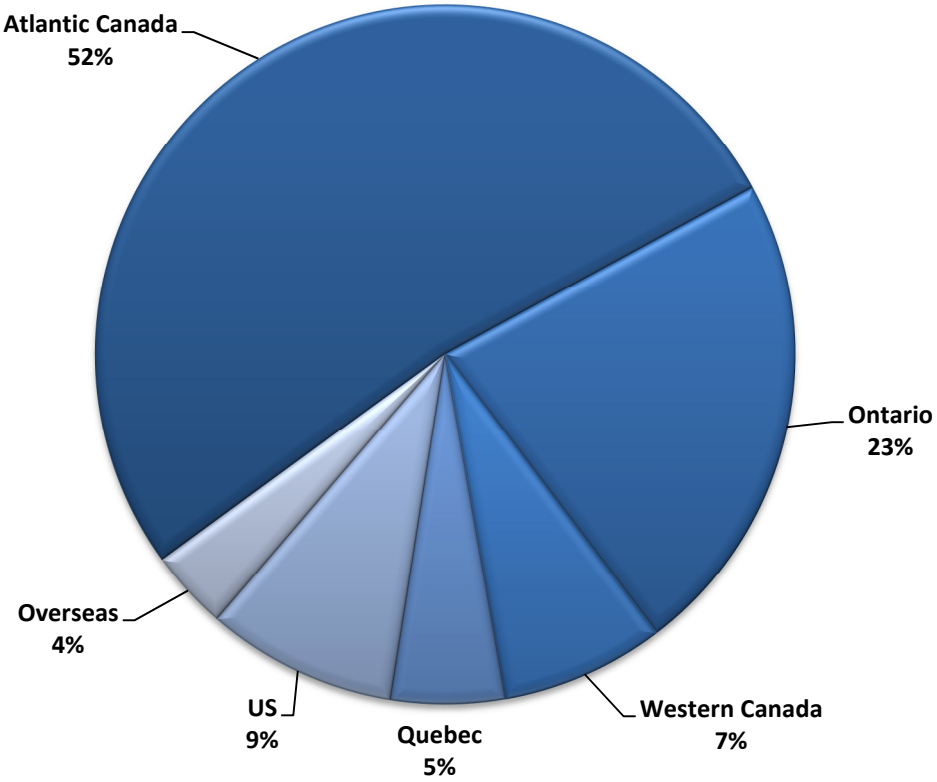


Source: Department of Nova Scotia Economic and Rural Development and Tourism (2012), Tourism Research data 12 July 2012, based on Statistics Canada International Travel Survey data on US overnight visits.

Note: The lines show the percentage decline of overnight visitation by US leisure travellers since 2000. The vertical scale has not been set at zero.

Meanwhile, the total number of overnight visitors to Nova Scotia (2.1 million in 2011) has remained roughly constant since 2005. The loss of US tourists has been replaced by visitors from Ontario, western Canada and overseas. In 2000, US visitors made up 15% of the total to Nova Scotia. By 2011, that proportion had fallen to 9% while those from Canada (excluding the Atlantic Provinces) and overseas increased from 33% to 39% of the total (Exhibit 3.2).

Exhibit 3.2 - Geographic Origin of Overnight Visitors to Nova Scotia in 2011



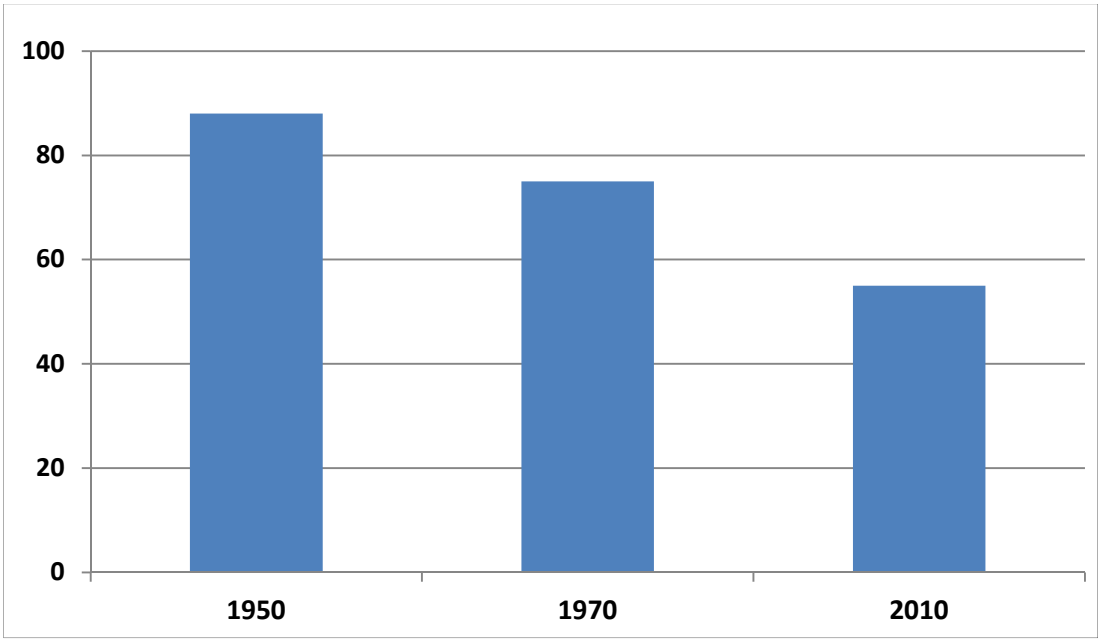
Source: Nova Scotia Economic and Rural Development and Tourism (2012), Tourism Research data 12 July 2012.

The causes of the overall decline in US visitation have been primarily the following:

- *Increasing fragmentation of the tourism market*—This is the result of much stronger global competition—e.g., sun destinations, Asia-Pacific, adventure and experiential travel—spurred by cheaper air travel, aggressive marketing, and facilities development. Competition is now amplified by the empowerment of travellers by the Internet and social media. This has affected all of the traditional top tourist destinations worldwide. In 1950, the top 15 destinations (countries or regions) attracted almost 90% of all tourists, but by 2010 that market share was only about 57% (Exhibit 3.3). The sharper drop-off in US visitors to Atlantic Canada than to Canada as a whole may reflect a perception that the tourism experience in the region is more traditional and less exotic than in some other parts of the country. In fact, the all-time high for US tourism in Nova Scotia was almost 40 years ago in the mid-1970s. Since then, for example, the family "driving vacation" appears to have become much less prevalent, perhaps owing to increasingly felt time pressures and higher gas prices. It's a new world for tourism and the traditional destinations, Nova Scotia very much included, will have to raise their game.

Exhibit 3.3 - The top global destinations have lost share as the world tourism market continues to fragment

Share of tourists visiting the 15 most popular destinations world-wide (%)

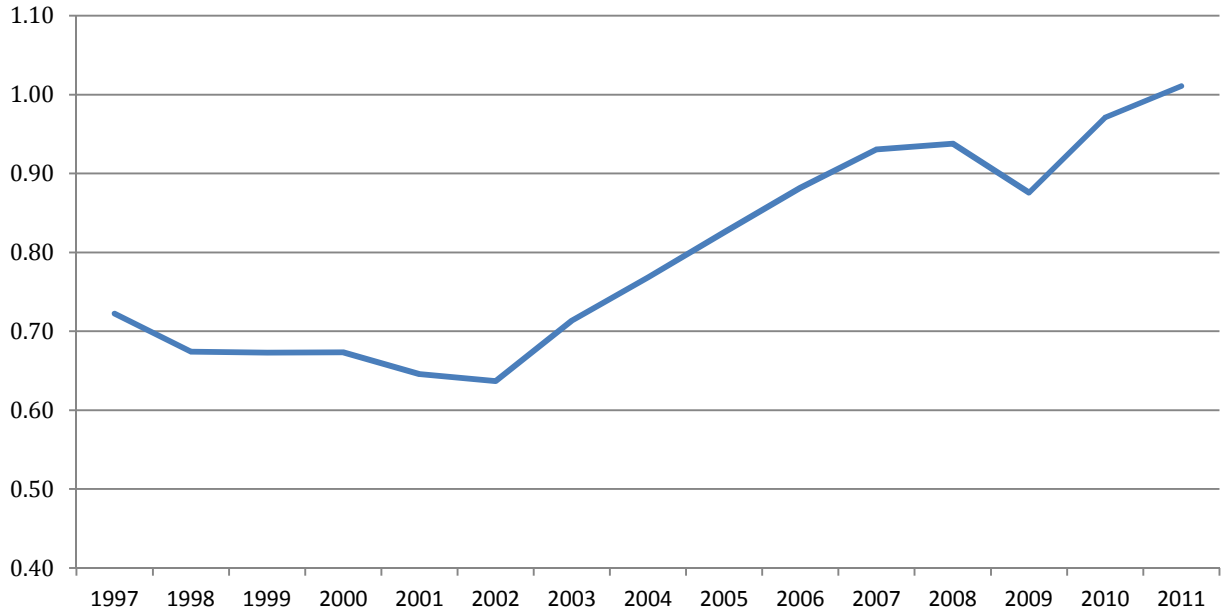


Source: UN World Tourism Organization, http://www2.unwto.org.

- *Conditions in the US economy*—When the economy is strong, as in 2002-07, many travellers feel they can afford to go farther afield beyond Canada, but when the economy is weak, as in 2008 to date, they are more inclined to stay very close to home. In fact, the pattern of decline in US tourism in Canada since 2000 largely mirrors the pattern of consumer confidence which was at an all-time high in January, 2000 and a record low in early 2009.
- *Increasing fuel prices*—Fuel prices affect the cost of virtually all travel, whether by air, sea or land, and therefore discourage the length of discretionary travel such as tourism. The public is particularly sensitive to gasoline prices because they are so visible and directly felt. The average price of a gallon of regular gasoline in the United States increased steadily from just over one dollar (US) in 2002 to a peak of more than four dollars in mid-2008 before plunging to less than two dollars in early 2009 as the recession deepened. Meanwhile, airlines and passenger vessels began to include fuel surcharges in their fares. These higher prices have undoubtedly curtailed tourist travel and in particular travel by car, minivan and SUV. Gasoline prices per gallon in the US are currently in the $3.70-3.80 range (August 2012) and about (US)$4.75 per gallon in Canada. It is likely that this is once again discouraging longer-distance driving vacations.
- *Stronger Canadian dollar*—Although the typical US vacation traveller is rarely aware of the prevailing exchange rate (and ferry fares, for example, were always quoted in US currency), the sharp appreciation of the currency since 2002 has contributed importantly to Canada's reputation today as an expensive destination (Exhibit 3.4). Social media now create much greater and more immediate awareness of such factors than was possible in the past.

Exhibit 3.4 - The sharp rise of the Canadian dollar since 2002 has made Canada much more expensive for US tourists

(C$ in US cents)



Source: Bank of Canada accessed 12 July 2012.

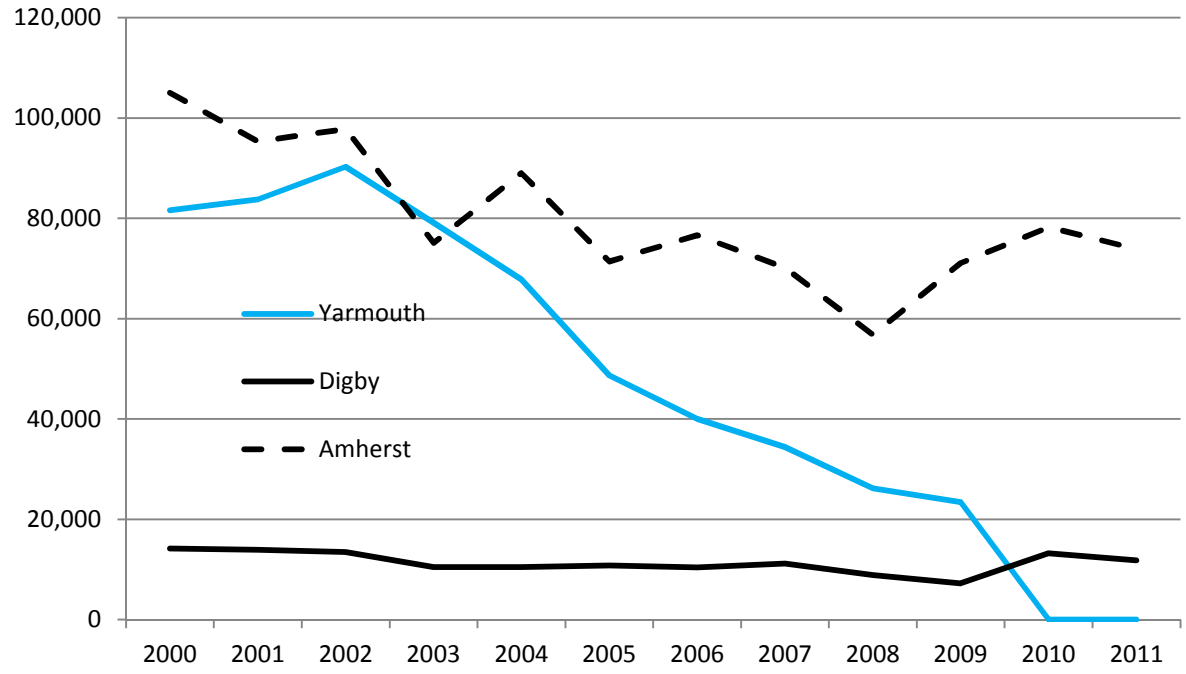
- *Increasing security measures*—The imposition of passport requirements for US travellers—originally announced to be implemented in 2004, but then delayed—caused considerable confusion among the US public, only a small proportion of which had passports. The confusion was compounded by the fact that the requirement in respect of air travel came into effect in 2007 but not for land and sea travel until June, 2009. The reigning confusion throughout the period from 2004 to 2009 undoubtedly discouraged US tourism to all destinations, but this is of substantially less significance looking forward.
- *One-off factors*—There will always be wild cards. For example; there was a bump-up in US travel to Canada in 2002, presumably because of a reluctance to fly overseas after the 9/11 attack. But this was followed by a significant bump-down in 2003 caused by international publicity over the SARS outbreak Canada.

Causes of declining US visitation via Yarmouth

Yarmouth has of course suffered from the overall decline of US tourism to Canada, and particularly to Nova Scotia. But the effect in the southwestern region of the province has been especially severe because the Yarmouth entry point is so heavily dependent on the US traveller. The growing numbers of visitors from Ontario, the west and overseas often do not make it to the far western end of Nova Scotia. But even restricting attention *only* to US visitors, one sees that the number entering via Yarmouth has declined much more rapidly than the number arriving by road via Amherst, or by ferry through Digby (Exhibit 3.5). Total US visitation via the three road/ferry entry points was cut in half between 2002 and 2009, but was down 74% through Yarmouth, compared with 27% via Amherst and 47% via Digby. The total continued to decline in 2010 as the numbers lost when the Yarmouth ferry ended (23,400) were only partly made up by gains via Amherst (7,100) and Digby (6,000). In 2011 there were declines through both Amherst and Digby totalling about 5,700.

Exhibit 3.5 - US visitor entry through Yarmouth declined sharply after 2002

US overnight visitors via various entry points



Source: Nova Scotia Economic and Rural Development and Tourism (2012), Tourism Research data supplied 12 July 2012.

It is notable that the rapid decline in US visitation through Yarmouth was underway well before the elimination of ferry service from Portland and Bar Harbor. This begs the question: *Why have the Yarmouth numbers fallen much more rapidly than via the other two entry points?*
The panel believes that the reasons are primarily the following:

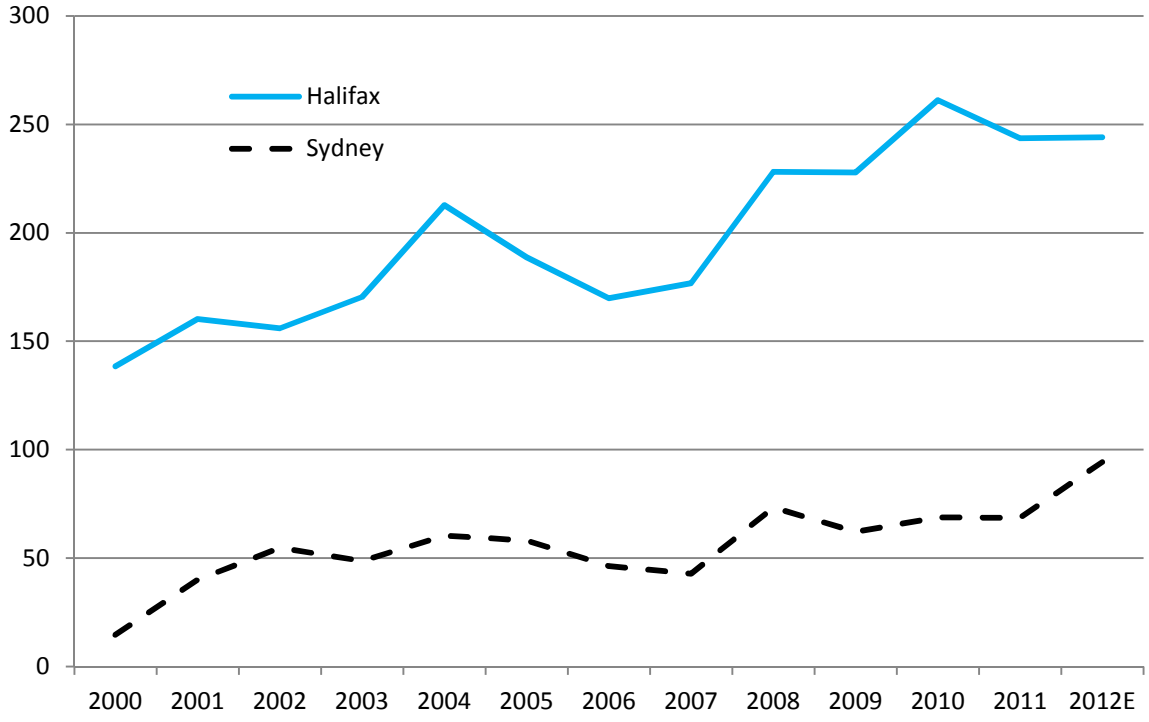
- The loss of the Portland departure point in 2005, after the *Scotia Prince* ceased operation, removed an important point of embarkation, though traffic on the vessel had already fallen by almost a quarter since the peak in 2002. The *CAT* did not recapture the potential traffic even when, beginning in 2006, it included runs from Portland. The shortfall was due, in some combination, to fewer sailings than had been offered by the *Scotia Prince* and to differences in the passenger experience.
- The withdrawal of the *Scotia Prince* in 2005 reduced the amount of marketing in the US and this was not able to be fully replaced by Bay Ferries. Thus awareness of the existence of a ferry connection would have diminished.
- The initial novelty of the *CAT* inevitably faded. Its relative speed advantage was eroded somewhat as major road improvements were completed, particularly in New Brunswick. For example; for a traveller, say from Boston, contemplating a trip to Halifax, the straight driving time via highway (through Amherst) would be 12-13 hours (1,125 km). Using the *CAT* from either Bar Harbor or Portland would involve about the same elapsed time, though obviously a lot less if Yarmouth were the destination.* Of course, the ferry traveller would avoid the wear and tear of being behind the wheel the whole time.
- The fuel surcharge on the *CAT* ($US25 per car by 2006) and other fare increases, particularly playing into the weak economy in 2008-09, put downward pressure on demand for the service. The operator discovered that while fare reductions might boost traffic somewhat, the increase was not enough to offset the reduction in per-passenger revenue. (In economist's terms, the demand for the ferry service was relatively inelastic with respect to price under the market conditions prevailing at the time.)
- There is anecdotal evidence of passenger discomfort on the *CAT*, especially on the nearly six-hour ride from Portland. The vessel type was not ideal for longer trips, particularly over the sea conditions frequently encountered in the Gulf of Maine. The schedule change in 2006 to include Portland on certain days, in addition to the long familiar departure from Bar Harbor, appears to have caused confusion among some potential passengers, reducing the number of those riders who were less inclined to make advance plans.
- Competition for the cruise-oriented US traveller to Atlantic Canada has increased steadily owing to very competitively priced short cruises out of New York and Boston (Exhibit 3.6). This appears to be substituting for the formerly heavy motor coach traffic which had been an important market for the Yarmouth ferries and for NS tourism generally. While the growing cruise ship traffic is impressive—with passenger numbers through Halifax and Sydney up 40% since 2002—the visitor spends little time, and often relatively little money, while in port.

* The travel time estimates assume ferry travel times on the *CAT*, including on/off, of about seven hours from Portland and four hours from Bar Harbor.

The precise contribution of each of the forgoing specific factors cannot be quantified, but their cumulative effect when super-imposed on the trends that have depressed US tourism to Canada and the Atlantic Provinces generally, would largely account for the particularly sharp decline in US tourist entry through Yarmouth.

Exhibit 3.6 - Short cruises from the US east coast are a growing market

Cruise visitors to Halifax and Sydney (000s)



Source: Data provided by the Port of Halifax and the Port of Sydney to Dalhousie University.

Note: In 2000, 94 cruise ships visited Halifax (23 in Sydney) and by this year it is anticipated that the number calling on Halifax will be 134 (61 in Sydney).

Looking forward

Some of the general trends outlined above appear to have largely run their course, or at least are unlikely to worsen, and may be partially reversed. Nevertheless, it will be challenging to attract passengers to a Yarmouth ferry service in nearly the numbers achieved in the early 2000s when the *CAT* and *Scotia Prince* each carried in the range of 155,000-165,000 passengers per season. Much would depend on aggressive and creative marketing and on the choice of port and vessel-type for a potential re-established ferry.

Most crucially, a new business approach would be required. Although a ferry is, from one perspective, simply a marine highway, the trends in the tourism market suggest that a growing proportion of today's potential users demand more than transportation. They want a compelling experience while they travel. The panel is therefore convinced that for a Yarmouth ferry to be commercially viable, it must be designed from the "customer in" rather than from the "transportation service out". In other words, the business strategy must be market-driven rather than simply service-driven (Box 3.1). The implications are elaborated in the next chapter.*

The crucial question therefore comes down to this—*Is there a type of ferry service that, with appropriate marketing and some recovery of the US economy, could attract sufficient passenger volumes to support a viable business between Yarmouth and the United States?*

* Note on terminology—in what follows we use the terms "ferry service" and "ferry operation" or simply "ferry" more or less interchangeably, although the word "service" may carry a connotation simply of transportation from A to B, rather than the market-focussed approach the panel believes is needed. We apply the word "service" in the latter connotation as well.

Box 3.1 - Characteristics of a Market-driven Business Model for a Ferry

Feature	Market-driven model
Operator objective	To be profitable and grow the business so as to become even more profitable in future—a growth-oriented business strategy
Competitive approach	Customer value and market research drive business decisions. Market share is acquired by improving the passenger experience and the amenities offered.
Vessel choice	Employ as large a ship as feasible to provide economies of scale. The vessel is designed/chosen to optimize the non-fare (on-board) revenue and passenger volume.
Revenue model	Willingness of the traveller to pay is a fundamental component of determining the basic offering. The offer may include discounts and premium land-side tour add-ons. Product differentiation and price discrimination are often used as components of revenue management. Partnerships are formed in which connecting services/amenities are retailed to customers and revenue and volume are generated by acting as a wholesaler for partners.
Fares	Pricing is dynamic. Possibilities include: • Early purchase discounts • Promotional discounts may be available for groups, tied to advertising programs, social media. • Locals may be able to buy reduced walk-on rates. • Prices raised as the day of departure approaches • Prices dropped at the last minute if volumes do not track as expected; prices continue to climb if bookings track above expectations
Cost containment	Cost containment is motivated by competitive market forces and the carrier's focus on innovation for competitive advantage.
Marketing budget	Marketing spend is determined by the need to sell the experience so as to drive growth in traffic and may be increased if bookings decline.
Government subsidy (if needed)	Subsidy can be either temporary to facilitate start-up, or continuing via cooperative marketing
Examples	Tallink Lines operating between Helsinki, Finland and Tallinn, Estonia; the cross-Channel ferries between U.K. and the continent.

Source: Created for the Panel by Mary R. Brooks, Dalhousie University.

Chapter 4 - Assessment of Options For a Yarmouth-US Ferry

This chapter addresses the second question in the charge to the panel—*What type of ferry service, if re-established, would be the most appropriate?*

The set of potential offerings can be defined and assessed in terms of options for the US port and for the type of ferry vessel. In view of distances and existing terminal facilities, the panel concluded that the potentially feasible port options are Bar Harbor, Portland and Boston. The vessel options are limited broadly to: (1) a high-speed ferry (analogous to the *CAT*); (2) a "Ro-Pax" vessel (examples being the *Bluenose* and the current *Princess of Acadia*) and; (3) a cruise ferry (of which the *Scotia Prince* was an older example.) (Annex D).

There are, in principle, nine *potential* choices— three vessel types for each of three US ports. Some general criteria related to travel time and feasible schedule, as well as suitability for a market-oriented business plan, can be applied to reduce the set of options that merit further consideration. Scenarios for the surviving option(s) can then be analyzed in detail to assess commercial viability and, failing that, the approximate level of on-going public support that would likely be needed to sustain a private-sector-operated service. A summary of the advantages and disadvantages of each potential option follows, beginning with the vessel types.

High-speed ferry

Advantages

- This type of vessel, operating at speeds up to about 40 knots, provides the fastest water passage between Yarmouth and Bar Harbor (about three hours), or Portland (about five and one-half hours).
- The ferry can make two round trips in daylight between Yarmouth and Bar Harbor, thus providing very high passenger-carrying capacity on that route. (Only one round trip daily can be made via Portland.)
- It is a proven service that was profitable at a time of higher passenger volumes and lower than currently prevailing fuel prices.

Disadvantages

- A high-speed ferry is the essence of a "transportation-service-focused" business model—i.e. moving people efficiently from A to B—rather than a "user-experience-focused" model.
- There is little opportunity to generate extra on-board revenue from cabins, entertainment, dining, shopping. (On the other hand, and strictly from a tourism perspective, a dollar *not* spent on the vessel is available to be spent in Nova Scotia.)

- High speed implies high fuel consumption per unit of revenue-earning capacity. Viability is thus vulnerable to high or increasing fuel prices. (The construction of high-speed, car-carrying ferries peaked in 1996 and has since been in decline.)
- The travel time advantage of a high-speed Yarmouth-Maine crossing has been somewhat reduced by improved highways in the Maritimes and by more competitive air service to Halifax.
- The Gulf of Maine is a challenging route for a high-speed vessel and journeys of more than about three hours are relatively rare for services of this type. The most popular routes for the operation of high-speed craft are the Mediterranean and Persian Gulf, both of which usually have relatively calm waters.
- Finally, although the *CAT* had considerable novelty attraction initially, inevitably the novelty largely wore off. The experience of the past several years—despite an exceptional, internationally-respected vessel-operating team—has injured the "brand" of a *CAT*-type service on this route.

Conclusion—The panel does not believe that the conditions prevailing in 2009-10, when the *CAT* service was ended, are likely to improve sufficiently to bring a service of this type up to un-subsidized viability. (The CPCS study projected annual losses of $7-$8 million on a service to Bar Harbor/Portland and $11-$12 million to Bar Harbor alone.) Even if US tourism demand were to revive strongly and fuel prices were to moderate, other options considered below have better commercial prospects.

Ro-Pax ferry

Advantages

- This type of vessel has operated between Yarmouth and Maine—e.g., the first and second *Bluenose*—and is the service of choice for many routes in Europe and elsewhere, as well as for Digby-Saint John and North Sydney-Port aux Basques.
- Because there are many Ro-Pax services, well-priced vessels (typically used) are more likely to be available than are cruise ferries.
- Some Ro-Pax vessels, possibly with up-graded refit, can provide reasonable on-board amenities, including a moderate number of berths for overnight trips as would be required for one leg of a Yarmouth-Portland run.

Disadvantages

- A Ro-Pax ferry is designed first to serve the trucked freight market. It is a hybrid and therefore not the ideal vessel for a passenger-oriented service, and especially not when the objective is to emphasize the experience and not simply transportation from A to B.
- A Ro-Pax would be particularly ill-suited for a Yarmouth-Portland service since a daily round trip—which is required for efficient vessel utilization—implies that one leg is overnight and the vessel would be short on berths, at least during the two-to-three-month high season when large passenger loads are required to achieve viability. Although Ro-Pax vessels have some berths, many overnight

passengers are required to sleep in reclining chairs similar to those in business class on long-distance flights.

- As long as there is a Digby-Saint John freight-oriented, year-round service there would be little use of a Yarmouth-Maine ferry by commercial truckers. (Such a service out of Yarmouth has been tried in the past but abandoned for want of sufficient traffic.) The primary demand for a Ro-Pax service in western Nova Scotia is to transport fresh seafood to Boston on a daily basis. This requires year-round operation geared to the stringent time requirements of the early-morning Boston fish market, whereas a passenger-oriented service from Yarmouth would be seasonal with a schedule dictated by primarily tourist travellers. Moreover, the back-haul commercial traffic from Boston is preferably via Canada (e.g., to pick up mink food in Quebec) and would not be attracted to a Maine-to-Yarmouth route home. (The US Homeland Security 24-hour advance notification rules for *marine* shipments into the US might make shipping time-sensitive fish products from Yarmouth to Maine either very inconvenient or effectively impossible.)
- A freight-oriented ferry from Yarmouth would be in direct competition with the existing Digby-Saint John ferry and would not make sense as long as the latter service was in operation. If the service from Digby were to cease, the question of a sea route to the US from western Nova Scotia, and an appropriate service model, would need to be considered afresh. The panel has taken the Digby service as given and based its analysis on that assumption.

Conclusion—A passenger-freight Ro-Pax hybrid would significantly compromise the potential passenger experience and associated business model. It is therefore not the right service to encourage increased tourism, nor is it attractive for commercial shippers except on an occasional, opportunistic basis—and even then, largely at the expense of the Digby ferry. The Ro-Pax option should not be considered for the potential re-establishment of a Yarmouth-US ferry service. (Both the CPCS and G-P studies came to the same conclusion.)

Cruise ferry

Advantages

- A cruise ferry is designed to optimize the passenger experience and to provide many opportunities for on-board revenue generation—a range of cabins, fine dining, shopping, entertainment, lectures. Some of these features are included in the "ticket price" (permitting higher fares to be charged) while others are charged as extras.
- A cruise ferry is the ideal vessel for destination-oriented tourism since it can offer much of the on-board experience of the popular mini-cruise, albeit for a much shorter time, while leaving the traveller with self-contained transportation at the destination. The voyage itself affords an excellent opportunity to include presentations that describe and promote Nova Scotia as a destination.
- The *Scotia Prince* was an older version of the cruise ferry concept and proved the feasibility of this model (Box 4.1). The service was ended after 2004, ostensibly because of mold in the Portland facility, but perhaps more fundamentally as a result of issues specific to the owners at the time as well

as to the age of the vessel which had been launched in 1972. Although passenger volumes by 2004 were down more than 20% from the peak in 2002—due to many of the factors that were depressing US tourism to Canada—the potential appears to exist that, with a newer vessel and a strong commitment to marketing, a viable service might be re-established (see Chapter 6).

Disadvantages

- The principal disadvantage of the cruise ferry option is the cost of the vessel and the possible difficulty of securing one of the right size and amenity features. The crucially important question of vessel availability will be re-visited in Chapter 7.
- A second possible disadvantage—at least from the perspective of tourism in Nova Scotia, though not of the vessel operator—is that: (a) higher on-board expenditure depletes the traveller's budget, and (b) a cruise experience will attract a larger proportion of one- or two-day "walk-on" passengers than would a more transportation-focused service. This disadvantage may nevertheless be the price to have a commercially viable business model.

Conclusion—The panel believes that a cruise ferry is the best choice of vessel for a Yarmouth-US operation. The feasibility of this option hinges on being able to secure an appropriate vessel at reasonable cost. The potential commercial viability of such a service is addressed in Chapter 6.

Box 4.1- The Scotia Prince: A Cruise Ferry

The *Scotia Prince*, which plied the Yarmouth-Portland route seasonally from 1982 through 2004, was an earlier prototype of a "cruise ferry", the vessel type that the panel believes offers the best prospect for business viability among the options for a Yarmouth ferry.

The ship was launched in 1972 as the *Stena Olympica* and was acquired in 1982 by Scandinavian-owned Prince of Fundy Cruises and re-named *Scotia Prince*. Ownership was transferred in 2000 to Portland-based Scotia Prince Cruises. The vessel was 143m in length (having been "stretched" by 18m in 1987); had a draught of 5.3m and a maximum passenger capacity of 1,120. There were 323 passenger cabins and capacity to carry up to 200 passenger vehicles (or fewer, depending on the number of trucks and buses.) Amenities mirrored many of those on contemporary cruise ships though at smaller scale—for example; the Concord dining room seated 322 and the Broadway Lounge more than 250. There was a 4,000 ft^2 casino, a spa and other facilities to have a drink or a snack.

The operating season in 2004 ran from May 26 through October 11 and the daily schedule called for departure from Portland at 8 PM (Eastern time) and from Yarmouth the following morning at 9 AM (Atlantic time). The 185 nautical mile (343km) passage between Yarmouth and Portland was traversed in about 11 hours, implying an average speed of slightly less than 17 knots and a remarkably quick turnaround of only one hour in each port.

According to a brochure prepared prior to the 2005 season, adult fares (in the high season) were to average about $90 (US) including various fees. Cabin prices, per person, ranged from $40 for "Economy" to $180 for a limited number of "Deluxe" rooms. Passenger cars travelled for about $110. The posted rates were complemented by a great many package deals including literally dozens of "Cruise-Drive-Hotel" packages in co-operation with tourism facilities in the Yarmouth area and throughout Nova Scotia. The *Scotia Prince* placed heavy emphasis on marketing, promoting both the cruise experience itself as well as the Nova Scotia destination. Their material read like a travel guide to the province and included ads by the government.

The *Scotia Prince* service ended following the 2004 season, due apparently to a combination of factors. The vessel was 32 years old; traffic had fallen from 165,000 passengers in 2002 to about 126,000 in 2004; and a dispute erupted with the City of Portland after toxic mold was found in the terminal building of Scotia Prince Cruises. In 2005-06 the vessel housed victims of Hurricane Katrina and eventually, in 2011, was used briefly as a ferry between India and Sri Lanka. In 2012, the *Scotia Prince* was sold for scrap.

Boston port option

Advantages

- Among the potential options, Boston is the most centrally located in the primary addressable market.
- Boston's port facilities are excellent, though expensive. (There are some potential schedule constraints due to heavy port traffic.)

Disadvantages

- The distance from Boston to Yarmouth—about 235 nautical miles—would permit a same-day return trip only if the ferry were to average at least 22.5 knots, a speed that implies very high fuel consumption and also would limit the choice of potentially available vessels. Otherwise, and much more likely, the ship could make only a single one-way trip in a 24-hour period. Any attempt to turn the ship around in, say, 2-3 hours after docking (so as to achieve fuller vessel utilization) would produce rolling departure and arrival times covering all hours of the day and night and would thus be unacceptable for passengers. The vessel could therefore make only seven one-way trips per week, only half the number that could be made from Portland or Bar Harbor. Given the very large capital investment in a ship, the greatest possible revenue-generating utilization is critical to viability.
- Although Boston is relatively close to the major east coast population centres, Portland is less than a two hour (170 km) drive further north on I-95. For many travellers from the major population centres outside Boston, the opportunity to stay on the freeway and avoid having to drive into Boston itself makes Portland at least as convenient a departure point.

Conclusion—Boston's locational advantage in the US east coast market does not make up for its significant disadvantage in terms of vessel utilization and schedule.

Portland versus Bar Harbor

- Portland is significantly more accessible than is Bar Harbor from the main US population centres—e.g., typical driving times from Boston are less than two hours to Portland and almost five and one-half hours to Bar Harbor. There is also Amtrak rail service to Portland (with several trains daily) as well as an international airport.
- A cruise ferry can make a round trip daily from both Portland (about 10.5 hours each way) and Bar Harbor (about six hours) so the passenger carrying capacity is the same on both routes. But the Portland trip is about 75% longer and therefore: (a) can justify a higher fare, and (b) affords more time for a cruise experience and thus greater opportunity to generate on-board revenue. The Portland schedule also favours at least an overnight stay in the Yarmouth area due to the requirement for an early morning departure (or alternatively, an early evening arrival.)
- The Portland harbour facilities are excellent whereas Bar Harbor would need some refurbishment.
- Bar Harbor does offer some notable advantages: (a) shorter sea-time—about 12 hours at sea per day (i.e. one round trip) as compared to a 21-hour round trip with Portland—and thus lower fuel

consumption per unit of capacity; (b) greater scheduling flexibility both as to departure times and vessel speed. The Bar Harbor run is not particularly time-constrained, permitting the vessel to be slowed relative to the Portland case and this also reduces the rate of fuel consumption; and (c) Bar Harbor is a major tourist destination and gateway to Acadia National Park which receives 2-3 million visitors annually, thus creating opportunities to market a cruise to Nova Scotia as a complement/extension to a Bar Harbor visit. On the other hand, Portland is a growing cultural and business center in northern New England and is therefore an increasingly attractive destination for visitors from Nova Scotia—a potential "reverse tourism" flow that would add traffic to a ferry.

Conclusion—On balance, the panel believes that the market position of Portland, and the greater opportunity to generate revenue via fares and on-board attractions, outweigh the operating cost savings and scheduling flexibility associated with Bar Harbor. A similar conclusion was reached implicitly in both the CPCS and G-P studies.

The foregoing assessment has narrowed the nine potential options essentially to one—a cruise ferry between Yarmouth and Portland. The question of commercial viability can therefore be addressed in the context of a single service model, recognizing that the other potential options would all be less likely to be viable.

Chapter 5 - Business Analysis of a Yarmouth-Portland Cruise Ferry: The CPCS and G-P Perspectives

The objective of this chapter is to address the question of longer-run commercial viability of a cruise ferry between Yarmouth and Portland by assessing the revenue and cost assumptions and projections in the CPCS and G-P studies. This critique informs the development of the panel's own model and financial projections presented in the next chapter

The CPCS and G-P studies

Each study analyzed in detail the potential revenue and cost of a cruise ferry operation between Yarmouth and Portland. The assumptions and operating results are set out in Exhibit 5.1. Although the two studies address the same type of service they came to significantly different bottom line conclusions. The CPCS scenario projects deficits every year of about $4.5 - $5 million (M), whereas G-P projects small surpluses, increasing from about $0.5M to more than $2.2M by the tenth year.* The differences are due primarily to the following factors.

- G-P projects passenger volumes that are about 36% greater than CPCS—roughly 30,000 more passengers per season.
- Partly off-setting this, CPCS projects average revenue per passenger ($255) that is 20% greater than the G-P assumption ($213). CPCS has assumed higher revenue from passenger car transport and from on-board activities (refer to Exhibit 5.1). Nevertheless, the much higher passenger numbers in the G-P model translate to higher overall revenue—$24.4M vs. $22.1M in CPCS.
- Vessel operating costs projected by CPCS ($21.9M) are almost $3.5M greater than in the G-P scenario ($18.5M). Three factors account for most of the difference:

  (1) CPCS assumes that a used vessel is purchased—with an annual cost of principal and interest of $6.7M—whereas G-P assumes a six-month charter costing $3.8M;

  (2) CPCS projects that costs related to maintenance, off-season lay-up and other unspecified items will total $5.2M, whereas G-P assumes that these items will cost about $3.4M. For example; with a six-month charter there would be no winter lay-up, and maintenance cost might be partly shared with the chartering company. This presumes, of course, that the charter could be obtained at the rate assumed by G-P (see below).

* The first year of the G-P scenario assumes a passenger volume of 120,000 owing to the "buzz" created by the start-up. The second year reverts to 110,000 passengers and grows slowly from there. Because Year 1 is out of pattern, our assessment is restricted to years 2 through 10. The CPCS cruise ferry projection involves only a 9-year projection.

(3) The foregoing two factors are partly offset by significantly different estimates of fuel cost—CPCS assumes a cost of $4.6M for the season whereas G-P projects $6.3M. The assumed average price per ton of fuel does not differ substantially between the two scenarios, but the total consumption implied by G-P (about 8.7 million tons) is 50% larger than implied by CPCS (about 5.75 million tons). It appears that G-P has projected much higher vessel utilization—180 days on charter and 154 *round* trips (p23)—whereas CPCS mentions "at least five round trips per week" (p149), implying somewhere in the range of 110-120 round trips per season.

These factors, taken together, net out to a projection by G-P of: (a) *higher revenue* than projected by CPCS—by $2.3M initially, growing to $3M by the ninth year; and (b) *lower operating cost*—$3.4M initially, a difference that changes little over the nine-year projection. This implies a bottom-line difference initially of $5.7M and thus explains why G-P projects a small surplus and CPCS a significant deficit. (The estimates of "on-shore" costs differ relatively little in total between the two studies—$5.4M in G-P and $6.0M in CPCS.)

Observations on the CPCS and G-P assumptions

Substantial uncertainty is unavoidable in any projection of business performance. More accurate projections rely on detailed knowledge of the context. In the case of a Yarmouth-Portland ferry this would include, for example: the actual capital and financing cost of the vessel; the fare structure that competition will permit; fuel consumption and price; crewing numbers and wages; and port-specific charges, among other factors. Above all, there is considerable and inevitable uncertainty as to the passenger numbers a new ferry could attract. Detailed market research can help but neither CPCS nor G-P nor the panel has been able to undertake such research. Given these caveats, we would make the following observations on the assumptions, and therefore also on the projections, in Exhibit 5.1.

Passenger Volume: Neither study provides a rigorous basis for either the initial traffic or for the assumed 1% annual compound growth rate. Specifically, the CPCS study assumes that a cruise ferry would attract the same passenger numbers as a (renewed) high-speed ferry. No account is taken in this regard of the higher amenity levels and more passenger-experience-focused business model of a cruise ferry. The authors do acknowledge that "The traffic forecast is a very conservative estimate (about one-half) of the volume compared to the previous *Scotia Prince* level, so some upward potential certainly exists." (p118).

The volume of 110,000 passengers assumed (in Year 2) of the G-P scenario is a "guesstimate" founded on plausibility arguments with reference to past traffic—e.g., in 2002, volume between Yarmouth and Maine, on the *CAT* and *Scotia Prince* combined, was almost three times the G-P assumption for a renewed service. The passenger traffic scenario is based on the further assumptions that the US economy will recover reasonably; that the ferry will be an attraction in its own right (analogous in some respects to the current popularity of mini-cruises); and that the service would be supported by an effective marketing campaign and a competitive fare structure (p21).

Exhibit 5.1 - Operating assumptions for a Yarmouth-Portland cruise ferry: CPCS and G-P compared

REVENUE	CPCS (Yr 1)	CPCS ASSUMPTIONS	G-P (Yr 2)	G-P ASSUMPTIONS
Passengers (000)	80.6	Approx. *CAT* avg. 2008-09; growing 1%/yr	110.0	Approx. one-third of total Yar-Me vol. in early 2000s; growing 1%/yr
Average Fare	$115	2009 *CAT* (adult) posted fare + 15%	$115	Weighted average of assumed "seat" (72% of total) and cabin fares
% passengers in own car	N/A		53.4%	Based on assumed passenger mix
Passenger Autos (000)	26.8	Assumes 1 auto per every 3 passengers	23.5	Assumes 2.5 persons per auto
Average Auto Fare	$235	No basis provided (2009 *CAT* posted rate $189)	$225	Based on estimated avoided cost of road travel to Halifax, incl. overnight
Commercial Revenue (Mill)	$1.5	1,500 trucks @ $1,000	$1.0	1,000 trucks @ $1,000
Onboard Revenue / Passenger	$62	Estimate--no derivation given	$50	Estimate--no derivation given
TOTAL REVENUE ($ Mill)	**$22.1**	Increases to $23.8 M over next 8 years	**$24.4**	Increases to $26.8 M over next 8 years
VESSEL COST				
Capital & Interest ($ Mill)	$6.7	$50 M @ 12% over 20 years	N/A	
Charter ($ Mill)	N/A		$3.8	Half-year charter rate @ $21,000/d
Fuel ($ Mill)	$4.6	Ave price $800/t, but consump. not explicit	$6.3	45 t/d at sea (154 d) @ $650/t + 10t/d for aux. power (180 d) @$1K/t
Crew (number)	100	Estimate--includes marine and "hotel"	200	"Hotel" crew (marine crew in charter fee)
Crew Average Wage ($ 000)	$54	Assumes crew for full year (Canadian crew)	$50/2	Assumes crew retained only half year
Maintenance ($ Mill)	$3.7	Estimated (no detail); increasing about 1.5%	$1.0	6% of operating cost; increasing about 5%/yr
Consumables ($ Mill)	N/A		$1.9	Estimate of cost of goods consumed on-board (no derivation)
Other ($ Mill)	$1.5	Estimated lay-up cost ($1M) + contingency	$0.5	No derivation provided
Total Vessel Cost ($ Mill)	**$21.9**	Increases to $22.4 M over next 8 years	**$18.5**	Increases to $19.2 M over next 8 years
Terminal & Admin				
Marketing ($ Mill)	$1.0	Estimate	$1.5	Estimate
Other ($ Mill)	$5.0	Estimate--Maint., labour, admin., contingency	$3.9	Estimate--Maintenance, labour and administration
TOTAL COST ($ Mill)	**$27.2**	Increases to $28.4M over next 8 years	**$23.9**	Increases to $24.6 M over next 8 years
SURPLUS/DEFICIT $ Mill	**-$5.10**	Deficit shrinks to -$4.6M over next 8 years	**$0.5**	Surplus grows to $2.2M over next 8 years

There is no way, without detailed market research, that one could distinguish scientifically between the CPCS and G-P traffic projections. The CPCS assumption is, by its own admission, very conservative while G-P assumes conditions that may not fully materialize. The two projections of initial year traffic might reasonably be regarded as "floor and ceiling", though results outside those bounds would of course be possible.

Unit Revenues: The panel believes that the average per-passenger fare ($115) and vehicle fares ($225/$235) used in both the CPCS and G-P scenarios are reasonable, although not designed to maximize traffic. They were arrived at in different ways but are nearly identical. Of course, the fare structure will ultimately be dictated by the market—i.e. by the perceived value of the ferry relative to competing alternatives.

In the panel's view, a renewed Yarmouth service would be expected to employ a sophisticated and dynamic fare-setting strategy ("revenue management") as is common on ferries in Europe and with air carriers everywhere. A revenue management approach to pricing is now more feasible than in the past thanks to information technology. While revenue management has not been the practice of many ferry operators in the past, it is a logical approach because the marginal cost of carrying an extra passenger on a ship is almost zero, and thus changing prices dynamically to suit demand makes sense. (The risk is that potential passengers may delay buying a ticket in the hope that the price will fall, a situation more likely to occur when demand for the service is well short of capacity.) In addition, a properly marketed cruise ferry service would feature many discounts and joint packages with complementary tourism services, as the *Scotia Prince* used to do with good effect. Of course these details of business strategy and competitive behaviour cannot be realistically modelled in the abstract.

Vessel Cost (Capital or Charter-related): The panel believes that the G-P assumption regarding the cost of a six-month charter ($3.8M) is too low. Global demand for vessels is highest in the May-October period and off-season re-deployment in the Caribbean or the southern hemisphere has proven to be extremely difficult. Accordingly, the seasonal six-month charter fee for a cruise ferry is likely to be well over half the full-year rate.

The CPCS scenario assumes purchase of a used vessel for $50M, financed at 12% over 20 years. Currently, used-vessel prices have weakened and rates should be much lower, presuming financing could be arranged at all. There are relatively few lenders, worldwide, prepared to finance the purchase of large vessels. Moreover, the term of a ship mortgage is typically in the 5-12-year range and bank financing would be available for only a portion of the purchase price—say, 50-80% depending on the credit standing of the borrower. An operator would normally have to come up with the balance as equity. Thus the CPCS assumption of a 20-year annuity can be interpreted as an "economic accounting" of the cost of the capital asset rather than as actual cash flows in a financing arrangement. Alternatively, the 20-year stream of uniform annual payments could represent a long-term lease or repeated charters.

In any event, we believe that a scenario with annual vessel cost somewhat lower than the CPCS assumption, but much higher than G-P, would be appropriate. The financial model developed by the panel (see next chapter) assumes an annual (level) capital cost of $5.5M. This would be, for example, the cost of a full-year bare boat charter at $15,000 per day, or alternatively the cost of servicing a $50M

purchase at 7% over 15 years. A lower amount might be achieved in today's market; on the other hand, considerable refit cost might be needed to convert a vessel available on the market to one that is suitable for the business model contemplated. One cannot be more precise until the market is tested.

Fuel Cost: A ship's fuel consumption is of two kinds: (1) fuel to drive the vessel while at sea; and (2) fuel to power all the on-board needs of ship and passengers. The consumption of the former depends on the number of trips, hours at sea per trip, and vessel speed, as well as on the size and vintage of the ship—older vessels generally being less fuel-efficient. Consumption for on-board uses tends to be relatively constant on a 24-hour basis, at sea and in port, and depends primarily on the size of the vessel.

Total fuel consumption for a Yarmouth-Portland season will depend on the number of trips and on the number of days for which the ship is powered up, even if not at sea. Neither the CPCS nor G-P scenarios are very explicit as to the assumed length of the operating season and number of trips. G-P suggests (without justification on p23) 154 round trips, which appears to be unrealistically high given the relatively short season. The assumed rate of fuel consumption for propulsion (about 1.9 tons/hour) is also near the high end of the likely range. Fuel consumption for on-board power is assumed to be about 0.4t/hr., which may be a bit low but is assumed to be consumed for the full 180 days of the charter. The projection assumes that fuel prices are $650/t for propulsion and $1,000/t for on-board power. These are reasonable as the price trends in Exhibit 2.2 showed.

The panel believes that the fuel cost projected by G-P is too high owing to the presumption of 308 one-way trips. This assumption, in the context of an assumed initial passenger volume of 110,000, implies an *average* of fewer than 360 passengers per trip—an average load factor that would be too low for a cruise ferry operator.

The CPCS scenario is much less explicit as to trip numbers and mentions "at least five trips per week" without reference to the number of weeks (p 149). CPCS implicitly assumes a much shorter operating period than G-P since its implied fuel consumption is only about two-thirds of the volume projected in the G-P scenario.

The panel believes that the operating season for a Yarmouth-Portland service would likely run from about May 24 through October 15—roughly 145 days in total. A longer season could of course be contemplated if demand warranted. The high season would include about 75 days from late June to early September. Assuming, perhaps optimistically, one round trip every day throughout the high season, and an average of about four round trips per week in the ten-week shoulder season, implies somewhere in the range of 110-120 round trips per season, or 220-240 one-way trips. The panel's scenario, outlined in the next chapter, assumes 230 one-way trips.

Crew Cost: The vessel crew comprises officers and ordinary crew members who may be involved either in operating the ship ("marine" crew) or in serving passengers ("hotel" crew). The ordinary crew may be either Canadian or foreign—subject potentially to certain regulations or policies—with foreign crews being considerably less expensive. Officers might also be Canadian or foreign but the salary levels would be similar in either case.

The CPCS scenario assumes an all-Canadian crew of 100, paid an average of $54,000—presumably on a full-year basis, though the vessel is assumed only to operate seasonally with no off-season net revenue. The breakdown of the crew between officers and others is not made explicit. The annual crew cost is projected to be $5.4M. The G-P scenario projects a similar crewing cost ($5.0M) but assumes: (a) that the marine crew is included in the charter fee, and (b) that the hotel crew numbers 200 (two shifts?) and is paid at an annual average rate of $50,000, but employed for only half the year, implying an effective cost that averages $25,000 per crew member. Neither model as published provides enough detail to fully assess the reasonableness of the crew cost assumptions.

The Yarmouth-Portland ferry would be operated on a 24-hour schedule with little time off during the season. Moreover, the focus on the passenger experience implies the need for a fairly high crew-to-passenger ratio. These considerations suggest that the CPCS assumption of 100 crew members is likely too low. The G-P assumption of 200 appears to be higher than necessary. For example; the Scotia Prince carried a crew, including officers, of fewer than 100 but it was not clear from information available to the panel how many others would have been retained to provide relief in view of the round-the-clock schedule of the vessel.

The ratio of total passenger capacity to the number of crew on cruise ferries tends to be in the 8-10 range. A ferry capable of carrying 1,000-1,200 passengers would likely have a crew of 110-140 though if operating consistently under maximum capacity, a lower number would suffice. On the other hand, the total complement would have to include extras in view of the 24-hour operating cycle.The average wage of about $50,000 assumed in the CPCS and G-P scenarios could be significantly reduced with a foreign (non-officer) crew. It would also not be necessary to pay most of the crew in the off-season. In sum: it should be possible to operate the service at a considerably lower total crew cost than projected by either CPCS or G-P, particularly at the relatively modest passenger numbers assumed in those studies.

Maintenance: Maintenance cost will depend on the age of the ship and on intensity of use. The G-P scenario assumes, as a rule of thumb, that maintenance would initially be 12% of other operating cost during the six-month charter period, but split 50-50 with the charter company—giving a maintenance cost borne by the service of $1M initially, rising to $1.5M by the tenth year. The G-P scenario includes a separate estimate of “Consumables” (initially $1.9M)—i.e. the cost of items, such as food, room supplies, and items for sale on-board—that must be supplied by the operator. The CPCS scenario does not break-out consumables but presumably includes them in its omnibus maintenance expense, which is initially $3.7M, rising to $5.2M by the final year.

The bundle of maintenance, consumables, off-season lay-up and “other” unspecified expenses is assumed to total $5.2M initially in the CPCS scenario, compared with the G-P assumption of $3.4M. The lower cost as projected by G-P— in part by assuming that some portion is covered by the charter—calls further into question the low charter rate projected in the G-P scenario.

Shore-based costs: The on-going cost for terminal facilities, associated labour, management and administration (which would also include insurance and fees of various kinds) is estimated similarly by CPCS ($6M) and G-P ($5.4M). Within the total, G-P includes an allocation for marketing of $1.5M, while the CPCS scenario allocates a third less ($1M). In view of the business model implicit in a cruise ferry

service, the higher budget would be more appropriate. The other shore-based costs would depend on operating details that cannot realistically be assessed given the level of generality of the CPCS and G-P scenarios.

Redeployment in the off-season: The CPCS study assumes that the vessel would be laid-up throughout the off-season at an annual cost of $1M. The G-P scenario avoids the issue by assuming a 180-day time-charter.

Experience has shown that off-season redeployment would be unlikely, although not entirely out of the question. Rather than being an earning asset for 11 months or more, it is likely that the ferry would incur the cost of lay-up for half the year. This is, in effect, a heavy "tax" on an extremely expensive item of capital equipment and is therefore a significant challenge to the viability of the seasonal Yarmouth-Maine ferry service. The problem might be mitigated if the operator of the service was also active in many locations, thus creating more opportunity to redeploy both the vessel and its crew. Alternatively, a half-year charter, as assumed in the G-P study, could relieve some of the problem, but actual charter rates incorporate the difficulty of redeployment and, in our view, have been underestimated in the G-P projections.

Start-up costs: Neither the CPCS nor G-P study provides an explicit analysis of likely start-up costs. These would include one-time items such as terminal repair and refurbishment in Yarmouth; detailed market research and an advertising campaign to re-build awareness; professional fees and other costs incurred to identify, re-position and finance a vessel and to set up shore operations; and possibly some initial inducements from government to attract an operator. The CPCS and G-P studies each suggest, without explicit justification, that start-up costs might be about $5 million.

In the panel's view, this figure is under-estimated. A report published in September, 2010 by the federal Department of Public Works and Government Services ("Ferry Terminal Facility; Yarmouth, Nova Scotia") concluded, after inspection of the Yarmouth facility, as follows:

> "The inspection revealed a number of facility structures at or near the end of their service life and require major repairs in the short term 0-5 year period. … The total estimated repair cost in the 0-5 year time period is $12,908,000. The above estimate includes a 20% contingency." (Executive Summary)

The figure of $12.9 million may reflect the "ideal" in the longer term and a much smaller sum might suffice to get a service lunched. Without further detailed investigation, this remains an important uncertainty with potentially significant implications for the cost and timing of a start-up.

The Nova Scotia International Ferry Partnership, in a presentation to the panel, concluded: "Generally it is assumed that a start-up fund of $5M and on-going operating support of $4M to $5M will be required for a time (less than 5 years)." (p17).

Based on all of the foregoing estimates, the start-up cost, plus some operating support in the early years, appears likely to total in the range of $30 to $35 million.

Note on inflation: The CPCS and G-P financial projections do not incorporate inflation. They assume implicitly that both unit costs and revenues change at the same rate as the general price level. The only quantities that increase in real terms are passenger numbers, maintenance cost (reflecting an ageing vessel), and those items, such as on-board revenue and cost of consumables, that are driven by growing passenger volume. It is of course possible that some items—fuel prices for example—could increase much faster than others; or on-board revenue might increase more rapidly than fare prices. But modelling such possibilities would introduce a great deal of further complexity and would be highly speculative in any event. Moreover, business managers react to changes in prices and costs and adjust behaviour so as to improve the bottom line as much as possible. For these reasons, the panel believes that the treatment of *unit* revenues and costs as "constants" is a reasonable approach to projections provided it is complemented with some sensitivity analysis.

Chapter 6 - Business Analysis of a Yarmouth-Portland Cruise Ferry: The Panel's Perspective

In this chapter we develop the panel's financial projections for a Yarmouth-Portland cruise ferry. These projections form the basis for our response to the question in the charge—"*Across a range of assumptions as to future trends in the key factors affecting the viability of a Yarmouth-US ferry service, what amount of initial and on-going government support would likely be needed to secure a commercial operator.*"

Assumptions of the panel's financial projection

In order to analyze the prospects for commercial viability, the panel developed a simple model of potential revenue and cost for a seasonal cruise ferry service between Yarmouth and Portland. The model is patterned on those presented in the CPCS and G-P studies and reflects the critique in the previous chapter. The assumptions of the panel's "Base Case" (Year 1) are set out in Exhibit 6.1, together with the analogous assumptions from CPCS and G-P so as to highlight the similarities and differences. (Some of the latter assumptions are less granular than those of the panel—particularly the CPCS projection as published—and are indicated by N/A.)

Our assumptions reflect a market-driven approach focussed on rebuilding passenger numbers, without which commercial viability will not be possible. This implies setting ticket prices that are attractive, and then providing an on-board experience that encourages discretionary spending to more than compensate for the lower "cost of entry". A revenue management pricing strategy should be an objective, as the airlines and Baltic ferry operators have learned to do. It is important to minimize the number of empty spaces when the ferry sails, since the cost of carrying one more passenger is essentially zero, but every extra passenger creates a new revenue opportunity.

A heavy investment in marketing will be needed, both to re-create awareness in the US market—here governments can help—and to learn and respond to the factors that drive customer behaviour. In other words, a highly professional approach to marketing the ferry would be a *sine qua non*.

Exhibit 6.1 - Assumptions of the Panel's Revenue and Cost Model - Year 1

			Reference	
REVENUE	**BASE CASE**	**RATIONALE**	**CPCS**	**G-P**
Total number of (one-way) passengers trips	**95,000**	Moderately conservative	80.6K	110.0K
Average fare per passenger	**$95**	Lower the rate to promote traffic	$115	$115
Average on-board revenue per passenger	**$85**	Major focus on ancillary revenue	$62.50	$50
Percent of passengers travelling with car	**50%**	Fewer "driving" vacations	N/A	53.4%
Average number of persons per car	**2.5**	Bias toward couples travelling	N/A	2.5
Average fare per car (including surcharges)	**$195**	Lower the rate to promote traffic	$235	$225
Total revenue per season from "truck" carriage	**$1.0M**	Expect little truck usage	$1.5M	$1.0M
Net amount from vessel deployment in off-season	**Nil**	Conservative	Nil	Nil
VESSEL COST				
Annual cost of obtaining a vessel (owned or chartered)	**$5.5M**	$50M used vessel; 15 yrs @ 7%	$6.7M	$3.8M
Number of one-way trips per season	**230**	Season from 24 May-15 Oct	N/A	308
Hours per one-way trip	**10.5**	Yarmouth-Portland @ 18 knots	10.5	10.5
Tons of fuel for propulsion (IFO) per hour at sea	**1.8**	Estimated consumption @ 18 knots	N/A	1.9
Price of IFO: $US per ton	**$650**	Approximate price: Aug, 2012	N/A	$650
Tons per day of fuel for auxilliaries (MDO)	**14.4**	Estimate @ 0.6 t/hr all day	N/A	10
Price of MDO: $US per ton	**$1,000**	Approximate price: Aug, 2012	N/A	$1,000
Number of officers for vessel	**20**	For marine and hotel functions	N/A	N/A
Average wage per officer (operating season)	**$75,000**	Assume 4-5 would be year round	N/A	N/A
Number of non-officer crew (marine and hotel)	**150**	Assume 10 passengers/crew @ max	N/A	200
Average wage per crew member (operating season)	**$15,000**	Foreign crew for 6 months	N/A	$50K/2
Maintenance, lay-up cost borne by operator	**$3.0M**	Estimate	$3.7M	$1.0M
Ave. cost/passenger of on-board goods (used/sold)	**$26**	Approx. 30% of on-board revenue	N/A	$16.80
Contingencies	**$0.5M**	Estimate	$0.5M	$0.5M
TERMINAL & ADMINISTRATION				
Operator's share of marketing expenditure	**$3.0M**	Heavy promotion required	$1.0M	$1.5M
Cost of shore activity, terminal, insurance, etc.	**$5.0M**	Estimate	$5.0M	$3.9M

A threshold question is whether, with the prices and on-board revenue assumed in our Base Case, the ferry would be cost-competitive with a leisure traveller's other options to visit Nova Scotia for a driving vacation. Although the circumstances of individuals will vary greatly, we can gain a concrete perspective by considering, as an example, a couple from the Boston area planning a week's trip to Nova Scotia—say from a Saturday to Sunday nine days later. The four basic options are: (1) take a Portland-Yarmouth ferry both ways; (2) use the ferry for one leg and drive around the other; (3) drive both ways; or (4) fly and rent a car in Halifax.

It is straightforward to model the key cost components—e.g., ferry ticket and vehicle fare; cost of food and accommodation (on the ferry and on the road); cost of gasoline; air fare and car rental. Most of these costs can be estimated, within typical ranges, from rates posted on web sites and this is in fact what most travellers now do. One can then estimate low-to-high cost ranges that would reflect varying degrees of cost-consciousness in the travelling public. The details of these assumptions and calculations are presented in Annex C. The key results are summarized in Exhibit 6.2. (Note that these costs refer only to travel to and from Nova Scotia (Halifax) and do not include the cost of touring in the province.)

Exhibit 6.2 - Cost for Two Persons with a Car: Boston to Halifax & Return

	Low	Medium	High
1. Ferry to/from Yarmouth (note 1)	$1,075	$1,260	$1,420
2. Ferry one way; drive the other (note 1)	$905	$1,185	$1,450
3. Drive-around	$725	$1,120	$1,500
4. Fly and Rent a Car	$1,590	$1,970	$2,230

Note 1: Based on pricing parameters in the Panel's Base Case scenario

The figures in Exhibit 6.2 are of course approximate and illustrate only one scenario. But the example is built on realistic cost parameters and shows that the cruise ferry scenario is potentially cost-competitive with the drive-around alternative, except for the most budget-conscious travellers for whom the all-road alternative (for a couple) would be about $350 (or one-third) less expensive than taking the ferry both ways. On the other hand, the all-road option would take four days out of touring time in Nova Scotia compared with one day (and an overnight) if the ferry were used. The ferry option also provides the entertainment value of a short cruise.

Although the cost comparisons above have been presented in a special case for ease of exposition and concreteness, they are largely transferable to more general situations corresponding to different starting locations. For travellers from south of Portland there is simply a longer driving distance to be added, whether one is driving the whole way or just to the ferry—i.e. for this part of the trip, the all-road and the ferry options are essentially the same. Beyond a certain range, and/or in the case of heavily discounted air fares, the fly/rent option becomes competitive. For very short visits to Nova Scotia, the drive-around route quickly becomes infeasible, but the ferry can offer a getaway lasting as little as a day—"walk on" in the evening and walk off in Portland the next evening. Or go for two or three days—leave the car at home, take the train to Portland and rent a car for a day or two in Yarmouth and avoid the more expensive cost of car fare on the ferry.

Thorough market research is needed to develop a reasonably reliable estimate of the traffic that a re-established ferry might initially attract. A prospective operator would almost certainly insist that such research be undertaken. Since the panel has not had the benefit of the needed market research, we could only make a plausible estimate as to the starting (Year 1) passenger volume. We chose a Base Case

number of 95,000 passengers that is midway between the initial volumes in the CPCS and G-P scenarios, believing it strikes a balance between optimism and pessimism.*

It might also be expected that the rapidly expanding older age groups—those that are driving the growth in cruise traffic worldwide—could be attracted to a cruise ferry and particularly to the type of visitor experience that Nova Scotia has the potential to deliver.

> The key assumption in the panel's Base Case projection is that a combination of (1) heavy marketing investment, (2) competitive pricing, and (3) an improved tourism product in Nova Scotia, can build passenger numbers more rapidly than either CPCS or G-P assumed.

Both G-P and CPCS projected very modest traffic growth of about 1% a year, whereas the panel believes that a business strategy that is supported by a heavy investment in marketing by both the ferry operator and the government, combined with a gradual recovery in the US economy, could generate several years of healthy growth in passenger numbers before levelling off at a rate more nearly matched to population growth in the principal markets (about 1%). To capture this notion, the Base Case projects robust traffic growth of 6% in the second year, easing back to 5% in years three and four, then to 4% and gradually levelling off at 1% in Year 10, by which time the number of passengers would have increased to 132,500. This would be 17,000 *less* than the number of passengers carried by the *CAT* as recently as 2005. We therefore regard the projection as a relatively modest number, so there is considerable upside potential if the right conditions come together.

The basis for the panel's judgement that the projected passenger growth could be achieved is as follows:

- The cruise ferry business model offers the traveler an attractive on-board experience, and not just transportation. (We recall that the mini-cruise business grew very rapidly once the right model—in terms of price, time and on-board experience—was implemented.)
- The panel's projection assumes a heavy investment in marketing by the ferry operator, averaging almost $3 million annually for the first four years which is nearly double the spending assumed in the G-P scenario and triple the level assumed by CPCS. This would need to be complemented by a resumption of sustained government promotion of Nova Scotia in the key New England and mid-Atlantic markets. (Box 6.1)
- It is also assumed implicitly that the tourism destination experience in Nova Scotia—and not least in the southwestern area—would be up-graded. In other words, the marketing message will need to be validated by the visitor experience. The responsibility rests primarily with business entrepreneurs but governments can play a critically important complementary role; for example, with planning assistance, training programs, event support and public infrastructure. In fact, a good start has already been made with a number of recent initiatives targeted on tourism and other aspects of economic development in the Yarmouth & Acadian Shores area. Of particular relevance in our context is the Yarmouth and Acadian Shores Destination Development Plan.

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* It is often the case that the initiation of a ferry service generates an unsustained first-year spike in usage (as the G-P scenario assumes). The panel's projection does not include any "first-year" effect.

Box 6.1 - Government Partnership in Marketing Tourism to Nova Scotia

The Province of Nova Scotia has, in the past, supported ferry services between the US and Yarmouth through co-operative marketing campaigns, destination marketing, and major promotions.

The co-op campaigns consisted of co-branded media and trade activities. Plans were signed-off jointly by both partners, and campaigns were executed jointly. The co-op program was targeted at individual tourists who would bring a vehicle on the ferry as well as at the group tour market, primarily motor coaches. The Province did not co-operate on marketing that was targeted at the "walk-on" passenger. (Most such passengers would spend little during a brief time in Nova Scotia.) With the *Scotia Prince* in particular, a large share of the co-op campaign promoted tour packages—customers could purchase passage on the ferry along with accommodation and attractions throughout Nova Scotia and other Atlantic Provinces.

The provincial government also helped to generate demand for travel to Nova Scotia (and use of the ferry services) with a commitment to destination marketing, targeted at the leisure market in the New England and mid-Atlantic states. These investments were in addition to the co-op campaigns. A range of activities were undertaken including advertising, public relations, media relations, and trade shows.

Starting in the late 1980s and continuing through the early 2000s, the Province also invested in a series of major promotions known as 'SeaSell' (with the *Scotia Prince*) and 'CatSell' (with the *CAT*). The ferries were chartered as floating consumer/trade shows, visiting a number of US ports in the spring of the year. Tourism operators participated as exhibitors. A number of these promotions included the participation of other Atlantic Provinces, and benefited from funding through the Atlantic Canada Tourism Partnership—a partnership among the federal government (ACOA), the four provincial tourism ministries, and the four Atlantic tourism industry associations.

In addition to these pro-active, forward-looking conditions, it is reasonable to expect that several of the retarding forces experienced during the past several years will moderate, if not reverse.

- The currency exchange rate and the state of the US economy should not, in themselves, *further* depress the potential for increased US tourism to Nova Scotia. In fact, some upside is more likely.
- Any negative impact of the passport/security issue is largely behind us and should not be a significant depressant in the future.
- Better roads and low-cost air travel are already established features of the market environment in which a ferry must compete and are unlikely to pose *growing* hurdles. In fact, the fare structure assumed in the panel's financial projection implies that a Portland-Yarmouth ferry would be, for most travellers, cost-competitive with other alternatives for a driving visit to Nova Scotia. With effective marketing, this should translate to higher traffic volumes than were attracted during the past several years.

On the other hand, the competition for the potential visitor's time and money continues to increase. Tourism is being promoted as a growth opportunity by many countries, the US included. Closer to home, the short cruise business appears to present the most serious competition for a Yarmouth ferry since it offers a relatively inexpensive and carefree way for US east-coasters to at least get a whiff of the Maritimes. A Yarmouth-Portland cruise ferry would of course be different since it would facilitate independent travel by car, or a very short getaway over a couple of days, or possibly a bus tour. Nevertheless; comparison with a short mini-cruise, both as to cost and value perception, will inevitably be made (Box 6.2).

Box 6.2 - Sampling the Competition

With an affluent population of 70 million, the 12-state New England and mid-Atlantic region of the United States constitutes an intensely competitive travel market. A cruise ferry from Maine to Nova Scotia would compete in a dynamic environment with many new travel experiences available. Traditionally, a potential visitor to Nova Scotia would weigh the perceived Nova Scotia experience against those offered by competitor destinations of which the most attractive would likely be New England itself, with an abundance of coastal touring opportunities.

Over the past decade, new competition has emerged driven primarily by the following factors:

- *Developments in air travel*: Route development from the northeastern US to Halifax has made flying to Nova Scotia a viable vacation option, while at the same time, low-cost air carriers in the US have given potential visitors to Nova Scotia many more vacation options in a comparable price range.
- *Emergence of the Mini-Cruise*: Competitively priced short cruises from the northeastern US to the Maritimes offer all-inclusive options to visit Nova Scotia.
- *Development of the gaming industry on-shore:* A big part of the attraction of the *Scotia Prince* was the on-board casino. This was particularly appealing to the walk-on cruise passenger since the gaming experience was not widely available on-shore at the time. Today, that is no longer the case.

To get a sense of the prevailing price competition, an Internet search was conducted on popular US travel sites on July 13, 2012. The search revealed the following offers for a Boston departure (in $US prices):

- flight deals ranging from $352 to Los Angeles, $455 to Halifax, and $722 to London, England;
- cruise vacations ranging from $479 for a 5-night cruise to Canada (Saint John and Halifax) to $499 for a 7-night cruise to Bermuda; and
- a 3-night air/hotel package to Las Vegas for $385 per person .

It must be acknowledged that direct flights are often more expensive, and many of these deals require significant advance planning by the traveller and are often offered in limited quantities ("loss leaders") as the operator hopes to up-sell the potential buyer to a more expensive option. Nevertheless, today's US leisure traveler, planning in advance, has many more options for tourism experiences than in the late 1990s.

10-Year financial projection

The financial implications of the Base Case assumptions are presented in Exhibit 6.4 as 10-year projections of the principal revenue and cost components. Passenger growth of about 40% over 10 years drives a similar increase in revenue: from just under $22M in Year 1 to about $30M in Year 10. *[Footnote: The model does not incorporate inflation, it being assumed implicitly that unit revenues and unit costs would inflate similarly, on average. The CPCS and G-P projections use the same approach.]* Cost is projected to remain approximately flat (in non-inflated terms) and increases only slightly: from $28.2M in the first year to $28.8M by the tenth, reflecting a small real growth (3%) in maintenance cost as the vessel ages, and growth in the total cost of items consumed on-board in tandem with increasing passenger numbers.

The Base Case projects an operating *loss* in Year 1 of $6.4M; break-even by about Year 7; and a modest *profit* of $1.3M in Year 10. Cumulative losses are projected to peak at $21M in Years 6 and 7 and to decline to $18M by the tenth year. These projections do *not* include one-time start-up costs.

It cannot be stressed too strongly that financial projections simply illuminate the consequences of a set of assumptions. There are far too many uncertainties in a prospective cruise ferry business model to warrant confidence in any *particular* projection. Clearly, things could turn out much better, or much worse, than the Base Case indicates. That said, the panel believes that the Base Case assumptions are reasonable. They are based on experience and informed judgment and seek to strike a middle ground between pessimism and optimism. The bottom line results fall between those projected in the CPCS and G-P studies, though it should be noted that some of the panel's assumptions are *more* favourable to profit than those of G-P (e.g., traffic growth), while others are even *less* favourable to profit than those of CPCS (e.g., passenger and car fares). The key results are summarized in Exhibit 6.3, together with the projections from CPCS and G-P for ease of reference.

Exhibit 6.3 - Summary of Financial Projections—Panel, CPCS, G-P

	Passengers		Revenue		Costs		Profit (Loss)	
	Year 1	Year 10	Year 1	Year 10	Year 1	Year 10	Year 1	Year 10
Base Case	95K	133K	$22M	$28M	$28M	$29M	($6.4M)	$1.3M
G-P	110K	122K	$24M	$27M	$24M	$25M	$0.5M	$2.2M
CPCS	81K	87K	$22M	$24M	$27M	$28M	($5.1M)	($4.6M)

Note: Year 1 figures for CPCS and G-P actually refer to Year 2 of those scenarios, since Year 1 does not reflect the pattern of subsequent years.

Exhibit 6.4 - Financial Model of a Yarmouth-Portland Cruise Ferry— Panel's Base Case

YEAR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Passengers (000)	95.0	100.7	105.7	111.0	115.5	120.1	124.9	128.6	131.2	132.5
Passenger growth rate/yr		0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.01
Passenger fare ($)	95	95	95	95	95	95	95	95	95	95
Passengers in cars (fraction)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Car tariff (including surcharges)	195	195	195	195	195	195	195	195	195	195
Number of persons /car	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
On-board revenue/person ($)	85	85	85	85	85	85	85	85	85	85
Commercial revenue ($000)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Off-season net revenue ($000)	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUE ($ Million)	**21.8**	**23.1**	**24.2**	**25.3**	**26.3**	**27.3**	**28.3**	**29.2**	**29.7**	**30.0**
VESSEL COST										
Capital or Charter-related ($000)	5475	5475	5475	5475	5475	5475	5475	5475	5475	5475
Number of one-way trips	230	230	230	230	230	230	230	230	230	230
Hours at sea/trip	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Propulsion fuel (ton/hr at sea)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Price/ton propulsion fuel ($000)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Days in operation per season	154	154	154	154	154	154	154	154	154	154
Non-propulsion fuel (ton/hr)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Price/ton non-propl fuel ($000)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fuel Cost ($000)	5043	5043	5043	5043	5043	5043	5043	5043	5043	5043
Number of officers	20	20	20	20	20	20	20	20	20	20
Average salary for season ($000)	75	75	75	75	75	75	75	75	75	75
Number of marine/hotel crew	150	150	150	150	150	150	150	150	150	150
Average salary for season ($000)	15	15	15	15	15	15	15	15	15	15
Crewing Cost ($000)	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750
Cost/ passgr of consumables ($)	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Maintenance ($000)	2000	2060	2122	2185	2251	2319	2388	2460	2534	2610
Growth rate/yr of maintenance	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Lay-up cost off-season ($000)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Other misc. vessel costs ($000)	500	500	500	500	500	500	500	500	500	500
TOTAL VESSEL COST ($ Million)	**20.2**	**20.4**	**20.6**	**20.8**	**21.0**	**21.1**	**21.3**	**21.5**	**21.6**	**21.8**
SHORE-BASED COST										
Marketing ($000)	3000	3000	2500	2500	2000	2000	2000	2000	2000	2000
Other:Admin; maint; labour ($000)	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
TOTAL COST ($ Million)	**28.2**	**28.4**	**28.1**	**28.3**	**28.0**	**28.1**	**28.3**	**28.5**	**28.6**	**28.8**
PROFIT/LOSS(-) ($Million)	**-6.39**	**-5.34**	**-3.93**	**-2.97**	**-1.68**	**-0.85**	**0.01**	**0.66**	**1.09**	**1.26**
CUMULATIVE ($ Million)	-6.39	-11.73	-15.66	-18.63	-20.31	-21.16	-21.15	-20.49	-19.40	-18.14

The message in the panel's projection is that on reasonable assumptions the service could eventually be profitable, but the margin would probably be narrow. Profitability hinges critically on achieving at least the projected passenger volumes and this in turn depends on the commitment of both operator and government to market development, and on the commitment of Nova Scotia's tourism operators to destination development.

Clearly, the panel's projection (Exhibit 6.4) is neither the best nor the worst that might possibly happen, and other parameters in the financial model could be varied to construct additional projections. Before actually launching a service, an operator would undertake detailed market research and many of the cost parameters could be known accurately only after a specific vessel had been chosen. It is therefore helpful to assess the sensitivity of the bottom line to changes (relative to the Base Case) in key variables, taking them one at a time. Exhibit 6.5 presents such a sensitivity analysis for 10% changes in 11 parameters. For example; increasing (or decreasing) the assumed passenger volume in the first year by 10% would increase (or decrease) the bottom line by an *average* of almost $2.3M per year over 10 years. Increasing (or decreasing) on-board revenue by 10% would change profit relative to the Base Case by an average of $0.7M per year, and so forth.

Exhibit 6.5 - Sensitivity Analysis of the Base Case

Listed in order of impact: other factors held constant

Factor	Base Case	Change vs. Base (Positive Impact)	Change in Bottom Line ($M)
Passengers (Year 1)	95,000	Increase 10%	$2.26
Average ticket price	95	Increase 10%	$1.11
Traffic growth rate	3.8% average	Increase 1 pct. point	$1.07
Shore-based cost	$8M	Decrease 10%	$0.80
On-board rev/passenger	$85	Increase 10%	$0.69
Vessel price	$50M	Decrease 10%	$0.55
Fuel prices	$650/1,000	Decrease 10%	$0.50
Passenger vehicle fare	$195	Increase 10%	$0.45
Crew cost	$3.8M	Decrease 10%	$0.38
Financing rate	7%	Decrease 1 pct. Point	$0.34
Maintenance cost (Year 1)	$2M	Decrease 10%	$0.23

Note: Impact on the bottom line is a 10-yr average. If the changes were in the opposite directions (negative impact), the effect would be to *reduce* the base case bottom line by the amounts tabulated above.

The changes in the bottom line in Exhibit 6.5 should be regarded with caution since they assume that all other factors in the Base Case would be unaffected. This is unrealistic since business operators react to significant changes by adjusting strategy so as to increase profit or mitigate loss. For example, if anticipated passenger numbers failed to materialize, an operator might change marketing strategy, reduce (or increase) certain prices, cut back on the schedule to reduce variable cost, and so forth. Serious problems (or opportunities) arise when several key factors change simultaneously in a way that is

adverse (or favourable) to profitability—e.g., fuel prices rise, the economy weakens, new competition appears (or possibly the reverse of all these conditions). The bottom line can vary significantly in response to relatively small changes in the economic variables in cases where most of the changes line up in either the negative or positive directions. In actuality, there is a tendency for changes to be somewhat off-setting over time. The "perfect storm" is rare, but as Yarmouth discovered, it does sometimes happen.

Critical success factors

The panel believes that the only way to attract to a Yarmouth ferry substantially larger passenger volumes than have recently prevailed—i.e. well above the 80-90 thousand level—is to:

- Approach the business from the perspective of the market—to draw the potential customer in, rather than "build it and they will come;"
- Provide an experience well beyond the distance-saving transportation itself; and
- Invest much more substantially than has been the case in the recent past in marketing—both in-market in the US and in co-operation/collaboration with complementary providers in the US, Nova Scotia and beyond.

Even with a business plan built on the foregoing principles, there must also be a commitment by Nova Scotians and their government to tourism as a key driver of economic development. To this end, the tourism product in southwestern Nova Scotia needs to be up-graded substantially. The visitor arriving or leaving by ferry needs to be regarded as a bigger opportunity than simply an overnight stay and a quick meal while passing through. Moreover, travellers without cars—e.g., those on a short getaway of one to three days—would be a critically important segment of potential ferry users and growing their numbers would depend on the quality of the experience in the Yarmouth area and in the western end of the province.

Chapter 7 - The Requirements to Initiate a Yarmouth Ferry

The financial projections described in the previous chapter provide a starting point, but the actual initiation of a service would hinge critically on two further factors:

(1) Are there cruise ferry vessels potentially available that have suitable characteristics in terms of age, size, amenities and cost?

(2) Could a suitable ferry operator be attracted on acceptable terms?

A negative answer to either of these questions would effectively preclude the re-establishment of a Yarmouth-based ferry operation.

Acquiring a vessel

The *ideal* vessel for a cruise ferry operation between Yarmouth and Portland would have the following characteristics:

- Passenger-carrying capacity should be at least 1,000 so as to be able to take advantage of the peak days during the summer. Based on past experience, 60-65% of the traffic could be expected in July and August. An annual passenger volume of 130,000, for example, implies a per-trip average during those months of 630-680, with peaking well above the average on week-ends.
- There should be at least 600 berths to provide restful passage on the overnight leg. Some sleeper/recliners could be provided at a steeply discounted price to meet peak demand.
- The ferry should be able to carry at least 200 personal vehicles.
- The ferry should have an efficient cruising speed of 18-20 knots to be able to make a one-way trip between Yarmouth and Portland in 10.5 hours or less. The upper limit on trip time is needed to give the ferry at least 90 minutes to turn around so as to complete one round trip per day. Ninety minutes would be very tight but was accomplished, apparently in even less time, by the *Scotia Prince*. Cruising at a higher speed could increase turn-around time, but at the cost of higher fuel consumption.
- The vessel should not be more than 25 years old, and preferably younger, to assure at least 10 years of remaining service life. Newer ships, other things being equal, are usually more fuel efficient; are easier to finance; and would be "fresher." In this business, newer and bigger is better.
- The vessel must of course be of a size that can be accommodated by the Yarmouth harbour and approach (Box 7.1). The draught should not exceed about 6 metres. The maximum length is more difficult to judge without a detailed assessment of the harbour and approach channel in the context of the capabilities of a particular vessel. The *Scotia Prince* was 143 metres which suggests that it may be possible to accommodate a ferry up to about 150m in length, but the panel is not in a position to provide a definitive estimate. This will require consultations with captains and pilots who are familiar with the harbour and possibly simulation studies tailored to a specific vessel.

The foregoing constraints restrict the set of potentially available vessels worldwide, whether for purchase or charter. The ship databases available to the panel indicate that there are more than 20 ferries operating today that have at least the required age, speed and overall dimensions for the proposed service. (If it should turn out to be possible to accommodate somewhat greater draught than 6m or length beyond 150m, the number of vessels potentially available increases significantly.) Some fraction of these would likely be available for purchase or charter. A more detailed assessment would be needed to ensure that the vessel descriptions on paper were borne out in actuality. In particular, the suitability of cabins and amenities could be assessed only through direct inspection. Refit is usually possible to correct important deficiencies but this would of course increase the cost and delay vessel availability.

Box 7.1 - Some Characteristics of Yarmouth Harbour

With today's trend to larger and larger vessels, the physical characteristics of Yarmouth's approach and harbour constrain the choices of potentially available cruise ferries. Based on the last hydrographic survey (in 1986), the following characteristics are relevant:

- Minimum charted channel depth on approaches: 6.6 meters
- Channel is easily navigable and well-marked.
- The tidal foreshore is extensive, making radar navigation challenging.
- There is limited manoeuvring room in the channel, but there is a turning basin off the main piers of 200 meters.
- The mean tidal range of 3.7 meters means that there are currents to be encountered. Silting is an issue.
- Wind speeds are highest in the winter. Prevailing summer winds are southwest.
- Fog is a frequent issue (15-25% of the year) with fog in Yarmouth one day in three at peak times. The peak month is July.

The set of potentially available cruise ferries that could be used will depend on the maximum length and draught of vessels that can be accommodated safely by the Yarmouth harbour and approach. A definitive determination of the limits could only be made after further expert study and consultation with mariners who have had direct experience with the harbour under a wide range of conditions.

Source: The bulleted points are based on information contained in Intellection Consulting Inc. (2010), for the Atlantic Pilotage Authority, pp. 72-75.

Attracting an operator

There is considerable, and unavoidable, uncertainty as to the ultimate commercial viability of a Yarmouth-Portland cruise ferry business. The required passenger volumes might not materialize even with aggressive marketing of a compelling experience. The complementary tourism development and

partnerships in Nova Scotia might fall short. Fuel prices might spike. Moreover; a large up-front re-investment in terminal facilities and marketing, including detailed market research, will be needed.

For these reasons, a private sector operator would not initiate a service without public sector involvement. Were it not so, an operator (not seeking support) should already have come forward, particularly in light of the determined attempts of groups such as the Nova Scotia International Ferry Partnership (NSFIP) to identify one through solicitation of proposals and meetings with several potential operators.

As noted in Chapter 5, start-up costs have been variously projected at about $5 million plus the cost of terminal repair and refurbishment that has been estimated by federal government inspectors to be as high as $13 million over a five-year period. In addition, the provincial government would likely need to agree to offset at least a portion of any operating losses during the first few years and possibly to provide guarantees related to vessel financing or charter. The financial projections in Exhibits 6.4 suggest that subsidies *totalling* in the range of $20 million over about the first six years would likely be needed to offset operating losses until passenger volumes could be built up to potentially profitable levels. This amount of support is broadly consistent with the estimate of the Nova Scotia International Ferry Partnership that "on-going operating support of $4M to $5M will be required for a period of time (less than 5 years)."

Based on the foregoing estimates, support from the public sector for terminal repairs, start-up activities, and operating subsidies during an initial period would likely total in the $30-$35 million range but subject to considerable uncertainty regarding necessary terminal refurbishment and operating subsidies.

It is unlikely that the federal government would agree to subsidize *operations* (as distinct from infrastructure) of a Yarmouth-Maine ferry. In principle, support might be sought from the State of Maine since the Portland area would certainly benefit from a ferry connection with Nova Scotia. But according to those consulted by the panel, there is very little likelihood of financial support from the US side. The Government of Nova Scotia therefore appears to be the only potential source of *operating* support from the public sector.

If the provincial government—assisted by Ottawa in respect of terminal infrastructure and other non-operating support—decides to provide financial assistance to re-establish a ferry service from Yarmouth, it should be designed to ensure that the private sector operator has the strongest possible incentive to maximize commercial performance, and thus minimize the public sector contribution. This serves not only the tax-payer's interest but also stimulates the innovation and customer focus that are the ultimate sources of business success. There are several examples from Europe—where subsidized ferry services are common—of agreements between provider and government that appear to embody the right incentives to achieve a fair sharing of both risk and gain.

Government support need not be entirely in the form of direct cash payments to an operator. A portion should be in the form of enhanced marketing expenditure which could have collateral benefit for Nova Scotia tourism more generally (recall Box 6.1).

Chapter 8 - Impact on the Digby-Saint John Ferry

The purpose of this short chapter is to address the following question in the charge to the panel—*"If a Yarmouth ferry service were re-established, what would be the likely impact on the existing service between Digby and Saint John?"*

The Ro-Pax ferry service between Digby and Saint John, via the *Princess of Acadia*, operates year-round and carries a mix of passengers, their cars, and large freight trucks (Box 8.1).The primary business is commercial traffic, about three-quarters of which consists of trucks hauling fresh seafood from southwest Nova Scotia to the Boston market. The ferry is also one gateway for US visitors to Nova Scotia and their annual numbers have been relatively constant since 2003 in the range of 10,000-11,000. In the face of the weak economy in 2009, the numbers fell to 7,150 before rebounding to 13,600 in 2010. The latter up-tick appears to have been primarily due to the fact that Bay Ferries, operators of both the *CAT* and the *Princess of Acadia*, directed persons accessing the C*AT's* website in 2010 (after that service had ended) to the Digby-Saint John ferry as an alternative. By 2011, the effect of the cross-marketing appears to have largely run its course and the number of US visitors arriving through Digby had reverted closer to the average of the last 10 years (recall Exhibit 3.5).

The resumption of a cruise ferry service between Yarmouth and Portland would be unlikely to have a major impact on the Digby-Saint John ferry because the target markets of the two services are quite different. A cruise ferry is passenger-oriented and seasonal, and would attract a relatively small volume of freight on an opportunistic basis. The Digby-Saint John service provides time-sensitive shippers with the schedule and year-round service they need. Roughly two-thirds of the passenger traffic on the ferry is from Nova Scotia, New Brunswick and Ontario. Few of these users would divert to Portland to reach Nova Scotia. About 10-15% of the passenger traffic originates from the US northeast coast (Maine to New York) with a further 15-20% from elsewhere in Canada and the US. Thus the direct competition between a potential Yarmouth service and the existing Digby ferry would be for about 30% of the latter's passenger load and a small fraction of freight.

The CPCS study included scenarios with, and without, a Yarmouth ferry and projected, in both cases, the financial impact on the Digby-Saint John service. The effect of the introduction of a Yarmouth-Portland cruise ferry was to reduce passenger volume on the Digby ferry by 15%, or roughly 20,000 (one-way) passenger trips per year (CPCS, Figs. 5-17, 5-22). Overall revenue was projected to be reduced by about 14%. As a result, the annual deficit on the Digby-Saint John service, according to the CPCS scenario, would increase by $1.8 -$1.9 million—e.g., from a little more than $11M as projected without a Yarmouth ferry to $13M with a ferry.

The panel believes that the CPCS estimate of impact is credible, though perhaps a bit high. This is because the reintroduction of a Yarmouth-Portland ferry would significantly increase visitation to southwest Nova Scotia and some portion of the newly attracted traffic would use the Digby ferry on one leg of the trip to or from Nova Scotia. Spokespersons in the Digby area have supported the resumption of a Yarmouth ferry, evidence that the perceived overall benefit to the community would more than offset any loss to a new service. Finally, there would be mutual benefit from co-operation between the operators of the two services in the areas of marketing and the design of package deals so as to increase the overall size of the pie, thus further mitigating the impact on the Digby-Saint John service.

Box 8.1 - The Digby-Saint John Ferry Service

There has been a ferry connecting Digby and Saint John for the past 175 years. The present service uses a vessel (*Princess of Acadia*) and shore facilities owned by the federal government but operated by Bay Ferries Limited since 1997, when the operation was "commercialized" via transfer from Marine Atlantic, a crown corporation.

The *Princess of Acadia* was launched in 1971 and is a Ro-Pax vessel, 146 m in length, with capacity for about 650 passengers and some combination of 40 tractor-trailers or 160 cars. It operates year-round covering the 72 km voyage across the Bay of Fundy in about three hours.

A 4 PM departure from Digby permits perishable fish products from southwest Nova Scotia to be trucked to Boston in a little less than 13 hours, in time for the 5 AM opening of the Boston wholesale fish market. The alternative all-road route via Amherst and Houlton, Maine (1,330 km) takes about 15 hours (given US regulations on interstate truck driving speeds) for a truck with two drivers, or 25 hours for a single driver compliant with hours of service regulations for truck drivers. Fish producers, which provide about 75% of the ferry's freight traffic, greatly prefer the Digby-Saint John route and it is estimated to carry about 90% of the trucked seafood exports from western Nova Scotia to the US.

Despite the time and distance advantage, traffic on the *Princess of Acadia* has declined significantly since the late 1990s—e.g., there were 190,000 passengers in 1998, but this had fallen to about 115,000 in 2011. Freight traffic has also declined sharply—from 29,000 trucks in 2000 to about 8,100 in 2011. While the recent declines reflect the economic downturn, the decade-long trend has structural causes, principally: (1) a sharp reduction in the movement of forest products from western Nova Scotia; (2) greatly improved highways, reducing the travel time experienced by car (see below) and truck; and (3) the general reduction in tourist travel to western Nova Scotia.

Time and Distance from Boston for Various Route Options for a Tourist Visiting by Car

	To Halifax		To Digby		To Yarmouth	
	Distance	**Time**	**Distance**	**Time**	**Distance**	**Time**
All road	1125	12.2	1330	14.5	1435	15.6
Via Digby-Saint John ferry	890	13.9	660	11.5	765	12.6
Via Portland-Yarmouth ferry	480	17.4	280	15.1	175	14.0

Note: Distances in km are via the quickest route; times in hours assume uninterrupted travel. The ferry routes include an estimate of on/off time with totals for Digby-Saint John of 4 hours and Yarmouth-Portland of 12 hours.

The combination of falling traffic and sharply rising fuel cost had, by 2006, required the Digby-Saint John service to be subsidized by the governments of Nova Scotia, New Brunswick and Canada. Currently, the annual operating subsidies are projected to be $1 million each from the two provinces and an undisclosed amount from the federal government. These are to ensure operation until 2014. By then, the *Princess of Acadia* will be 43 years old and forced to be retired. The question of a replacement vessel and the terms of any required subsidy are presently under consideration by the federal and provincial governments.

Chapter 9 - Considerations Regarding Public Benefit

The panel has been asked to provide analysis and advice regarding the business case for a potential Yarmouth-US ferry service. This was the subject of Chapters 5 and 6, the implication of which is that some initial public support would be needed, and that longer-term commercial viability, while certainly possible, is not assured. Governments may conclude that a ferry service promises to generate sufficient ancillary *public* benefit to justify some level of subsidy—either for start-up or on-going. In fact, many transportation systems in Canada and worldwide, ferries included, receive public subsidy directly or indirectly.

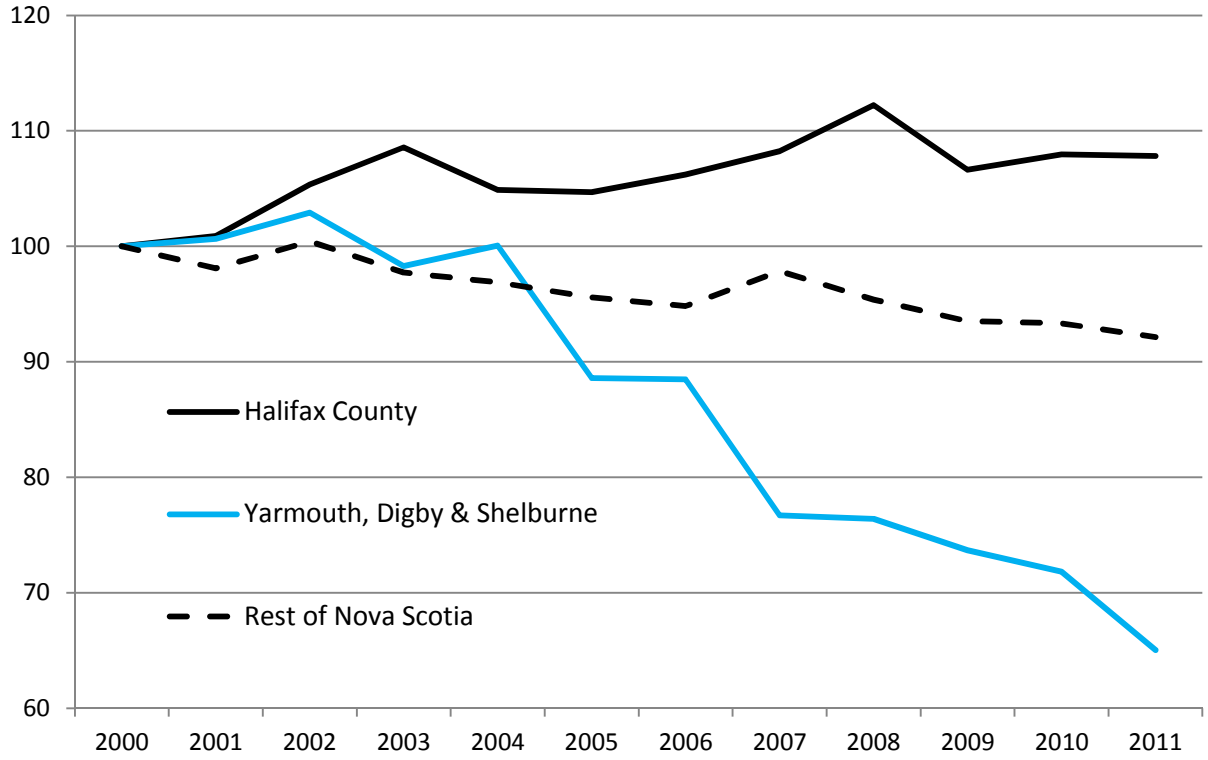
The judgment as to whether the extent of public benefit justifies the required subsidy will always depend on the specific circumstances, including the benefit of the alternative uses to which public funds might be allocated. Since tax-payer funds are always limited, the question must be asked whether a dollar spent to support a Yarmouth ferry would deliver more socio-economic benefit to Nova Scotia, or even to the southwestern area, than if that dollar were spent for the best alternative public purpose. This is an inherently political question. To put the political choice in perspective, some discussion of the potential public benefit of a Yarmouth-US ferry is warranted. Indeed, virtually all of the studies and other documents reviewed by the panel, as well as the presentations by stakeholders, focused heavily on the subject of public benefit.

Economic impact

The evidence is clear that tourism and related activities have declined precipitously in the Yarmouth & Acadian Shores region (recall Exhibit 1.2), and in southwest Nova Scotia generally, as the ferry traffic fell off from 2002 through 2009. The impact was conveyed to the panel in explicit financial terms by several tourism operators from the area. The economic effect can be seen most clearly in comparative data on "room-nights sold" which show that visitor activity has declined much more steeply in the three-county area of Yarmouth, Digby and Shelburne than in the rest of Nova Scotia and in Halifax county particularly (Exhibit 9.1).

Exhibit 9.1: Room-nights sold in southwestern Nova Scotia have declined more steeply than in the rest of the province

(Index 2000 = 100)



Source: Raw data supplied by Nova Scotia Economic and Rural Development and Tourism (2012), Tourism Research data supplied 12 July 2012.

Note: The room-nights sold in 2000 is used to index the data for 2000 to 2011. The lines trace the percentage decline in each area since 2000.

Both the CPCS and G-P studies sought to estimate quantitatively the broader benefit of a restored Yarmouth-US ferry service, focusing specifically on tourism revenue, net job creation, increased tax revenue and, in the case of CPCS, on other benefits such as road accidents avoided and the value of travellers' time saved. The G-P estimates are the more fully specified of the two (for the case of the cruise ferry) and are summarized in Exhibit 9.2.

Exhibit 9.2 - Estimates of the impact of tourism activity generated by a Yarmouth ferry

Gross economic impact under the G-P scenario: Average of Years 2 and 10

	Yarmouth & Acadian Shores	All of NS
Ferry-related tourism spending	$2.9M	$16.3M
Economic output (GDP) generated	$2.1M	$12M
Jobs created	63	355
Employment income	$1.4M	$8M
Taxes paid		
Federal		$1.2M
Provincial		$1.7M
Percent of activity assumed to be "incremental		85%

Source: G-P 2011, Tables 4.1, 4.2

The tabulated estimates are based on the cruise ferry scenario developed in G-P including: (a) the passenger numbers, (b) the type of passenger (walk-on, motor coach, overnight auto), and (c) data regarding average length-of-stay and daily spending in Nova Scotia from the 2011 *Canadian Travel Survey*. These data were used by G-P to calculate tourism spending by the cruise ferry visitors, yielding an estimate of $16.3M on average per year throughout Nova Scotia, of which about 18% ($2.9M) is estimated to be spent in the Yarmouth & Acadian Shores region. According to the Tourism Economic Impact Model maintained by the provincial government, this level of tourism spending would create more than 260 jobs in the province directly and a further 35% via spin-off activity—e.g., suppliers to tourism operators as well as the "multiplier" effect as incomes are spent, thus generating still more economic activity. The net effect is a projection by G-P of about 355 jobs in Nova Scotia, of which between 60 and 65 would likely be created in Yarmouth & Acadian Shores. Economic output associated with ferry-borne visitor spending—i.e. the contribution to Nova Scotia's GDP—is similarly projected to be about $12M annually; and tax revenue generated would be approximately $2.9M, with $1.7M accruing to the provincial government. It should be noted that these impacts would increase or decrease in proportion to increases or decreases in ferry passenger volume. (In the panel's projection, passenger traffic begins about 14% lower than the G-P assumption, but is about 10% higher by the tenth year.)

It is emphasized that the estimated impacts in Exhibit 9.2 are "gross". They presume that, were the ferry not to operate, none of the visitors would come to Nova Scotia by other means. This would definitely not be the case. So in order to estimate the net *additional* economic impact of the ferry, there must be an assumption as to the fraction of ferry passengers that would come to Nova Scotia *only* if there were a Portland-Yarmouth cruise ferry. These are the so-called *incremental* visitors and represent a clear net gain for the provincial economy and for the tourism industry in particular. There would be little or no gain for the province as a whole if the re-establishment of a ferry simply shifted visitors from other entry points to the ferry.

The G-P model states, but does not justify with analysis, that about 85% of the projected in-coming passengers would be net additions to Nova Scotia's visitor traffic (p 31). This would imply, for example, that the ferry traffic would generate about 300 *net* new jobs in Nova Scotia—i.e. 85% of 355.

The G-P impact projections encompass only spending by visitors carried by the ferry and do not take into account activity associated with the operation of the ferry itself. While much of the cost of the ferry and supporting infrastructure (about $24M per year in the G-P model) would not involve incremental spending in Nova Scotia—e.g., the charter fee and activity at the Portland terminal—some portion would accrue locally and would increase the economic impact beyond the amounts in Exhibit 9.2. The G-P study declined to estimate the amount, arguing that it would be too speculative without more detailed information. In the absence of such further information, one can only say that several more jobs would be generated from work in the Yarmouth on-shore facilities including, for example, in the Canada Border Services Agency. These additional new jobs would number in the tens, not the hundreds.

CPCS estimates of public benefit

The CPCS study uses a very different approach to estimate public benefit and, moreover, does not always delineate clearly the benefits that would accrue in Nova Scotia as distinct from elsewhere. CPCS provides only a superficial account of the public benefit of the Yarmouth-Portland cruise ferry scenario (p 153). Incremental tourism spending in Nova Scotia is projected to total $4.5M annually. Although this figure appears to be far less than the $16.3M projected by G-P, the two numbers are not directly comparable for the following reasons: (a) CPCS assumes, at least implicitly, that only 40% of the passengers carried by the ferry would be "incremental" visitors (p 139). Gross spending (which is the concept used in the G-P estimates in Exhibit 20) would therefore be $11.3M in the CPCS scenario (40% of $11.3M is $4.5M, the incremental amount projected by CPCS); and (b) the G-P study assumes passenger numbers that are 36% greater than CPCS. On a per passenger basis, therefore, gross tourism spending projected by CPCS (an average of about $140) would be only about 5% less than the comparable projection by G-P ($148 on average). Thus the difference between the two studies in respect of tourism impact is due to very different assumptions regarding both passenger volume and the fraction of passengers regarded as incremental—85% by G-P and 40% by CPCS. In fact, both of the latter percentages are really "guesstimates".

The CPCS study assesses a large number of factors that impinge on public benefit, but two dominate in the case of the Yarmouth ferry scenarios—(1) tourism impact, as discussed above; and (2) impact on ferry passengers as measured by the net time and travel cost saved by taking the ferry (should it exist), rather than "driving around". The rather abstract estimate of this cost takes into account average cost per kilometre of driving as well as an imputed value per hour of each car passenger's time (p 188). The presumed cost of the fare on the ferry is subtracted to obtain finally an estimate of the passenger's *net* loss if there were in fact no ferry. The "loss" thus avoided by actually having a ferry is reckoned as a public benefit.

In the case of a cruise ferry—as distinct from a high-speed ferry—CPCS projects this latter "benefit" to be *negative* since a relatively slow cruise ferry does not, according to the CPCS assumptions, save enough time and driving distance to offset the assumed tariffs on the ferry (p 153). One might question, if these assumptions were really valid, why anyone would use the ferry. It could only be because there were other unmeasured benefits of the ferry that tipped the psychological scales. The panel is therefore skeptical of incorporating the "passenger benefit" in the overall public benefit assessment. Moreover, the benefit would accrue primarily to non-residents of Nova Scotia and is, to that extent, not germane to an estimate of the benefit accruing to Nova Scotians. The point is important when interpreting the CPCS study, since the inclusion of a negative passenger benefit in the cruise ferry scenario leads to a very low benefit-cost ratio of 0.7-0.8—which is to say that total public benefit is estimated in the CPCS methodology to be *less* than the cost to subsidize the operating losses projected by CPCS.

Net additional visitors to Nova Scotia

The only question in the charge to the panel that remains unaddressed is the following—*"What annual number of net new visitors to Nova Scotia, within an estimated range, would likely be attracted if a ferry service between Yarmouth and the US were re-established?"*

As noted above, the CPCS study suggests that about 40% of the ferry traffic would be comprised of net additional visitors—i.e. those who, without a ferry, would not otherwise come to Nova Scotia in any given year. The G-P study estimated the comparable share at 85%. Without detailed survey research there is no objective way to choose between the two estimates.* If attention is restricted to western Nova Scotia, and particularly to the Yarmouth & Acadian Shores region, it is safe to assume that a ferry would generate a high proportion of net new visitors to that area since, without a ferry, many who would nevertheless come to the province by road would not include the extreme western end of Nova Scotia in their travels.

The panel's Base Case projects the number of passengers increasing from 95,000 to about 133,000 over 10 years. Based on past experience, 85-90% would be non-residents of Nova Scotia. It is reasonable to assume (for purposes of rough estimation) that, including walk-ons, between two-thirds and three-quarters of those from out of province would take a round trip on the ferry (and thus count as one visitor for the two trips), while the remainder would use the ferry on one leg and not the other (and thus count as one visitor for one ferry trip). These assumptions imply that the annual number of individual visitors to Nova Scotia carried on the ferry would be approximately 55% of the passenger-trip total. This would translate to annual visitation numbers of about 65,000 averaged over 10 years, assuming that the Base Case total passenger volumes were achieved. The proportion of those that would be incremental—not in Nova Scotia were it not for the ferry—would probably fall somewhere between the CPCS and G-P estimates of 40% and 85% respectively.

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* There were about 23,400 US visitors who entered Nova Scotia via Yarmouth in 2009, the last year of the *CAT*. In 2010, the number of US visitors entering through Amherst and Digby (combined) increased by about 13,100 which might suggest that 10,300 were "lost" to Nova Scotia between 2009 and 2010 due to the cancellation of the ferry—i.e. 23,400 minus 13,100 (recovered) = 10,300 (lost). This implies an incremental percentage of about 44% (10,300/23,400). However; the panel does not consider this to be a reliable estimate since many other factors would also have affected the numbers through Amherst and Digby in 2010.

If so, the ferry would be responsible for generating an average of roughly 30,000-50,000 additional tourists to Nova Scotia annually; lower at the beginning but rising as the traffic builds. Although this is a significant number, it needs to be seen in the context of more than two million overnight visitors (from all areas) to the province each year. Moreover, the 30,000-50,000 rough estimate includes walk-on visitors, most of whom would not spend a night in Nova Scotia (though virtually all of this group would be "incremental" visitors).

We would emphasize the rather speculative nature of the foregoing estimate of the number of net additional visitors to Nova Scotia likely to be generated by a ferry. A more reliable estimate would require survey research.

Conclusion

The panel believes that the economic impact methodology used in the G-P study is, on the whole, more reliable and relevant than the methods used by CPCS to assess the public benefit of a potential ferry service. The G-P analysis, while more limited than CPCS in terms of factors covered, is empirically well-grounded and is much more explicit as to the estimation of economic impact in Nova Scotia and the southwestern region in particular. It must nevertheless be recognized that any economic impact analysis depends on many assumptions and estimates that are only approximations; that will change unpredictably over time; and that fail to capture many of the subtleties and complexities of real situations. Such analysis of economic impact must therefore be regarded as indicative rather than definitive.

Quantitative impact estimates should be complemented with qualitative insight. In this regard, the panel heard about a growing sense of "isolation" in southwestern Nova Scotia now that the ferry service has ended. It is clear that many other factors have also affected the mood in that part of the province. These include: demographic ageing and the out-migration of young people which is a general condition in most rural/small-town areas; closure of some prominent employers, particularly in the forest sector; and the decline of property values and tax base which are symptoms of relatively stagnant economic prospects. The cumulative impact has been to erode the confidence and optimism on which economic and social vitality depend.

The potential resumption of a ferry service cannot be regarded as a *silver bullet*. While resumption would be crucially important for many individual businesses, it would not in itself be transformative for the region. Even allowing for missing factors in the G-P analysis as summarized in Exhibit 9.2, the impact on jobs and income in Nova Scotia, and in the Yarmouth & Acadian Shores area specifically, would be relatively modest, though certainly not insignificant. To restore economic vitality, many other elements will have to come together; some in areas of public sector responsibility, but many that only entrepreneurs and engaged individuals and communities themselves can bring about.

Chapter 10 - Conclusions and Next Steps

Summary of responses to the charge to the panel

The panel's terms of reference posed five questions. Our responses, highly summarized, are as follows.

1. What are the key factors that would determine the long-term economic viability of a ferry service between Yarmouth and the United States?

The over-riding factor that would determine commercial viability would be the ferry's success in attracting substantially larger passenger volumes than was the case for the *CAT* service after 2005. For that to happen, the US east-coast traveller needs to be re-attracted to Nova Scotia in much greater numbers. Some of the factors that have depressed US tourism to the province (and to Canada) since the peak in 2002—the rise to parity of the Canadian dollar; confusion over US passport requirements; and the severe economic downturn since 2007—are unlikely to worsen, and some relative improvement can be expected. But deeper structural issues—particularly the fragmentation of the tourism market, and new sources of competition such as the increasingly popular mini-cruises—will continue to challenge Nova Scotia's ability to win back the US tourist.

2. What type of ferry service, if re-established, would be most appropriate?

A re-established ferry would have to deliver a compelling passenger experience, not simply transportation from A to B. The business strategy would need to be market-driven and therefore designed from the "customer in" rather than from the "transportation service out". Otherwise it will not be possible to attract the passenger numbers that viability requires. We therefore concluded: (a) that a cruise ferry is the only appropriate vessel type, and (b) that Portland would be the best choice of US port in view of its easy access from the huge population centres of the US northeast.

3. What annual number of net new visitors to Nova Scotia, within an estimated range, would likely be attracted if a ferry service between Yarmouth and the US were re-established?

Detailed survey research would be needed in order to give a reasonably precise answer to this question. Drawing on a wide range of estimates in the CPCS and G-P studies, and on the panel's projection of ferry traffic, we believe that a re-established ferry would generate an average of roughly 30,000-50,000 net *additional* tourists to Nova Scotia annually.

4. If a Yarmouth-US ferry service were re-established, what would be the likely impact on the existing service between Digby and Saint John?

The Digby ferry is a year-round operation that primarily serves commercial truck carriage (notably of fresh seafood for the US market). A Yarmouth ferry would operate seasonally with an almost exclusive focus on passenger traffic. The markets addressed by the two services would therefore be largely separate and, in fact, complementary. The CPCS study included scenarios for the Digby service, both with and without a Yarmouth ferry, and projected that the reintroduction of the latter would reduce passenger numbers on the Digby-Saint John run by about 15%, thus increasing its annual deficit by $1.8 to $1.9

million. The panel believes that this estimate is credible, but perhaps somewhat high because it did not take into account the extra visitation to Nova Scotia that would be generated by a Yarmouth ferry, some fraction of which would use the Digby service on one leg of the journey.

5. Across a range of reasonable assumptions as to future trends in the key factors affecting the viability of a Yarmouth-US ferry service, what amounts of initial and on-going government support would likely be needed to secure a commercial operator?

Based on a detailed critique of the CPCS and G-P studies, the panel developed a 10-year projection of the financial performance of a potential Yarmouth-Portland cruise ferry service. Our Base Case scenario assumed that the ferry could attract 95,000 passengers in its first year, growing to 133,000 by the tenth. This rate of growth is the most important assumption in the model but we believe it is achievable. Doing so would require a fare structure that is competitive with alternative ways to reach Nova Scotia, and our model's assumptions regarding fares appear to meet that test. A second condition is that there would be heavy investment in sophisticated marketing by the ferry operator, complemented with a new campaign of in-market promotion of Nova Scotia by the provincial government (recall Box 6.1). Additionally, the tourism product in Nova Scotia needs to be up-graded so that the ferry's marketing message is fully validated by the visitor's experience.

Five to six years of operating losses could be expected before passenger numbers could be built up to profitable levels. The panel believes that commercial viability could be achieved in the longer-term but this is not assured.

Meanwhile, there would be significant start-up and near-term costs to be borne by the public sector. A September 2010 assessment by the federal government of Yarmouth's ferry terminal facilities (which are federally-owned) concluded that needed repairs would cost almost $13 million over a five-year period. This figure may represent the ideal and a substantially smaller sum might suffice in the near term. As for other costs that may need to be covered at the outset, the Nova Scotia International Ferry Partnership, in a presentation to the panel, concluded: "Generally it is assumed that a start-up fund of $5M and on-going operating support of $4M to $5M will be required for a time (less than 5 years)." This view is broadly consistent with the panel's Base Case projection of losses in the early years.

Summarizing—the panel believes that re-establishment of a viable Yarmouth-Maine ferry service is possible, but it would incur one-time cost in the range of $10-$15 million (for start-up activities and depending on the needed repair/refurbishment of the Yarmouth terminal facilities), and a further cost, probably in the range of $20 million, to cover operating losses during the first several years**.** In total, a commitment by the public sector of support/investment in the range of $30-$35 million would likely be required to re-establish a ferry operation.

Next Steps

In the event that the Government of Nova Scotia decided to explore further the requirements to re-establish a ferry service between Yarmouth and the US, the panel would recommend the following steps.

(1) Identify at least one, and preferably two or more, experienced private sector operators that would commit, subject to certain undertakings by government, to establish a cruise ferry service between Yarmouth and Portland. We would emphasize that the success of the business would depend *crucially* on the commitment and capability of the operator and particularly on the operator's marketing skill.

(2) In view of the critical uncertainty regarding prospective passenger numbers, we would emphasize the importance of thorough market research before committing to re-establish a service. The research should be done in collaboration with the prospective operator and with funding from government. It would be a good investment in risk mitigation (Box 10.1).

(3) A critical issue in the context of selecting an operator will be to identify one or more vessels that can be currently accommodated in Yarmouth and that can also provide an attractive passenger experience. There are several ships operating today that could fulfill the requirements (possibly with some refit) provided they could be available for charter or purchase.

(4) Because there is unavoidable uncertainty as to the long-term commercial viability of a Yarmouth-US ferry, a 5-year vessel charter, with an option to buy (say, after three years) would be the best risk-management approach.

(5) Before a ferry operation could resume, the federally-owned Yarmouth terminal facilities will need considerable repair and refurbishment. The financial participation of the Government of Canada will therefore be required before a ferry service could be initiated.

(6) It is unlikely, though not impossible, that before the start of the 2013 season an operator and suitable vessel could be engaged; that immediately necessary terminal repairs could be completed; and the required market research and in-market advertising could be undertaken. We believe that a 2014 launch is more realistic but, if the service is to be initiated, it should happen as quickly as possible both to hasten the realization of economic benefit and to lessen the effort needed to restore awareness in the marketplace that a ferry route between the United States and Nova Scotia exists.

Box 10.1 - Market Research Needed

Solid market information is essential to assess the prospects for the viability of a ferry and to attract a reputable ferry operator. Moreover, re-instituting the ferry would be only one piece of a broader initiative needed to encourage a steady flow of tourism traffic to southwestern Nova Scotia and the rest of the province. The report by the Tourism Company prepared for the South West Shore Development Authority (*Tourism Destination Development Plan for Yarmouth & Acadian Shores*: final report; *Filling the Chairs*) provides a good starting point for development. Despite the high quality of this report, it does not address some critical questions about the most attractive potential market and what would be needed to attract more travellers from this market to Nova Scotia. Thus, one of the gaps in the evidence to support a decision regarding possible re-establishment of a Yarmouth ferry is the lack of solid market research that would be needed to address several key questions of which the following are only a few examples:

- How much incremental traffic would a ferry service between Yarmouth and Portland attract to the province?
- What types of amenities would they most value as part of the ferry operation?
- Which segments would be most attracted by the ferry, and what 'value proposition' would be most attractive?
- What are the sizes of the various segments and how price sensitive are they?
- How price sensitive are these market segments?
- How do they view the value of a Nova Scotia vacation relative to other potential travel destinations?
- What barriers do they perceive with regard to travelling to Nova Scotia?
- How could you best communicate the ferry (and other related experience packages) to them?
- What level of accommodation would be required?

An additional important area of exploration would be to ask: have US travellers to Nova Scotia significantly changed their travel patterns in the absence of a ferry?

Complementary to a survey of potential US travellers, there should be a survey of Atlantic Canadian travellers, including Nova Scotians of course. It should explore the numbers of people who would travel to Maine and the eastern seaboard if a Yarmouth ferry service were re-established. The viability of a Yarmouth ferry would be enhanced if more Atlantic Canadians thought of the Portland area, for example, as a destination in its own right.

Source: Created for the Panel by Peggy Cunningham, Dalhousie University

A concluding perspective

During the course of the panel's work, and as reflected in this report, we have come to appreciate the difficulty and complexity of the issues that need to be assessed by government in deciding whether to invest the public resources needed to re-establish a Yarmouth-Maine ferry service. The business case issues are tangible but fraught with uncertainties. The social and regional economic issues, and especially the sense of isolation felt by many communities in southwestern Nova Scotia, may not easily be quantified but are no less real.

We have said earlier in the report that the resumption of a ferry service would not be a panacea for the economic challenges facing southwestern Nova Scotia. A ferry would help but it is not a silver bullet. The economic spin-off, while important, would not by itself be transformative. The difficult economic circumstances facing communities in the southwestern area of Nova Scotia are shared by many rural regions in Atlantic Canada, and indeed throughout North America.

This report has focussed on the issues specific to the potential business viability of a particular ferry service. But that viability depends on the larger context of tourism development in Nova Scotia, and not least in the southwestern area of the province. It will take more than a ferry across the Gulf of Maine to bring back the visitors whose departure over the past decade is the reason there is no ferry service today. Nova Scotia is endowed with natural beauty, history and cultural diversity to an extent that is unsurpassed in Canada, but its unique tourism potential remains insufficiently developed. The commercial viability of a Yarmouth ferry rests ultimately on making Nova Scotia a place that everyone wants to visit.

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Annex A – Biographies

Peter Nicholson, Chair of the Panel, retired as founding President of the Council of Canadian Academies in December 2009. The Council—a not-for-profit organization— supports studies by independent experts on issues of public importance. Dr. Nicholson grew up in Annapolis Royal and received degrees in physics from Dalhousie (1995) and a PhD in operations research from Stanford University in California (1969). His varied career has included senior positions in academia (University of Minnesota); business (fisheries, banking and telecommunications); and public service (several federal government departments and the OECD in Paris). Dr. Nicholson was the chief policy advisor to Prime Minister Martin from 2003 to 2006, before assuming the presidency of the Council of Canadian Academies. Dr. Nicholson has received honorary degrees from Dalhousie, Acadia, the University of Quebec, and McMaster. He is a Member of the Order of Canada awarded in recognition of his contributions to business and public policy.

Elizabeth Beale has been President and CEO of the Atlantic Provinces Economic Council since 1996. Prior to that, she worked for 10 years as a consulting economist, advising senior levels of government on regional planning and economic strategies for Atlantic Canada. Her policy and research interests cover a wide range of topics related to the economy of Atlantic Canada including energy, the labour market and innovation strategies. Ms. Beale has authored numerous studies on public policy topics and is a frequent media commentator. She holds a B.A. from the University of Toronto and an M.A. in Economics from Dalhousie University. Ms. Beale has taken an active role in a number of professional and community organizations. She is a past Governor of Dalhousie University, and is currently a member of the National Statistics Council and a Director of the Leslie Harris Centre of Regional Policy and Development at Memorial University.

Michele McKenzie served for four years as Deputy Minister of the former Department of Tourism, Culture and Heritage in 2003 just before becoming President and CEO of the Canadian Tourism Commission (CTC). Ms. McKenzie has had a long career in destination marketing and was the Regional Public Sector representative for Nova Scotia and Newfoundland and Labrador on the CTC Board of Directors. She served as Chair of the Corporate Governance Committee and was a member of the Executive and Human Resources Committees.

Peter Wild is the Managing Director and founder in 1985 of G. P. Wild (International) Limited, a consultancy that provides independent advice to both national and international clients, especially in the cruise tourism, ferry, fast ferry and ro-ro sectors. Mr. Wild holds a BSc degree with honours in Maritime Studies from the University of Wales, and is also a Fellow of the Chartered Institute of Marketing, a Member of the Chartered Institute of Logistics and Transport, a Member of the Nautical Institute, a Supporting Member of the London Maritime Arbitrators Association, a Liveryman of the Worshipful Company of Shipwrights and a Freeman of the City of London.

Mary R. Brooks is the William A. Black Chair of Commerce at Dalhousie University, Halifax, Canada and the Editor of Elsevier's Research in Transportation Business and Management. She is one of the founding members of the International Association of Maritime Economists, and is also the founder and chair of the Port Performance Research Network, a network of more than 50 scholars interested in port governance and port performance issues. She has served on numerous boards, including the Board of the Halifax International Airport Authority and the Halifax Chamber of Commerce. She was appointed to the Marine Board of the U.S. National Academy of Sciences in November 2008, and that appointment has been renewed to 2014.

The Dalhousie support team comprised:

Peggy Cunningham - Dean of the Faculty of Management at Dalhousie University and the R.A. Jodrey Chair.

Lorn Sheehan - Associate Professor of Strategy and Associate Director of the School of Business Administration at Dalhousie University.

Daniel F. Lynch - Associate Professor and Director, Centre for International Trade & Transportation at Dalhousie University.

Mark Gilbert - Professor with the School of Public Administration, Dalhousie University in Halifax.

Annex B – Groups and Organizations Consulted by the Panel

Town of Shelburne and the Shelburne and Area Chamber of Commerce

Nova Scotia International Ferry Partnership

Mayor of Yarmouth, Wardens of Yarmouth and Argyle, and the Yarmouth Chamber of Commerce

Six Members of the Tourism Industry Association of Nova Scotia

Mayor of Digby

Gardner Pinfold

MariNova Consulting Ltd., Belleclaire Consulting and Opus International Consultants (Canada) Ltd

Bay Ferries

P&O Ferries

Member of Parliament for West Nova

Quest Navigation Inc.

Canadian Tourism Commission

Atlantic Pilotage Authority

Any group or individual aware of studies was also able to submit documents in confidence for the Panel's consideration.

Annex C - Cost of Options for the Vacation Traveller to Nova Scotia

Suppose a couple from New England—or to be more specific, from the Boston area—decided to spend a week's driving vacation in Nova Scotia; for example, from a Saturday to Sunday, nine days later. How might they view the cost of taking a (hypothetical) cruise ferry from Portland to Yarmouth as compared with driving around or even flying and renting a car for eight days? The following (Table C1) are the key variables together with a range of currently typical amounts depending on whether one is budget traveller, a "high-roller", or someone in between.

Table C1

Cruise Ferry	**Low**	**Medium**	**High**
Ticket: one-way (note 1)	$95	$95	$95
Car Fare: one-way (note 1)	$195	$195	$195
Cabin (double occupancy total)	$95	$130	$175
Food (per day) (note 2)	$50	$75	$100
Miscellaneous (note 3)	Nil	$12.50	$20
Drive-around			
Distance in km (Bos.-Hfx, ret.)	2,250	2,250	2,250
Lodging (per day) on the road (note 4)	$80	$125	$170
Gas cost per km (note 4)	$0.10	$0.13	$0.15
Food (per day) (note 2)	$40	$70	$100
Fly and Rent Car			
Airfare (ret., direct) (note 4)	$630	$710	$790
Car rental per day (note 4)	$40	$65	$75
Miscellaneous (note 3)	$10	$30	$50

Note 1: Panel's "Base Case" for ticket and car fare. These should be considered to be averages and include the effect of special offers and "revenue management" pricing. The cited prices are 15-20% lower than those assumed in CPCS and G-P scenarios, reflecting a strategy to attract greater passenger volume.
Note 2: Food costs per person reflect various daily budgets for breakfast (15%), lunch and snacks (25%)
and dinner (60%, including alcohol). On the night ferry from Portland, it is assumed that each person has dinner (at 60% of daily food budget) and breakfast (15%); while on the return day trip, each has breakfast (15%) and lunch/snacks (25%)—dinner would be eaten back at home. These assumptions might not hold in all cases but are similar for the other options.

Note 3: The "miscellaneous" category on the ferry includes discretionary spending at the casino, the spa, various bars and for duty-free shopping, etc. In the case of the "Fly/Rent" option, it would cover taxis, airport parking and snacks during the travel period. No "miscellaneous" is included in the cost of the drive-around option.
Note 4: Costs are based on relevant ranges quoted on Expedia and other web sites (31 July, 2012).

The ferry: It is assumed in the ferry option that the couple catches the Friday evening ferry from Portland (170 km driving distance from Boston) and, after disembarking Saturday morning in Yarmouth, incurs eventually the further cost of driving 300 km to Halifax. (This is simply to ensure strict comparability with the other options—flying or driving around—which assume Halifax to be the common starting point of the vacation in Nova Scotia.) After *eight* days touring in NS, the travellers return to Yarmouth on Saturday to be ready to catch the return ferry to Portland early Sunday morning. There is a further question as to the likelihood of day-trip travellers paying for a cabin (perhaps at a discounted rate) on the return journey. It is assumed in the calculations below that budget travellers do not, but that 10% or more of the others do.

Drive around: In the drive-around scenario, it is assumed that the travellers depart Boston after breakfast on Saturday; spend one night on the road in Maine or New Brunswick; and arrive in Halifax late afternoon on Sunday, incurring the cost of a "travel status" second night and ready to start the NS vacation proper on Monday morning. On the way back—leaving Halifax Saturday morning after having spent *five* days touring NS—there would be one night on the road in Maine or NB before being back home for dinner on Sunday evening, nine days after leaving.

Ferry-Drive: A hybrid option involves taking the ferry to, or from, Yarmouth on one leg and driving the other. The cost is obviously a blend using the relevant parameters of the other options. The extra driving time cuts about a day off touring in NS.

Fly-Rent: This case is straightforward and involves an 8-day car rental and eight full days of touring in Nova Scotia.

The cost of each of the four routes, based on low, medium and high values of the various cost components in Table C1 are as follows:

Table C2 - Cost for Two Persons With Car: Boston-Halifax & Return

	Low	Medium	High
1. Ferry to/from Yarmouth (note 1)	$1,075	$1,260	$1,420
2. Ferry one way; drive the other (note 1)	$910	$1,185	$1,450
3. Drive-around	$725	$1,120	$1,500
4. Fly and Rent a Car	$1,590	$1,970	$2,230

Note 1: Based on pricing parameters in the Panel's Base case scenario

Note that at the high expenditure end, the ferry and drive-around costs are very similar. This is because the all-driving route involves four days of travel with relatively high assumed costs of food and lodging, as compared with only one night and one day on the ferry. At the "budget" end of the spectrum—although the *elective* costs on both ferry and on the road can be kept low—the ferry option still requires, in the example, the same ticket and car fare as would be paid by everyone. This fixed cost element makes the ferry *relatively* more expensive for the most cost-conscious tourists. A ferry operator could of course develop marketing strategies using various special offers to attract such customers.

Although the cost comparisons in Table C2 are presented in a special case for ease of exposition and concreteness, they are largely transferable to more general situations corresponding to different starting locations. For example; for potential visitors from south of Portland, there is simply a longer driving distance to be added, whether one is driving the whole way or just to the ferry—i.e. for this part of the trip, the all-road and the ferry options are essentially the same. (Beyond a certain range, and/or in the case of heavily discounted air fares, the fly/rent option becomes competitive.) For very short visits to Nova Scotia, the drive-around route quickly becomes infeasible, but the ferry can offer a getaway lasting as little as a day—"walk on" in the evening and walk off the next evening. Or go for two or three days—leave the car at home; take the train to Portland, and rent a car for a day or two in Yarmouth, travel in the western end of Nova Scotia, and avoid the more expensive cost of car fare on the ferry.

The foregoing cost estimates suggest that a cruise ferry could be competitive with alternative ways to reach Nova Scotia for a driving vacation. But would the ferry be commercially profitable? It is easy to estimate the range of on-board revenue—i.e. revenue other than from basic passenger and car fares and commercial vehicles—that is implied by our assumptions. This revenue is generated by sales of cabins, food and miscellaneous expenditures on such opportunities as gaming, a spa, various bars and lounges, and duty-free shopping. Again, taking a low to high expenditure range, the average amounts per passenger per (one-way) trip implied by the assumptions in Table C1 would be approximately as follows.

	Low	**Medium**	**High**
On-board Revenue per Passenger-trip	$53	$91	$127

Note: Includes cabins, food and miscellaneous and is averaged over night and day trips.

Some single travellers might double up in a regular cabin; or recliner or "sleeper" seats might be provided at a much cheaper price.

There is no way to know, without market research and actual experience, what proportions of ferry travellers would choose low, medium or high on-board spending patterns, or some intermediate amount on the spectrum between $53 and $127 illustrated above. For instance, if 10% were high-spenders, 25% were low-spenders and 65% were somewhere in the middle, the weighted average on-board expenditure per one-way passenger-trip would be about $85 based on the assumptions for the figures above. It is reasonable, therefore, to use $85 as the average on-board revenue per passenge in the panel's Base Case scenario.

Annex D – Defining Features of Three Types of Ferries

Defining Features of a High-Speed Ferry

Vessel description	Commercial high-speed craft are defined normally as being able to operate at 25 knots or more, with no overnight passenger accommodation.
Primary service offering	Usually carries passengers only, with provision of a seat as would be found on a plane, and limited snack service. Seldom provides commercial freight services, but may serve the motorcoach industry
Where best used	Short routes of less than two hours where seas are relatively calm
Examples of routes	The majority of high-speed ferries in service at the beginning of 2012 operated in the Mediterranean, Persian Gulf, Baltic and North Seas. Barcelona–Ibiza is an example of a longer (4-hour) high-speed route.
Vessel examples	The *CAT* from Yarmouth-Bar Harbor and Portland (to 2009); currently *Alcantara Dos* (Barcelona-Ibiza)

Source: Created by Mary R. Brooks (Dalhousie University) and Peter Wild (G P Wild International) for the Expert Panel, using some content from G P Wild (2000), pp. 90-93 and the ShipPax database. Pictures are from the ShipPax database, used with permission.

Defining Features of a Ro-Pax Ferry

Vessel description	The Ro-Pax vessel is characterized by a mix of passenger and freight carriage. Such vessels are often employed on seasonal routes and those where low passenger demand can be supported by freight transport. Basic passenger facilities are supplied (restaurant, lounge, shop) and amentities for truck drivers, including a limited number of cabins.
Primary service offering	The services to freight are at least as important as the services to passengers. (Revenue from tourism traffic typically accounts for less than 40% of the total.) The need to optimize the schedule for freight requirements may result in inconvenient schedules for tourists.
Where best used	The Ro-Pax is best deployed on routes of up to eight hours, though longer routes exist.
Examples of routes	Digby–Saint John; North Sydney-Port aux Basques; Hull-Rotterdam
Vessel examples	*Bluenose* (Yarmouth–Bar Harbor); *Princess of Acadia* (Digby–Saint John); *Contentin* (currently Poole–Cherbourg and Poole–Santander)

Defining Features of a Multi-Purpose Ferry (a cruise ferry is a sub-type)

Vessel description	The multi-purpose ferry is characterized by a high percentage of passenger carriage mixed with a small amount of freight. A cruise ferry [1] has a particularly high level of service offering and refitting a multi-purpose ferry for cruise ferry operations requires more cabins to be built and more amentity space provided, thus reducing the volume of passengers and cars that can be carried. A relatively high percentage of revenue (commonly 20-30%) comes from the on-board spend of the passengers.
Primary service offering	Facilities are geared to the expectations of the tourist—amentities such as restaurants, shops, lounges and cabins are provided.
Where best used	May be used on either short or longer routes. The need for more cabins and additional on-board experiences rises as the route lengthens, and the passengers require more entertainment and the comfort of a cabin.
Examples of routes	Shorter routes: Dover–Calais; Holyhead–Dublin. Longer routes: Portsmouth–St. Malo; Stockholm– Helsinki; Yarmouth-Portland
Vessel examples	*Scotia Prince* (a simplified cruise ferry with too few cabins for modern cruise ferry operations); *Bretagne* (Portsmouth–St. Malo)

Note: [1] A cruise ferry is not to be confused with a cruise ship, which is a destination in itself and primarily a floating resort.