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September 30, 2014

Mr. Gordon Macatee
British Columbia Ferries Commissioner
BC Ferry Commission
RPO Hillside P.O. Box 35119
Victoria, BC V8T 5G2

Re: Strategies for Enhanced Efficiency in Performance Term Four and Beyond

Dear Mr. Macatee:

Pursuant to section 40 (1.1)(a) of the *Coastal Ferry Act*, we enclose the above-referenced document as part of our Performance Term Four Submission.

Should you have any questions or require further information, please contact us.

Sincerely,

A handwritten signature in black ink, appearing to be "R. Clarke", written over a horizontal line.

Robert P. Clarke, CGA
Executive Vice President & Chief Financial Officer

Enclosure

Copy: Sheldon Stoilen, Deputy Commissioner

British Columbia Ferry Services Inc.

Strategies for Enhanced Efficiency
in Performance Term Four and Beyond

Submission to the British Columbia Ferries Commissioner

September 30, 2014



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FORWARD LOOKING STATEMENTS

This report contains certain "forward looking statements". These statements relate to future events or future performance and reflect management's expectations regarding our growth, results of operations, performance, business prospects and opportunities and industry performance and trends. They reflect management's current internal projections, expectations or beliefs and are based on information currently available to management. Some of the market conditions and factors that have been considered in formulating the assumptions upon which forward looking statements are based include traffic, the Canadian Dollar relative to the US Dollar, fuel costs, construction costs, the state of the local economy, fluctuating financial markets, demographics, tax changes, and the requirements of the Coastal Ferry Services Contract.

Forward looking statements included in this report include statements with respect to: our short-term and long-range business plans, capital expenditure levels, and asset renewal programs for vessels and terminals; the Commissioner's \$54 million efficiency target; total revenue projections; our Transforming the Customer Experience initiative, the Spirit Class MLUs, the vessel replacement program for the Queen of Burnaby, Queen of Nanaimo, Bowen Class vessels, and C Class vessels; our LNG plans and fuel costs; service level adjustments, ferry transportation fee amounts, and price caps in future performance terms; and our Major Routes Strategy and Southern Gulf Islands Strategy. In some cases, forward looking statements can be identified by terminology such as "may", "will", "should", "expect", "plan", "anticipate", "believe", "estimate", "predict", "potential", "continue" or the negative of these terms or other comparable terminology. A number of factors could cause actual events or results to differ materially from the results discussed in the forward looking statements. In evaluating these statements, prospective investors should specifically consider various factors including, but not limited to, the risks and uncertainties associated with traffic volume and tariff revenue risk, safety and security, asset risk, accident risk, tax risk, environmental risk, regulatory risk, labour disruption risk, risk of default under material contracts and aboriginal land claims.

Actual results may differ materially from any forward looking statement. Although management believes that the forward looking statements contained in this report are based upon reasonable assumptions, investors cannot be assured that actual results will be consistent with these forward looking statements. These forward looking statements are made as of the date of this report, and British Columbia Ferry Services Inc. assumes no obligation to update or revise them to reflect new events or circumstances except as may be required by applicable law.

In addition to providing measures prepared in accordance with International Financial Reporting Standards ("IFRS"), we present certain supplemental non-IFRS measures. These include, but are not limited to, round trips provided, passenger traffic, capacity provided and utilized, automobile equivalents ("AEQs") carried, and number of round trips. These measures do not have any standardized meaning prescribed by IFRS and therefore are unlikely to be comparable to similar measures presented by other companies. These supplemental non-IFRS measures are provided to assist readers in determining our ability to generate cash from operations and improve the comparability of our results from one period to another. We believe these measures are useful in assessing operating performance of our ongoing business on an overall basis.

Introduction

British Columbia Ferry Services Inc. ("BC Ferries" or the "Company") recognizes the importance of the coastal ferry system in the lives of the customers and the communities the Company serves. Sustainability of the ferry system and affordability of fares are key objectives at the forefront of all of the Company's decisions and plans.

The Company has a culture of cost containment and has embedded a focus on safety, productivity and efficiency in all aspects of its business. This focus has generated significant results. In the first two years of performance term three ("PT3") (April 1, 2012 – March 31, 2016), BC Ferries has realized significant operating efficiencies. Through continued prudent fiscal management, the Company expects to exceed the total efficiency target of \$54 million set for the Company by the British Columbia Ferries Commissioner ("Commissioner") for PT3. This will help both reduce the pressure on future fares across the entire system and ensure that investments can be made which are necessary to keep the coastal ferry system sustainable.

While BC Ferries has achieved significant savings to date, it would be unreasonable to assume that further efficiencies from this continued emphasis on cost containment will materially add further savings to what has already been accomplished. New initiatives are required to achieve even greater savings, and these new initiatives, among other things, will involve significant consultation with stakeholders if they are to be successful.

This Plan focusses on four opportunities for further efficiency gains. Two of these opportunities can be realized within the terms and conditions of the Coastal Ferry Services Contract ("CFSC") between BC Ferries and the Province of British Columbia (the "Province"). The remaining two opportunities would require changes to the CFSC.

Customers, coastal communities, the Province and BC Ferries all share an interest in finding opportunities to realize efficiencies in the delivery of coastal ferry services. BC Ferries' ongoing dialogue with stakeholders, the Commissioner, the Province and Ferry Advisory Committees, has helped shape the initiatives included in this Plan.

Each of the four opportunities for enhancing efficiency is discussed in further detail in this document. While there will be some efficiency gains in performance term four (April 1, 2016 – March 31, 2020) ("PT4") from the initiatives and strategies identified herein, greater gains are expected to be realized in performance term five (April 1, 2020 – March 31, 2024) ("PT5") and beyond. As a result, the direct impact on PT4 price caps is expected to be relatively small, while larger gains are expected in the performance terms following.

Section 40(1.1) of the *Coastal Ferry Act* (the “Act”) requires the Company to submit to the Commissioner a plan as to how BC Ferries intends to provide services more efficiently in the upcoming performance term. BC Ferries submits the four opportunities for efficiency as set out in this Plan in compliance with this requirement of the Act.

Setting the Context

The beginning of each new performance term triggers a resetting of the price caps by the Commissioner for the route groups that are served by BC Ferries. In setting the price caps, the Commissioner must, among other things, ensure that the Company is afforded sufficient revenue to ensure its continued financial sustainability. In simple terms, BC Ferries generates revenue from three sources: fares; ancillary services such as catering, retail, travel packages and parking; and service fees paid by the Province for the delivery of service on all but the Major Routes¹. The more efficient the service provided by BC Ferries, the lower the revenue the Company requires to be sustainable. The efficiencies that BC Ferries achieves during a performance term help the Company build equity, which is re-invested in vessels, terminals and other initiatives to ensure the sustainability of the coastal ferry system and to reduce pressure on future fares. In the subsequent performance term, those efficiencies are “captured” by customers through lower price caps and/or by the Province through lower service fees. Accordingly, all three parties - customers (and the communities that derive economic benefits from the service offered by BC Ferries), the Province and BC Ferries itself - share an interest in finding opportunities to realize efficiencies in the delivery of coastal ferry services.

Defining Efficiency

The term ‘*efficiency*’ can be defined as *the ability to produce a desired effect, product or service, etc. with a minimum of effort, expense, or waste*, or it is *the extent to which time and resources are well used for the intended task*. Within this definition, the ‘*desired product or service*’ or ‘*intended task*’ is critical. Efficiency opportunities for BC Ferries must be identified within the context of desired or intended service levels.

The Province sets the core service levels BC Ferries must provide for each of the 24 designated ferry routes. As the ferry operator, BC Ferries’ role is to supply the service that the Province requires and pays for under the CFSC in the safest and most efficient manner possible. For each of the designated routes, the CFSC defines the core service levels to include the minimum number of round trips that

¹ The Major Routes consist of three regulated routes connecting Metro Vancouver with mid and southern Vancouver Island, and one regulated route connecting Horseshoe Bay and Langdale.

must be delivered, the originating ports, the hours of operation and the capacity that must be provided. The core service levels in the CFSC are subject to review in advance of each performance term. While BC Ferries has operational experience that it shares with the Province in the context of these reviews, the decision on service levels is a matter of public policy. The views of stakeholders, including customers and coastal communities, will continue to be important considerations in making decisions in respect of service levels.

Performance Term Three - Targets and Outlook

Targets for Performance Term Three

By Order 12-02, issued September 12, 2012, the Commissioner established the price caps for PT3. This Order included the following:

- Financial Return - Price caps were established with the intention of allowing BC Ferries to achieve, by the end of PT3, equity not lower than 17.5 percent of total capitalization and a debt service coverage ratio of 2.5 or higher.
- Efficiency Target - \$15 million in operating cost reductions or productivity gains during PT3 in addition to an annual cost reduction of \$9.8 million, which BC Ferries had previously agreed to in its submission to the Commissioner dated April 30, 2011 in connection with the preliminary price cap decision, for a total efficiency target of \$54.2 million over the four years of PT3.
- Service Level Adjustments - Price caps were determined based on the expectation that the CFSC would be amended to implement service level adjustments to achieve net savings of \$30 million during PT3. The efficiency target (\$54.2 million) and service level adjustments (\$30 million) combined, resulted in targeted net savings for BC Ferries of \$84.2 million by the end of PT3.

Outlook for Performance Term Three

Service Level Adjustments

Service level adjustments for the Major Routes (targeted savings of \$4.0 million to the end of PT3) were implemented by BC Ferries in the first year of PT3. The service level adjustments for the Minor² and Northern Routes³ (targeted savings of \$14.0 million) were implemented in the third year of PT3 (effective April 28, 2014). The remaining service level adjustments (targeted savings of \$4.9 million) are focused on the Major Routes and are expected to be implemented in the fourth year of PT3, as per

² The Minor Routes consist of 18 regulated routes primarily serving the northern and southern Gulf Islands and the northern Sunshine Coast.

³ The Northern Routes consist of two regulated routes operating on the British Columbia coast north of Port Hardy on Vancouver Island.

the amended CFSC. While the targeted net savings set forth for PT3 were \$30 million, the Province contributed \$7.1 million to BC Ferries to compensate for a deferral in determining and implementing service level reductions on the Minor and Northern Routes, in order to allow the Province to undertake further public consultation. This resulted in a revised net savings target of \$22.9 million. The Commissioner issued amending Order 12-02A on April 15, 2013 to reflect this revised target.

Outlook

Actual and forecast total revenues for PT3 are \$9 million lower than the levels anticipated when establishing the original price caps for PT3. Increases in transportation service fees and other revenue of approximately \$24 million offset, in part, what would otherwise be a revenue shortfall of \$33 million due to traffic levels. Through prudent financial management and cost savings, the Company expects savings in operations, maintenance and administration expenditures that are \$21 million greater than the Commissioner's target, and lower depreciation, amortization and debt financing expense of \$46 million. The combined net impact of the reduced revenue and the efficiencies is an expected additional contribution to net earnings of \$58 million.

Forecasts of ferry transportation fees from the Province are \$26 million greater than the level used in establishing the PT3 price caps. A portion of this increase represents a redirection to ferry transportation fees of funding previously provided for the Senior Discounts Program and shown as tariff revenue. In addition, \$7 million incremental ferry transportation fees were provided to compensate for the deferral in changes to the service plan.

As a result of the combination of efficiencies gained and provincial contribution adjustments, the forecast equity ratio for the end of PT3 is expected to be 21 percent versus the target of 17.5 percent. If the Commissioner continues to maintain the current equity target of 17.5 percent for PT4, required future net earnings will be reduced, which will allow the equity ratio to decline from the current forecast level to the Commissioner's target level. Reducing the level of net earnings required to achieve the target in turn reduces pressure on future fares and, as a result, the PT4 price caps will be lower than would otherwise be required for that performance term.

Efficiency Opportunities in Performance Term Four

While BC Ferries' success in realizing cost savings and efficiencies in PT3 has been significant, the Company continuously seeks opportunities to enhance efficiency and productivity in the delivery of coastal ferry services. In PT4, BC Ferries intends to focus on four strategies for further efficiency gains, including two which can be accommodated within the terms and conditions of the CFSC, and two which would require changes to the CFSC.

Strategies within the terms and conditions of the CFSC:

1. Liquefied Natural Gas ("LNG") Efficiencies.
2. Business Transformation Strategies Enabled by Technology.

Implementing and achieving the targeted efficiencies from these first two strategic opportunities are near term in nature and, therefore, will have a direct impact on the PT4 price cap.

Strategies requiring changes to the CFSC:

3. Major Routes Strategy.
4. Southern Gulf Islands Strategy.

Implementing and achieving targeted efficiencies from these last two strategic opportunities is longer term in nature. The strategies are yet to be fully developed, and will require significant public consultation as part of the development process. Additionally, any changes to service levels as a result of these strategies will depend on the approval of the Province through agreed changes to the CFSC. While these two strategies offer significant potential for cost savings, it is unlikely that their development and implementation will have a direct impact on the PT4 price cap due to their expected implementation occurring beyond PT4. Consequently, any gains from these strategies are not expected to be realized until PT5 and beyond. This is discussed further below.

Efficiency Opportunities Within the Coastal Ferry Services Contract

Liquefied Natural Gas Fuel Efficiencies

Fuel is a significant operating expense for the Company. In fiscal 2014, BC Ferries spent \$126 million on ultra-low sulphur diesel ("ULSD"), the Company's primary fuel source. A move to operate the Company's vessels on LNG offers the single largest opportunity for improving efficiency within the current terms and conditions of the CFSC. The cost of LNG is significantly less than the equivalent cost of ULSD. Use of LNG is expected to reduce fuel expenditures for a vessel by approximately 50 percent when compared with ULSD, based on current fuel pricing. No other technology on the marine market today offers this scale of potential reduction in operating costs, which will, in turn, reduce upward pressure on fares. While ULSD meets all applicable environmental regulations, the main driver to move to LNG is economic. However, the use of LNG will have the added benefit of cleaner exhaust emissions for a reduced environmental impact.

In PT3 and PT4, the Company's efforts in adopt LNG will centre on two vessel projects:

- Three new Intermediate Class Ferries ("ICF"), which will replace the *Queen of Burnaby* and *Queen of Nanaimo*; and
- Engine conversions of the *Spirit of Vancouver Island* and *Spirit of British Columbia* (the "Spirit Class" vessels).

These projects require significant capital and related operating expenditures in the short term. However, the net benefit over the longer term is expected to be substantial, and will reduce pressure on future fares across the entire coastal ferry system. Beyond PT4, the Company expects to replace other vessels with assets capable of operating on LNG.

- ***New Intermediate Class Ferries***

In July 2014, BC Ferries awarded a contract to Remontowa Shipbuilding S.A. of Gdansk, Poland for the construction of three new ICFs, each capable of carrying 145 automobile equivalents ("AEQ") and 600 passengers and crew. These three ICFs will be BC Ferries' first newly-constructed vessels to include dual fuel propulsion, enabling them to operate on LNG or ULSD.

The first ICF is scheduled to arrive in British Columbia in August 2016, the second in October 2016 and the third in February 2017. The first vessel is expected to be in service in the fall of 2016. The second and third ICFs will both be in service by the spring of 2017.

Fuel savings associated with the three new ICFs will be fully annualized in fiscal 2018 and are identified in Table 2.

- ***Spirit Class Mid-Life Upgrades***

BC Ferries proposes to perform mid-life upgrades (“MLU”) of the *Spirit of Vancouver Island* and *Spirit of British Columbia*, the two primary vessels serving on Route 1, connecting Swartz Bay with Tsawwassen. These vessels were commissioned in 1993/1994. At their planned MLU dates, the *Spirit of Vancouver Island* and *Spirit of British Columbia* will be 22 and 24 years old, respectively.

Pursuant to Order 12-04, this MLU project constitutes a major capital expenditure, and is the subject of an application by BC Ferries to the Commissioner for approval under Section 55(2) of the Act. Subject to the Commissioner’s approval of the project, BC Ferries intends to perform the MLU for the *Spirit of Vancouver Island* in the period September 2016 to May 2017, and the MLU for the *Spirit of British Columbia* in the period September 2017 to May 2018.

The Spirit Class vessels are Canada’s largest passenger ferries. These vessels have proven to be safe and highly reliable; however, they have relatively high operating costs, partially due to high fuel costs. The Spirit Class vessels are the largest users of fuel in BC Ferries’ fleet. In fiscal 2014, these vessels consumed approximately 15 percent of the total fleet-wide fuel consumption.

The MLUs will significantly lower the fuel cost needed to operate these vessels through conversion to dual fuel capability, hull modifications, low-friction hull coating and optimized propellers. The electrical generation system will be upgraded to incorporate new technology that will reduce in-dock fuel consumption when on shaft generators. The existing diesel engines will be replaced with dual fuel engines capable of operating on LNG or ULSD. The MLUs also include investments to enhance catering and retail services, which are expected to generate incremental ancillary revenues.

From their introduction in the early 1990s through 2010, the Spirit Class vessels were the number one vessels year round on Route 1. Since 2011, the *Coastal Celebration* and *Coastal Renaissance* have been deployed as the number one vessels in the off peak season in order to

reduce fuel and labour costs associated with the larger Spirit Class vessels, which burn more fuel per round trip and have a higher crew complement compared to the Coastal Class vessels. Following their MLUs, the Spirit Class vessels will again be deployed as the number one vessels year round. With LNG-powered engines, the fuel cost for the Spirit Class vessels will be significantly lower than the cost of ULSD for the Coastal Class. The LNG operating savings will more than offset the higher labour costs of the Spirit Class vessels. More cost-effective Spirit Class vessels will allow greater availability of the Coastal Class vessels for service augmentation and continuity elsewhere.

Fuel savings associated with the Spirit Class MLUs will be fully annualized in fiscal 2020 and are identified in Table 2.

- **Bowen Class Replacements**

The four Bowen Class vessels are currently scheduled to be replaced between fiscal 2019 and fiscal 2021, with investments included in the Company's 12-Year Capital Plan starting in fiscal 2016⁴ as set out in Table 1. However, the actual replacement dates will depend on condition-based assessments of these vessels, and a cost-benefit analysis of replacement versus life-extension options. When these vessels are replaced, efficiencies are expected to be achieved by introducing standardized vessels capable of using LNG.

Table 1 - Bowen Class Vessel Replacement Schedule

PT4		PT5
<i>Howe Sound Queen</i> (FY2019)	<i>Bowen Queen</i> (FY2020) <i>Mayne Queen</i> (FY2020)	<i>Powell River Queen</i> (FY2021)

The net contribution to PT4 and PT5 of these replacement vessels is yet to be determined as it is dependent on future analysis as described above. Fuel savings associated with the Bowen Class replacements will be fully annualized in PT5 and are identified in Table 2.

⁴ These replacements will require approval of the Commissioner in accordance with Section 55 of the Act.

Table 2 – Net Contributions from LNG

Fuel Savings	PT3	PT4				
(\$ Millions)	FY2016	FY2017	FY2018	FY2019	FY2020	PT4 Total
ICFs - 3 ships	-	1.1	4.2	4.3	4.3	13.9
Spirit Class - 2 ships	-	-	5.4	11.9	12.9	30.2
Bowen Class – 3 ships	-	-	-	0.2	1.1	1.3
Net Contribution	-	1.1	9.6	16.4	18.3	45.4

- **Major Vessel Replacements**

The next series of vessel replacements includes the replacement of up to six major vessels: the five C Class vessels and the *Queen of New Westminster*. These replacement vessels are expected to come into service in PT5 through PT7 as outlined in Table 3.⁵

Table 3 – Major Vessel Replacement Schedule

PT5	PT6	PT7
<i>Queen of Alberni</i> (FY2023) <i>Queen of Coquitlam</i> (FY2024) <i>Queen of New Westminster</i> (FY2024)	<i>Queen of Cowichan</i> (FY2025)	<i>Queen of Oak Bay</i> (FY2030) <i>Queen of Surrey</i> (FY2031)

- **Other Vessels**

BC Ferries' analysis to date indicates that the Spirit Class vessels are the most economically suitable for LNG conversion. The C Class vessels and the *Queen of New Westminster* are not considered to be appropriate candidates for LNG conversion since there is insufficient time before the vessels are retired to realize a payback on the costs to convert their engines. The greatest opportunity for BC Ferries to benefit from LNG, aside from the opportunities identified in the previous sections, will be when vessels are replaced. The costs of conversion and the benefits of fuel price differentials may change over time; accordingly the Company will monitor and update this analysis from time to time.

⁵ These replacements will require approval of the Commissioner in accordance with Section 55 of the Act.

Business Transformation Strategies Enabled by Technology

BC Ferries has heard from its customers that they want more flexibility in how they book travel, more certainty that they will be able to board the sailing they want, and more options for discounted fares. BC Ferries is investing in technology that will improve the customer experience, allow for additional booking and fare flexibility, and increase efficiency.

The *Fare Flexibility and Revenue Management Strategy* and the *Digital Experience Strategy* will together modernize the way BC Ferries sets pricing, sells travel, and manages capacity utilization of sailings. These two strategies are the key components of the *Transforming the Customer Experience Initiative* ("Initiative") which is the subject of an application to the Commissioner for approval under Section 55(2) of the Act. This Initiative will be enabled by information technology investments, particularly a commercial strength web e-commerce platform and decision support system.

This Initiative is expected to replace the existing dated web platform, improve the customer experience, generate incremental traffic and revenues, and enable the Company to gain operational efficiencies. This in turn will lead to reduced pressure on future fares and improve fare affordability.

- ***Fare Flexibility and Revenue Management Strategy***

The *Fare Flexibility and Revenue Management Strategy* is expected to increase traffic and related revenues and reduce service delivery costs. By providing the means and the incentives for customers to purchase fares in advance of departure, this strategy is expected to drive an increase in online transactions in the order of 400 percent. The success of the *Fare Flexibility and Revenue Management Strategy* is dependent on a *Digital Experience Strategy*, which will provide customers with a modernized commercial strength web e-commerce platform.

The *Fare Flexibility and Revenue Management Strategy* is expected to result in the following benefits:

- An enhanced customer experience by giving customers a choice of fare products with many attributes, including access to discounted rates, the ability to book and pay for a specific sailing in advance without paying a separate reservation fee, the provision of a set price for customers choosing not to book in advance, and the provision of greater certainty that they will be able to travel on sailing of their choice.
- Increased traffic and revenue as a result of generating between 3 and 5 percent incremental traffic on currently reservable routes.

- Operational cost savings through improved capacity utilization, as the advance purchase model and revenue management techniques envisaged in this strategy will enable BC Ferries to better match capacity to demand.

- ***Digital Experience Strategy***

An effective multi-channel website platform is a critical enabling component for deploying the *Fare Flexibility and Revenue Management Strategy* and pursuing opportunities to increase ancillary revenue. The *Digital Experience Strategy* was developed to guide evolution of the e-commerce site and to support BC Ferries in delivering its customer-facing online services in the coming years.

Given the role the website plays as the electronic storefront for customers, this strategy is expected to deliver the following benefits:

- Increased revenue from bookings made through online self-service channels of sailings, vacations/package offerings and other onboard amenities.
- Increased customer satisfaction by providing an exceptional e-commerce experience with access to timely and relevant information; and the ability to research, compare prices, and purchase travel, on-board amenities, accommodation, vacations, or other ancillary components from anywhere, at any time, from the device and channel of their choosing.
- Decreased operational booking costs per transaction through the reduction of interactive voice response ("IVR") costs, call centre booking costs and booking costs related to servicing commercial accounts. While a shift from 'on departure' to advance purchasing of tickets, particularly on the Major Routes, will increase call centre costs over the short term because of the higher volume of transactions expected, the objective remains to encourage online self-service bookings with a view to reducing call centre and IVR booking transactions, and associated operational costs, over the longer term.

- **PT4 Net Contribution of Transforming the Customer Experience Initiative**

This Initiative is expected to have a positive net contribution of \$7 million over PT4. It will contribute \$17 million in increased revenues and savings from round trip optimization, offset by an increase of \$10 million in expenditures needed to support the Initiative, including increased credit card fees and terminal and customer service labour. The Initiative requires significant capital and related operating expenditures in the short term; however, the net benefits over the longer term are substantial.

Table 4 –Transforming the Customer Experience Initiative Net Contribution

	PT3	PT4				
(\$ Millions)	FY2016	FY2017	FY2018	FY2019	FY2020	PT4 Total
Revenue and Savings	-	-	-	5.8	11.6	17.4
Expense	-	(0.2)	(0.9)	(3.7)	(5.5)	(10.3)
Net Contribution	-	(0.2)	(0.9)	2.1	6.1	7.1

Efficiency Opportunities that Require Changes to the Coastal Ferry Services Contract

Major Routes Strategy



Recognizing that larger structural changes are required to gain further efficiencies and reduce pressure on fares, preliminary work on a Major Routes Strategy was initiated in 2013 to identify where on the Major Routes capital investments could be made and efficiencies in operations could be realized to achieve long term sustained cost savings.

The savings identified for this strategic opportunity will be determined as BC Ferries, in consultation with stakeholders, develops this strategy. Any savings resulting from the Major Routes Strategy are expected to be realized in PT5 and beyond.

The major catalyst for the Major Routes Strategy is the required capital investment related to replacing and improving significant components of the Horseshoe Bay terminal infrastructure over the next 10 years. This is the largest terminal capital expenditure (over \$200 million) within BC Ferries' 12-Year Capital Plan. The current planned infrastructure construction poses significant business interruption risk to the three routes served from Horseshoe Bay.

The opening of the South Fraser Perimeter Road offers further reason to develop this strategy as this significant highway infrastructure will make Tsawwassen terminal much easier to access for traffic from the east that would otherwise travel to Vancouver Island through Horseshoe Bay.

Reviewing the requirements for Horseshoe Bay terminal necessitates a review of the three routes served from the terminal (Route 2 to Departure Bay, Route 3 to Langdale and Route 8 to Bowen Island), and by extension, the other route serving the mid-island corridor (Route 30, which connects Tsawwassen to Duke Point, south of Nanaimo). When viewed in this context, the Horseshoe Bay terminal capital requirements need to be combined with the six major vessel replacements required over the next 15 years. These combined capital requirements account for approximately \$1.1 billion, or one-third, of the 12-year Capital Plan.

It is contemplated that the Major Routes Strategy will challenge historically established notions of how BC Ferries' service is delivered to the mid-island corridor, and will require changes in customer behaviour. The success of this strategy will also be dependent, in part, on the business transformation strategies. As the Major Routes provide approximately 80 percent of BC Ferries' revenue base, any potential changes driven by the development of this strategy would need to be approached with utmost care in order to balance revenue risk with potential savings. The implementation of any changes would need to be carefully planned and introduced following substantial public consultation.

- **Opportunities**

Three main opportunities drive the Major Routes Strategy:

- The potential to increase service efficiency to the mid-island corridor and reduce the overall operating cost profile to this corridor;
- The potential to optimize terminal capital investment between the two Metro Vancouver terminals (Horseshoe Bay and Tsawwassen) and Langdale, Duke Point and Departure Bay; and
- The potential to optimize the number of vessels serving the mid-island corridor.

In addition, the Major Routes Strategy will help guide the nature of the Company's Vessel Replacement Program for the six Major Route vessels due for replacement over the next 15 years. While the findings of this strategy will inform what type of vessels could best serve the mid-island corridor, they will also inform the type and number of vessels to be replaced on Route 3. Furthermore, this strategy will help guide terminal capital requirements for the mid-island Major Route terminals as well as the Langdale terminal.

- **Mid-Island Corridor**

Routes 2 and 30, the mid-island Major Routes, have been identified as the most promising candidates for efficiency gains and cost savings. Compared to Route 1 (i.e. south-island corridor), these mid-island routes provide 51 percent more round trips and 38 percent greater vehicle capacity, yet carry only 2 percent more vehicles and 16 percent fewer passengers (see Table 5). The result is 3 percent less operating revenue on Routes 2 and 30 combined, and 16 percent greater total operating expenses when compared to Route 1 (see Table 6).

Table 5 - Operational Profile, Major Routes of Vancouver Island

Fiscal 2014	Route 1	Route 2	Route 30	Mid-Island Corridor (Routes 2 & 30)	Mid-Island Corridor vs Route 1
Round Trips Provided	3,778	3,029	2,693	5,722	51%
Capacity Provided (AEQ)	2,861,150	2,199,012	1,736,710	3,935,722	38%
AEQ's Carried	2,072,208	1,280,398	835,959	2,116,357	2%
Capacity Utilization	72%	58%	48%	54%	N/A
Passengers Carried	5,566,130	3,315,156	1,357,799	4,672,955	-16%

Table 6 - Major Routes of Vancouver Island Financial Overview

Fiscal 2014 (\$ Millions)	Route 1	Route 2	Route 30	Mid-Island Corridor (Routes 2 & 30)	Mid-Island Corridor vs Route 1
Operating Revenue	\$223.0	\$132.8	\$82.7	\$215.5	-3%
Direct Vessel Operating Expenses	\$79.8	\$52.3	\$49.2	\$101.5	27%
Total Operating Expenses	\$139.2	\$86.7	\$74.9	\$161.6	16%
Earnings from Operations	\$83.8	\$46.1	\$7.8	\$53.9	-36%
Cost of Capital	\$55.3	\$29.1	\$30.1	\$59.2	7%

- ***Horseshoe Bay Terminal Capital Investment Challenges***

The *Horseshoe Bay Interim Master Concept Plan*, completed in 2008, identified investments in excess of \$200 million required at the terminal in order to maintain the status quo service. The Horseshoe Bay terminal suffers from congestion, both in the marine and shore side terminal environments. An increased investment beyond \$200 million can alleviate the shore side terminal congestion; however, with status quo service, the marine congestion issue will remain. The magnitude of this expenditure has raised the question as to whether alternative investments could be made at Horseshoe Bay and other terminals to achieve greater value and efficiencies.

Considering the challenging shoreside conditions, topography and operational constraints, major construction activities at Horseshoe Bay carry significantly higher risk of successful execution and of business interruption than at other terminals. Significant components in the proposed Interim Master Plan carry large amounts of construction risk and have the potential to drive costs significantly higher than the currently planned budget.

As shown in Table 7, the total number of daily round trips accommodated at Horseshoe Bay across all seasons is greater than that at Tsawwassen, even though it has fewer berths. The high frequency of sailings and narrow approach to the terminal often results in approaching vessels slowing to allow departing ferries appropriate time to clear the bay. This imposes delays to the ferry schedules, particularly during peak season when the number of sailings per day is highest. Pleasure crafts also contribute to the marine congestion in Horseshoe Bay, particularly during the peak season.

The increase in vehicle demand during the peak season is one factor resulting in greater turn-around time for Route 2. This results in greater marine congestion, requiring summer service schedules to be different for Routes 2, 3 and 8. The resulting schedule changes impact customers on all three routes, and is a source of particular concern of commuter customers on Route 3.

Table 7 - Comparison of Mainland Terminal Service Levels and Berths

Season	Mainland Terminal	Route				Total Trips per Day	Berths
		1	2/30	3	8/9/9A ⁶		
Peak	Horseshoe Bay	N/A	11	11	16	38	3
	Tsawwassen	16	8	N/A	4	28	5
Off-Peak	Horseshoe Bay	N/A	8	8	16	32	3
	Tsawwassen	8	8	N/A	2	18	5

Shore side congestion within the terminal is also a considerable challenge and a significant factor in the efficiency of loading and unloading the vessels. Although Horseshoe Bay has three 2-level berths, there is only one exit route for the main and upper vehicle decks. This constraint restricts the ability to load and unload two major vessels at the same time resulting in delays, particularly in the peak season when a greater number of vessels are deployed. There is also limited compound capacity near the berths due to the narrow and constrained configuration of the terminal. Due to this narrow configuration, overload traffic is stored behind vehicles queued for the next sailing instead of in adjacent lanes. With traffic stored in this arrangement, the overload vehicles have to be shuttled to 'the front of the line' in preparation for being loaded on the next vessel.

The additional handling of traffic requires greater traffic management and coordination than at other major terminals and introduces inefficiencies in the operation. During periods of peak demand, traffic exceeds the holding compound capacity and is queued behind the ticket booths in the pre-ticket area and, on occasion, backs up onto the highway. For these situations, BC Ferries retains a third party traffic management company for coordination and safety purposes.

- **Options to Improve Mid-Island Corridor Service Efficiency**

The Major Routes Strategy will need to identify options for the mid-island corridor to address these challenges. These options may include such strategies as: consolidating the two mid-island routes, consolidating the two mid-island terminals, leveraging a passenger only service or shifting Route 2 service from Horseshoe Bay to Tsawwassen, either entirely or in part. The analysis of these options will be multi-faceted and extensive. Once this work is completed, BC Ferries will undertake a significant public consultation effort to review the preliminary findings and seek stakeholder feedback.

⁶ Routes 9/9a serve the southern Gulf Islands.

- ***Vessel Replacements***

Six out of 11 Major Route vessels are due for replacement from fiscal 2023 through fiscal 2030. Significant operational and capital efficiencies can be gained if the number of vessels serving the mid-island corridor can be reduced. At this point, it is unclear if the number of vessels to be procured as part of the Major Routes Vessel Replacement Program can be reduced. Determining the optimal number of replacement vessels will likely be an iterative process, using inputs from the Major Routes Strategy option analysis, business transformation strategies, and the results of public consultation.

- ***Potential Savings Opportunities and Timing***

The Horseshoe Bay terminal capital investment of over \$200 million is scheduled to occur between fiscal 2018 and fiscal 2024, with the majority of the assets brought into service towards the end of PT5 (fiscal 2023 and fiscal 2024). Any net capital savings arising from the Major Routes Strategy would have minimal impact until later in PT5, with full impact throughout performance term six (April 1, 2024 – March 31, 2028) ("PT6") and beyond. There could be a small financing expense reduction in the last year of PT4 with a larger impact throughout PT5. The Major Routes Strategy could see potential changes in operating costs for the mid-island service towards the end of PT5 and into PT6.

Four of the six Major Route vessels are scheduled for replacement throughout PT5 and PT6, with the final two vessels scheduled for replacement in performance term seven (April 1, 2028 – March 31, 2032) ("PT7"). Any potential reduction in the number of replacements required would have minimal impact until later in PT5 at the earliest. Potential capital reductions could reduce financing expenses in PT5.

Southern Gulf Islands Strategy



The southern Gulf Islands are currently served by the *Queen of Nanaimo* and *Bowen Queen* on Routes 9/9a (connecting Tsawwassen with the southern Gulf Islands), and the *Queen of Cumberland* and *Mayne Queen* on Routes 5/5a (connecting Swartz Bay with the southern Gulf Islands). The southern Gulf Islands network of routes is the most complex within the BC Ferries system, serving multiple ports, involving five islands, two major terminals, several minor terminals and multiple interconnected sailings between the islands.

Due to its complexity, the southern Gulf Islands network of routes offers the greatest opportunity for improved efficiencies in the Minor Route⁷ system. To address this opportunity, a Southern Gulf Islands Strategy was initiated in 2013 to identify schedule optimization opportunities for this complex network of routes. The intent is to identify potential efficiencies in operations and long term sustained cost savings.

The major catalyst for the Southern Gulf Islands Strategy is the introduction of two new ICFs on Route 9/9a and the opportunity this provides to review the service profile for both Routes 5 and 9, given their high degree of interconnectedness. This will, in turn, help inform vessel and terminal requirements across all southern Gulf Islands routes over the longer term.

⁷ The Minor Routes consist of 18 routes primarily serving the northern and southern Gulf Islands and the northern Sunshine Coast.

In assessing alternatives for the replacements of the *Queen of Nanaimo* and *Queen of Burnaby*, BC Ferries engaged the Centre for Operations Research and Decision Sciences Department at Simon Fraser University ("SFU") to conduct a detailed ferry schedule optimization study in support of the Company's vessel replacement strategy. SFU developed algorithms to generate schedule and costs of various vessel replacement alternatives. These alternatives included a large single vessel or two intermediate sized vessels for the southern Gulf Islands. The work generated over 1,000 alternative schedules for Routes 5 and 9 combined. This work helped to identify an optimal vessel replacement strategy for the *Queen of Nanaimo*, being 2 ICFs. The work was referenced in the Company's application pursuant to section 55 of the Act for new ICFs for Routes 9 and 17 (connecting Comox with Powell River) submitted to the Commissioner in May 2013.

A key criterion in this study was an assumption that customer service satisfaction would be improved if overall journey time was less than or equal to current journey time, being mindful of the need for customers to arrive at their destination in the morning and with departure times for their return journey that are comparable to the current service. This would be achieved by introducing more point to point service. Preliminary analysis identified potential savings in the order of \$1 million per year from optimizing schedules in this manner.

It should be noted that this work was of an academic nature. In order to validate whether any of these alternative schedules would have merit from the customers' perspective, significant public consultation will need to be conducted. Given the potential savings identified through the SFU work, the Company believes that the opportunities identified by this study need to be pursued, and these will form the basis for further development of the Southern Gulf Islands Strategy. Accordingly, public consultation will be a key element in the development process.

The strategy will be guided by the following objectives:

- Improvement to customer service;
- Reduction in operating costs;
- Potential reduction in capital costs;
- Improved balance of service, capacity and demand; and
- Reduced scheduling complexity.

Routes 9 and 5 account for 12 percent of AEQs and 13 percent of passengers carried on the Minor Routes (Table 8), while contributing 23 percent of total Minor Route operating revenues and accounting for 26 percent of operating expenses (Table 9). Clearly, efficiencies and service improvements that can be gained in the southern Gulf Islands will have a significant impact on the financial performance of the Minor Routes overall.

Table 8 - Operational Profile - Southern Gulf Islands Routes

Fiscal 2014	Route 5	Route 9	Routes 5 & 9	Total Minor Routes	Routes 5 & 9 as % of Total Minor Routes
Round Trips Provided	3,499	803	4,302	71,081	6%
Capacity Provided (AEQ)	691,464	347,696	1,039,160	8,311,507	13%
AEQ's Carried	257,145	146,614	403,759	3,260,603	12%
Capacity Utilization	37%	42%	39%	39%	N/A
Passengers Carried	456,697	416,257	872,954	6,906,879	13%

Table 9 - Southern Gulf Islands Financial Overview

Fiscal 2014 (\$ Millions)	Route 5	Route 9	Routes 5 & 9	Total Minor Routes	Route 5 & 9 as % of Total Minor Routes
Operating Revenue	\$6.3	\$13.1	\$19.4	\$84.9	23%
Direct Vessel Operating Expenses	\$13.6	\$13.4	\$26.9	\$102.0	26%
Total Operating Expenses	\$18.7	\$18.7	\$37.4	\$144.3	26%
Loss from Operations	(\$12.3)	(\$5.7)	(\$18.0)	(\$59.4)	30%
Cost of Capital	\$4.2	\$5.2	\$9.4	\$52.6	18%
Provincial and Federal Fees	\$20.1	\$11.2	\$31.3	\$108.6	29%

As discussed above, the introduction of new ICFs on Routes 9/9a provides an opportunity to consider a more efficient service schedule for the southern Gulf Islands that better aligns AEQ capacity to current and forecast traffic demand. The intent would be to reduce the excess capacity currently provided, while ensuring there remains sufficient capacity to meet current and future traffic demand. This, in turn, will lower ongoing operating costs, which will reduce pressure on future fares. Potential savings from a more efficient service schedule will require further validation and public consultation.

The development of the Southern Gulf Islands Strategy affords the opportunity to further explore:

- Schedule optimization and savings from combining the deployment of the new ICFs with a redeployment of existing vessels;
- Employing the new ICFs with a “live aboard” crewing arrangement; and
- Reducing the number of Bowen Class vessel replacements currently planned.

Potential savings from these additional opportunities will be determined as BC Ferries develops this strategy. However, as the strategy is dependent upon the introduction into service of the ICFs, no savings in PT4 are assumed.

BC Ferries will also explore further potential efficiency opportunities including:

- The feasibility of a “short link” between Saturna Island and Mayne Island; and
- Rationalizing the number of terminals on Salt Spring Island, which would also have implications for the other two routes serving Salt Spring Island: Route 4 (Swartz Bay to Fulford) and Route 6 (Crofton to Vesuvius).

Conclusion

BC Ferries' plan for how it intends to provide services more efficiently in the upcoming performance term focuses on four initiatives the Company believes offer the best opportunity to realize further efficiencies and continue to reduce pressure on future fares.