



OFFICE OF THE
BRITISH COLUMBIA
FERRIES COMMISSIONER

ORDER NUMBER: 17-01

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IN THE MATTER OF
A Major Capital Expenditure for Two Minor Class Vessels
Proposed by British Columbia Ferry Services Inc.
Pursuant to Section 55 (2) of the *Coastal Ferry Act*

BEFORE: Gordon Macatee, BC Ferries Commissioner
Sheldon Stoilen, BC Ferries Deputy Commissioner
(the “commissioners”)

ORDER

WHEREAS:

- A. On January 3, 2017 British Columbia Ferry Services Inc. (“BC Ferries”) submitted an application (the “Application”) under section 55(2) of the *Coastal Ferry Act* (the “Act”) seeking the commissioners’ approval of a proposed major capital expenditure for the procurement of two new minor class vessels to enable the retirement of the North Island Princess and the Howe Sound Queen;
- B. Section 55 of the Act governs the commissioner’s consideration of capital deployment and expenditures of ferry operators as follows:
 - (1) Subject to subsections (2) to (5), before deploying capital assets on, or incurring capital expenditures in connection with, a designated ferry route or terminal, the ferry operator may apply to the commissioner and the commissioner must, within one month after the application, declare whether the capital assets proposed to be

- deployed on, or the capital expenditures proposed to be incurred in connection with, the designated ferry route or terminal are reasonably required;
- (2) A ferry operator must not incur a major capital expenditure without first obtaining the commissioner's approval of the expenditure;
 - (3) A ferry operator may apply to the commissioner for approval of a proposed major capital expenditure and the commissioner must respond to the application within 2 months after its receipt by the commissioner;
 - (4) The commissioner may approve a proposed major capital expenditure if the proposed major capital expenditure is:
 - a) reasonable,
 - b) prudent, and
 - c) consistent with:
 - (i) the current Coastal Ferry Services Contract, and
 - (ii) any long term capital plan established by the ferry operator;
 - (5) For the purposes of this section, a capital expenditure of a ferry operator is a major capital expenditure if it meets the criteria:
 - a) established from time to time by the commissioner, and
 - b) most recently provided by the commissioner to the ferry operator;
- C. Pursuant to section 55(5) of the Act, the commissioner established the criteria of a major capital expenditure by issuing Order 12-04 dated September 30, 2012 which defines a major capital expenditure as any capital expenditure which exceeds \$30 million, inclusive of component programs and interest during construction, and irrespective of the level of expenditure, any new vessel or terminal and any vessel life extension which extends the life of the vessel more than five years;
- D. Upon receipt of the Application, the commissioners issued a public notice in appropriate media inviting comments or submissions regarding BC Ferries' proposed major capital expenditures for two new minor class vessels;
- E. The commissioners retained the consulting firm of MNP LLP ("MNP") to assist in their review of the Application particularly the financial analysis of the proposed major capital expenditure and the need to replace two vessels which BC Ferries submits are nearing the end of their economic lives. MNP also reviewed the appropriateness of the proposed two new vessels;
- F. The commissioners have reviewed the Application, MNP's report and the comments received from the public; and

G. The commissioners have summarized their determinations and reasons in the attached Review.

NOW THEREFORE the commissioners order as follows:

1. The commissioners have determined that the major capital expenditure proposed in the Application to be:
 - a) reasonable,
 - b) prudent, and
 - c) consistent with:
 - (i) the current Coastal Ferry Services Contract, and
 - (ii) the long term capital plan established by the ferry operator.
2. The proposed major capital expenditure for the procurement of two new minor class vessels, as generally described in the Application, is approved subject to the following conditions:
 - a) The maximum amount of the major capital expenditure for the two new vessels is set at the amounts stated in the Application which will be confirmed by a separate confidential order to BC Ferries. The maximum amount will remain confidential until completion of the procurement process; and
 - b) Prior to signing a final contract with a shipyard for the design and build of the proposed new vessels BC Ferries must satisfy the commissioners that the actual design of the vessels is as generally as described in the Application and the cost does not exceed the maximum amount approved by the confidential order referred to in paragraph 2(a) above.

DATED at Victoria, in the Province of British Columbia, this 27th day of February 2017.

BY ORDER



Gordon Macatee
BC Ferries Commissioner



Sheldon Stoilen
BC Ferries Deputy Commissioner



Review of the Application by BC Ferries for Approval of a Major Capital Expenditure for Two New Minor Class Vessels

Background

On January 3, 2017 BC Ferries submitted an application (the “Application”) to the commissioners seeking approval of a major capital expenditure for two new minor class vessels. In its Application BC Ferries proposes to deploy the first new vessel on Route 18 replacing the North Island Princess which will be retired and the other new vessel will be deployed on Route 25 replacing the Quadra Queen II which will be redeployed as refit relief in place of the Quinitsa. In turn, the Quinitsa will be redeployed to Route 6 (Salt Spring Island (Vesuvius Bay) - Crofton) enabling the retirement of the Howe Sound Queen.

The Application was submitted in accordance with section 55(2) of the *Coastal Ferry Act* (the “Act”) and the Guidelines for Section 55 Applications established by the commissioners.

Regulatory Framework

Under the Act the commissioners regulate ferry operators by determining price caps for each performance term and approving major capital expenditures. In determining price caps the commissioners include those capital expenditures that are determined to be reasonable, including capital expenditures that have received approval under Section 55 of the Act.

Section 55 states:

- “(1) Subject to subsections (2) to (5), before deploying capital assets on, or incurring capital expenditures in connection with, a designated ferry route or terminal, the ferry operator may apply to the commissioner and the commissioner must, within one month after the application, declare whether the capital assets proposed to be deployed on, or the capital expenditures proposed to be incurred in connection with, the designated ferry route or terminal are reasonably required.
- (2) A ferry operator must not incur a major capital expenditure without first obtaining the commissioners' approval of the expenditure.
- (3) A ferry operator may apply to the commissioner for approval of a proposed major capital expenditure and the commissioner must respond to the application within 2 months after its receipt by the commissioner.
- (4) The commissioner may approve a proposed major capital expenditure if the proposed major capital expenditure is
 - (a) reasonable,
 - (b) prudent, and
 - (c) consistent with
 - (i) the current Coastal Ferry Services Contract, and
 - (ii) any long term capital plan established by the ferry operator.
- (5) For the purposes of this section, a capital expenditure of a ferry operator is a major capital expenditure if it meets the criteria
 - (a) established from time to time by the commissioner, and
 - (b) most recently provided by the commissioner to the ferry operator.”;

Pursuant to subsection 55(5) of the Act the commissioners established the criteria of a major capital expenditure by issuing Order 12-04 dated September 30, 2012 which defines a major capital expenditure as any capital expenditure which exceeds \$30 million, and irrespective of

the level of expenditure, any new vessel or terminal and any vessel life extension which extends the life of the vessel more than five years.

As the proposed capital expenditure exceeds \$30 million, Section 55(2) of the Act applies.

Summary of the Application

BC Ferries supplied a number of documents with its Application. Opinions from outside technical experts were appended to the Application, which contained condition reports on the North Island Princess and the Howe Sound Queen, financial analyses of the options to life extend or replace these vessels and forecasts of future demand based on demographic trends in the communities served by routes 18, 25 and 6. The Application also included a summary of customer feedback from 2010-2016 regarding the North Island Princess on Route 18 and the Howe Sound Queen on Route 6.

The Application included the estimated total amount of the major capital expenditure for the two new vessels. These amounts have been redacted from the Application as shown on BC Ferries' and the commissioners' websites due to commercially sensitive nature of such information. The commissioners accept BC Ferries' position that disclosure of such information could reasonably be expected to harm their negotiating position with shipyards. Accordingly a separate order will be released to BC Ferries with the actual amount of major capital expenditure approved by the commissioners. This separate order shall remain confidential until completion of the procurement process.

Scope of the Review

The commissioners' review of the Application relies on documents and representations of BC Ferries' management and their consultants, as well as comments received from the public. The review does not constitute an audit but rather an assessment of the reasonableness of the assumptions and analyses underlying the proposed replacement of two minor class vessels. In addition, this review does not involve a detailed assessment of the technical aspects of the proposed design and propulsion system of the new vessels, but rather an assessment of the

reasonableness and appropriateness of the proposed design and propulsion system of the new vessels based on the opinion of an independent naval architect who was a member of the team of consultants who assisted the commissioners in their review of the Application.

It is also outside the scope of the commissioners' review to perform due diligence on the procurement process (e.g. by reviewing contract bid documents) other than commenting on the proposed process.

In reviewing the Application, as with all other Section 55 applications, the commissioners are mindful of their statutory responsibilities under the Act to balance the interests of ferry users, taxpayers and the ferry operator. In the context of reviewing any application for approval of a major capital expenditure the commissioners are of the view that these interests are protected and balanced if the proposed major capital expenditure meets the criteria set out in section 55(4) above.

Review Process

The commissioners engaged the consulting firm of MNP LLP ("MNP") to provide technical and financial expertise during their review of the Application. MNP in turn engaged, as a subcontractor, RWG Consulting Ltd (Richard W. Greenwood, FRINA, FSNAME) to provide naval architectural expertise to review the technical aspects of the proposed two new minor class vessels. MNP was asked to give their opinions as to whether the information provided by BC Ferries in its Application and answers to follow up questions reasonably support the proposed major capital expenditure for the two new minor class vessels and that such capital major capital expenditure is reasonable, prudent and consistent with the current Coastal Ferry Services Contract ("CFSC") and the long term capital plan of BC Ferries.

MNP was also asked to confirm whether or not BC Ferries had responded adequately in their Application to the commissioners' Section 55 Application Guidelines. MNP examined the Application and the index and the cross reference of BC Ferries' responses to the commissioners' Section 55 guidelines contained therein. MNP is satisfied that the explanations and information provided by the company are satisfactory and do support the proposed major

capital expenditure.

In conducting this review the commissioners have carefully considered the opinions of MNP and its subcontractor in reaching their own determinations regarding the Application. A copy of MNP's Report is attached hereto. The commissioners also considered the public comments regarding the Application which are also attached hereto.

In accordance with Section 55 the commissioners are required to determine whether the proposed capital expenditures to be incurred in connection with the designated ferry routes are reasonably required and whether the proposed major capital expenditures are:

- 1) Reasonable as defined in the commissioners' s.55 Application Guidelines;
- 2) Prudent as defined in the commissioners' s. 55 Application Guidelines;
- 3) Consistent with the current Coastal Ferry Services Contract and the long term capital plan of the ferry operator.

For purposes of applying the requirements of section 55 the commissioners are guided by the following definitions as stated in the s.55 Application Guidelines:

"Reasonable", is defined as:

"An intelligent approach supported or justified by reason; fair, proper, sound behavior that avoids needless error and steers clear of extremes." (BusinessDictionary.com)

"Prudent", is defined as:

"Good judgment or wisdom gained from experience, expressed in a realistic and frugal attitude. Prudence, however, is not the same as grave caution or wariness concerned only with preserving the status quo." (BusinessDictionary.com)

Issues Raised in the Application

In reviewing the Application the commissioners identified the following issues that warranted consideration in their determination of whether to approve the proposed major capital expenditure:

- 1) Are the proposed capital expenditures to be incurred in connection with the replacement

or a life extension of the North Island Princess and Howe Sound Queen reasonably required?

- 2) Is the preferred option of building new vessels reasonable and prudent?
- 3) Is the preferred option of new replacement vessels consistent with the Coastal Ferry Services Contract and BC Ferries' most recent long term capital plan?
- 4) Is the proposed procurement process consistent with generally accepted good practice and consistent with BC Ferries' normal process for large capital projects?

Commissioners' Findings and Determinations

Upon review of the Application and consideration of the opinions expressed in MNP's report and in the public comments, the commissioners have made the following determinations:

- 1) Are the proposed capital expenditures to be incurred in connection with the replacement or a life extension of the North Island Princess and Howe Sound Queen reasonably required?**

According to Vessel Condition Assessment Reports prepared by Lloyd's Register Canada Limited, *"given the age of the vessels and evident deterioration – machinery and equipment upgrades are now necessary, in order to comply with recent safety standards and pollution requirements"*. Accordingly the commissioners deem the replacement or life extension of these old vessels to be reasonably required in order to avoid the risk of further declines in their reliability.

- 2) Is the preferred option of building new vessels reasonable and prudent?**

In its Application BC Ferries has provided its financial analysis of the two options to life-extend the North Island Princess and the Howe Sound Queen or replace each of them with a new minor class vessel. The financial analysis of the two options based on net present values indicates that building two new minor class vessels is the preferred option based on a comparison of the net present values of each option.

In addition the preferred option will facilitate greater standardization in BC Ferries' fleet. The intent is to establish a new class of vessels for the minor routes, with up to eight additional vessels needing to be replaced over the next decade.

The commissioners have previously encouraged greater fleet standardization because of the impact it has on the capital and operating costs of the ferry system. By lowering capital and operating costs through greater standardization future increases in price caps and service fees should be lower than they would otherwise be and this undoubtedly would be in the interests of ferry users and taxpayers. Accordingly, in their January 24, 2012 report covering their review of the *Coastal Ferry Act*, the commissioners recommended that a long term vision of coastal ferry services be developed by the Province and BC Ferries and that "the vision should speak to the desirability of standardization and interoperability of vessels and terminals and a vessel size policy which will enable flexible deployment of equipment". The Province has since adopted this principle as an element of its long term vision for coastal ferry services.

The commissioners support the greater standardization of vessels as proposed in the Application. The commissioners find that the preferred option of establishing a new class of vessels on certain minor routes meets the definition of being reasonable as it is "*an intelligent approach supported or justified by reason; fair, proper, sound behavior that avoids needless error and steers clear of extremes*". The preferred option is an intelligent approach given the objectives of the vessel replacement strategy; it is justified by reason given the best practice of conducting a financial analysis based on total life cycle costs and the choice of the preferred option by BC Ferries is sound behavior that avoids needless error and stays clear of extremes.

The commissioners also find that the preferred option meets the definition of being prudent as "*good judgment or wisdom gained from experience, expressed in a realistic and frugal attitude. Prudence, however, is not the same as grave caution or wariness concerned only with preserving the status quo*". The commissioners are of the view that the preferred option is prudent because it demonstrates good judgment by proposing modern but modest replacement vessels with a hybrid propulsion system to take advantage of developing technology in electric power generation. Establishing a new single class of minor vessels also enhances fleet standardization,

which will contribute to reducing overall fleet life cycle costs and the impact on future price caps.

These determinations are supported by MNP who state in their report that *“The Application and the vessel condition reports make a reasonable case for replacement rather than service life extension. In particular, the limited time span of a second re-engine-ing, the increasing likelihood of service interruption due to any number of other systems failing at their end of life, and the risk of unpredictable spare part availability and time-to-repair, all make replacement a logical and supportable decision based on service continuity and reliability requirements.”*

MNP has also concluded that *“The Application is considered a prudent and modest proposal, within current state technology, designed to provide affordable, scalable service. The approach of buying the design rights in order to facilitate future construction to the same or similar design is prudent to maintaining fleet commonality.”*

3) Is the preferred option of new replacement vessels consistent with the CFSC and BC Ferries’ most recent long term capital plan?

The commissioners have considered whether the proposed major capital expenditure is consistent with the CFSC and with BC Ferries’ most recent long term capital plan. Schedule A of the CFSC stipulates core service levels for each regulated route expressed as the number of round trips to be delivered per contract year, the minimum number of round trips per day and the minimum hours of operation that BC Ferries must operate. The capacity provided on each designated ferry route must be sufficient to carry the previous year’s traffic (Appendix 1 of Schedule “A” to CFSC).

BC Ferries submits that with the proposed two new minor class vessels, the company complies with the current CFSC by being able to deliver the core service levels as required under the CFSC and provide sufficient capacity on routes affected by this Application.

The commissioners accept BC Ferries’ submission that it can provide sufficient capacity with

new minor vessels on routes 18, 25 and redeployment of the Quinitsa on Route 6 based on their forecasts of future traffic demand. Urban Futures reviewed BC Ferries methodology and forecasts and concluded that they are reasonable.

With regard to Route 6 the commissioners have noted several public comments expressing concern about the vehicle capacity of the Quinitsa, which is lower than that of the vessel currently serving that route. The commissioners are mindful that the Act does not empower the commissioners to regulate deployment of vessels. The commissioners are responsible for overseeing BC Ferries' compliance with the CFSC regarding service levels expressed as number of sailings and capacity to carry previous year's traffic volumes.

While it is true that the Quinitsa has a lower capacity for vehicles than the existing vessel and may result in more overloads at peak time sailings, BC Ferries has determined that the capacity of the Quinitsa is nonetheless sufficient to meet the requirements of the current CFSC. The commissioners have noted that the company has proposed to add additional sailings to mitigate the potential for an increase in the number of overloads. The commissioners have noted the comments of the Salt Spring Island Ferry Advisory Committee ("SSI FAC) on this matter and the suggestions they have made, to further mitigate potential overloads. BC Ferries is encouraged to consult further with the SSI FAC to determine if additional measures can be implemented to further mitigate the potential for an increase in the number of overloads with the redeployment of the Quinitsa on Route 6.

All of the public comments are attached to these reasons, and embedded therein are the responses of BC Ferries. The commissioners have considered BC Ferries' responses and believe they reasonably address the issues that the public has raised.

BC Ferries provided MNP with information regarding their long term capital plan. Upon analysis MNP found that the new replacement vessels proposed in this Application were included in the long term capital plan before the Performance Term Four submission. Accordingly, the commissioners find that the proposed major capital expenditure as described in the Application is consistent with their most recent long term capital plan submitted to the commissioners.

4) Is the proposed procurement process consistent with generally accepted good practice and consistent with BC Ferries' normal process for large capital projects?

With regard to BC Ferries' procurement process for the proposed new vessels, MNP has found that BC Ferries is planning to follow well accepted practices in the governance of the project and in the procurement process that it has used in the successful acquisition of a number of new vessels since 2003. This includes conducting a robust international competition that is based on a design-build contract tied to a fixed delivery schedule. BC Ferries has demonstrated successful outcomes with previous vessel procurements.

Summary

In summary the commissioners find the proposed major capital expenditure as described in the Application to be:

- (a) reasonable,
- (b) prudent, and
- (c) consistent with
 - (i) the current Coastal Ferry Services Contract, and
 - (ii) any long term capital plan established by the ferry operator.

Accordingly the proposed major capital expenditure should be approved subject to a condition that, prior to signing a final contract with a shipyard for the design and build of the proposed new vessels, BC Ferries must satisfy the commissioners that the actual design of the vessels is as generally as described in the Application and the cost does not exceed the maximum amount approved by the confidential order.

Section 55 Review:

BC Ferries Application for
New Minor Class Vessels

Routes 18 and 25

DATE: February 22, 2017



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Executive Summary

On January 3, 2017, BC Ferry Services Incorporated (“BC Ferries”, or “BCFS”) submitted an application to the BC Ferry Commissioner (“BCFC” or “Commission”) for the procurement of two new minor class vessels for routes 18 and 25, pursuant to Section 55 (2) of the *Coastal Ferry Act*. The procurement of these vessels would enable the retirement of the North Island Princess and Howe Sound Queen.

MNP was engaged by the BC Ferry Commissioner to conduct an independent review of the Section 55 Application for New Minor Class Vessels for routes 18 and 25, with the following aspects related to the submission being noted:

REVIEW QUESTIONS	SUMMARY RESPONSES
Are the proposed new vessels reasonably required?	Yes
Is the decision to replace existing vessels reasonable based on the condition of the existing vessels and the options analysis?	Yes
Are the replacement vessels a prudent choice, i.e. a wise use of resources, not excessive and affordable to both build and operate?	Yes
Do the replacement vessels fit with the long term capital plan which has been approved by the BC Ferries’ Board of Directors?	Yes
Will the proposed new vessels allow BC Ferries to comply with the terms of the current Coastal Ferry Services Contract?	Yes
Are the methodologies and underlying assumptions used in determining future traffic volumes and capacity requirements for the applicable routes reasonable?	Yes
Are the procurement plans appropriate?	Yes
Have risks been identified to a reasonable standard, and are mitigation plans sufficient?	Yes
Have all of the questions in the Commission’s guidelines for Section 55 applications been adequately addressed?	Yes
Is the discount rate used to calculate life cycle costing appropriate and reasonable?	Yes
Overall is the business case for the replacement vessels reasonable?	Yes
Does the preferred option provide the best net present value (“NPV”)?	Yes

Upon completion of the review, it was found that:

- The procurement of two new minor class vessels to enable the retirement of the North Island Princess and Howe Sound Queen is reasonable, prudent and consistent with the Coastal Ferry Services Contract.
- The underlying assumptions, volume and capacity analysis, and procurement and risk mitigation plans are reasonable, sufficient and appropriate.
- The preferred option to procure new vessels fits with the long term capital plan which has been approved by the BC Ferries’ Board of Directors and provides the best net present value.

Background

The Office of the BC Ferries Commissioner (“Commission”) is a regulatory agency that has been established under the *Coastal Ferry Act* of 2003. The Commission’s regulatory mandate is specific to core ferry services and tariffs including those of British Columbia Ferry Services Incorporated, operating as BC Ferries (or “BCFS” or “the Company”). As it pertains to the tariffs charged for core ferry services, the Commission has the authority to establish a “price cap” that balances the interests of ferry users and tax payers while allowing for the financial sustainability of BC Ferries. The Commission also fulfills other key tasks within its directive, including the monitoring of BC Ferries’ adherence to the terms of the Coastal Ferry Services Contract, addressing any circumstances of unfair competitive advantage, examining BC Ferries customer complaints process, and the approval of major capital projects.

BC Ferries is a former crown corporation now operating as an independent commercial organization under the *Business Corporations Act*. It is the largest passenger ferry line in North America and the one of the most sizeable in the world offering passenger and vehicle service with a fleet of 34 vessels along with 47 terminals covering 24 routes around coastal British Columbia. The transformation from Crown Corporation to an independent commercial entity occurred in April of 2003. The Coastal Ferry Services Contract between the Government of British Columbia and BC Ferries defines the service levels required, which as stated above are then monitored by the BC Ferries Commissioner.

Under the *Coastal Ferry Act* (2003), the BC Ferries Commissioner, as noted above, has specific duties to consider capital deployment and expenditures under Section 55. In 2012, Bill 47-2012, the *Coastal Ferry Amendment Act*, was enacted and in which the original Section 55 was replaced with:

- (2) *A ferry operator must not incur a major capital expenditure without first obtaining the Commission's approval of the expenditure.*
- (3) *A ferry operator may apply to the Commission for approval of a proposed major capital expenditure and the Commissioner must respond to the application within 2 months after its receipt by the Commission.*
- (4) *The Commission may approve a proposed major capital expenditure if the proposed major capital expenditure is*
 - (a) reasonable,*
 - (b) prudent, and*
 - (c) consistent with:*
 - (i) the current Coastal Ferry Services Contract, and*
 - (ii) any long term capital plan established by the ferry operator.*

For purposes of section 55(5), a major capital expenditure is defined as exceeding \$30 million, inclusive of component programs and interest during construction, and irrespective of the level of expenditure, any new vessel or terminal, and any extension which extends the life of the vessel by more than five years.

Role of the Independent Review

BC Ferries submitted an application to the BC Ferries Commissioner on January 3, 2017, pursuant to Section 55 of the *Coastal Ferry Act* (2003). The application proposed the procurement of two new minor class vessels for routes 18 and 25 respectively, which would enable the retirement of the North Island Princess and the Howe Sound Queen. MNP LLP (MNP) was engaged by the Commission to review this application in accordance with Section 55 of the *Coastal Ferry Act*.

Scope

The scope of the Section 55 Independent Review included the following:

- Review of documentation related to the Section 55 Application from January 3, 2017;
- Meetings with the BCFS project team to clarify details of the Section 55 Application and business case;
- Review of additional supporting materials;
- Regular status updates with the Commission;
- Preparation and review of a findings report with the Commission; and
- Preparation of a final report.

Limitations

This report has been prepared by MNP for the exclusive use of the Commission to support the assessment of the Section 55 Application by BCFS for New Minor Class Vessels – Routes 18 and 25.

MNP's work was planned and conducted to assess the reasonableness of the application. MNP did not examine, compile or apply procedures over the financial information used in this report under the requirements of the Chartered Professional Accountants of Canada. As a result, MNP is unable to express assurances on such information except where expressly stated in the report to form part of the scope of our work. Further, this report does not constitute a legal opinion on any matters including the interpretation of the *Coastal Ferry Act* (2003).

The results of our work do not in any way constitute advice or recommendations (and we accept no liability in relation to any such interpretation) regarding any commercial decisions. In addition, our work was not designed to identify and cannot necessarily be expected to disclose defalcations, fraud and other irregularities. As a result, this report does not necessarily include all those matters, which a more extensive or special examination might develop.

The work to provide this report was carried out based on the assumption that information provided to MNP by management and employees of BCFS was reliable, accurate and complete. We did not subject the information contained in the report to checking or verification procedures except to the extent expressly stated. In no circumstances shall MNP be responsible for any loss or damage, of whatsoever nature, arising from information material to our work being withheld or concealed from us or misrepresented to us by management and employees of BCFS or any other person of whom we may make enquiries.

Approach

MNP reviewed the Section 55 Application of BC Ferries and other supporting documentation to assess if the planned major capital expenditure for two new minor class vessels can be considered reasonable, prudent and consistent with the Coast Ferry Services Contract along with BCFS' long-term capital plan.

MNP drew on staff and subcontractors with the professional expertise necessary to conduct a review based on:

- Documentation reviews including an assessment of vessel design characteristics (of both the new vessels and old vessels that will potentially be replaced).
- Consultation with BCFS personnel.
- A review of the BCFS budget, net present value ("NPV") and underlying assumptions.
- A review of the analysis of future traffic volumes along with capacity requirements.
- A detailed review of BC Ferries' Section 55 Application, including analysis and procurement plans for the new vessels.

The review was an iterative process, involving meetings and the submission of multiple sets of questions to BC Ferries. The review sought to ensure that the questions outlined in the Section 55 Guidelines established by the BC Ferry Commission were answered with sufficient detail for the Commission.

It was noted within the application that the proposed new vessels are of the same design, in alignment with the BC Ferries broader fleet renewal strategy. These same two vessels would be the first procured for a new, standardized minor class of vessels with future plans to procure additional minor class vessels of the same design over time.

Due to the cost of the proposed investments, further procurement of additional minor class vessels constitutes another major capital expenditure under Section 55 of the *Coastal Ferry Act* and would require an additional application by the BCFS and subsequent order or decision from the Commission.

Analysis of Options

The following analysis provides additional detail around the responses to questions from the table contained in the Executive Summary section of this document.

Need for New Vessels

Are the proposed new vessels reasonably required, and is the decision to replace existing vessels reasonable based on the condition of the existing vessels and the options analysis?

The Application and the vessel condition reports make a reasonable case for replacement rather than service life extension. In particular, the limited time span of a second re-engineering, the increasing likelihood of service interruption due to any number of other systems failing at their end of life, and the risk of unpredictable spare part availability and time-to-repair, all make replacement a logical and supportable decision based on service continuity and reliability requirements. In discussion, it was noted that the principal drivers in selection of replacement vessels were technical obsolescence, reliability and fuel efficiency. The design decisions seem well considered in light of these joint objectives.

Design of New Vessels

Are the design characteristics of the proposed new vessels, including the propulsion and fuel system, appropriate and reasonable?

The vessel characteristics as outlined in the Application are appropriate and reasonable. The vessel design, while being modern, is well within the current state of technology and should lead to a reliable and relatively risk-free outcome, with predictable service performance. It was noted in discussion that, in recognition of user concerns about salt spray in inclement weather, the proposed new ships are to be designed with sufficiently sized bulwarks and hydraulic spray barriers to address (and minimize to the extent possible) salt water ingress on the car deck. Vessels will have the ability to scale from 150 to 300 passengers according to temporary fluctuation in demand for special events. In addition, based on a modular design approach, the hybrid electrical generation approach will be amenable to future expansion.

Resources and Capital Planning

Are the assumptions used in the analysis of options reasonable?

The assumptions used in the analysis of options are considered reasonable. In particular, it is noted that BC Ferries have adopted conservative fuel consumption characteristics based on experience with similarly sized vessels on comparable routes in terms of speed and loading. It is additionally noted that the prime movers considered have flat specific fuel consumption characteristics and therefore are not highly sensitive to off-design point operation. With the assumed use of proven technology well within the current state of the art, the proposed new vessels should reliably achieve the forecast performance.

Are the replacement vessels a prudent choice, i.e. a wise use of resources, not excessive, affordable to both build and operate?

The Application is considered a prudent and modest proposal, within current state technology, designed to provide affordable, scalable service. The approach of buying the design rights in order to facilitate future construction to the same or similar design is prudent to maintaining fleet commonality. It was noted in discussion that, relative to future requirements for minor class vessels, the acquisition of the intellectual property (“IP”) rights will allow flexibility to replicate elements of the design according to benefits realized in service with the first two members of the class.

It was noted that the thrusters are to be removable by a direct lift through access-patches in the deck. In this way, BC Ferries considered the design to have been “future-proofed”, allowing for selective commonality in the class subject to the technology opportunities and service requirements at the time of subsequent applications to build follow-on members of the class.

Additionally, operational costs in the application are all based on the existing fleet examples (i.e., the Tachek) and are expected to operate at a cost equal to or below existing vessels.

Do the replacement vessels fit with the long term capital plan which has been approved by the BC Ferries’ board of directors?

BC Ferries has deemed these vessel replacements as necessary to continue safe and reliable operations within the 12-year Capital Plan. A placeholder in the Capital Plan has been reserved for these vessels since before the Performance Term Four submission (“PT4”).

Compliance with Coastal Ferry Services Contract

Will the proposed new vessels allow BC Ferries to comply with the terms of the current Coastal Ferry Services Contract?

BC Ferries states that the minor class vessels will provide sufficient capacity to meet current and peak season traffic demand and operate within compliance of the Coastal Ferry Services Contract. Traffic forecasts also indicate future compliance given the marginal growth predicted. The new vessels should increase service continuity, reducing the potential of service disruptions resulting from aging systems on the existing vessels.

Economic Analysis

Are the methodologies and underlying assumptions used in determining future traffic volumes and capacity requirements for the applicable routes reasonable?

The analysis and assumptions used to forecast future traffic volumes and capacity requirements are reasonable. BC Ferries retained Urban Futures to validate BC Ferries' forecasts, which were based on current demographic information, available census data and projections for expected rates of change in the size of local resident populations. The current structural shift in traffic, driven largely by increases in domestic travel, will evolve over the next one to three years, following which, traffic growth will slow down and only change a minimal amount associated with population expansion.

Procurement Planning

Are the procurement plans appropriate?

The procurement plans are appropriate and follow the pattern of previously successful BC Ferries' procurements. The plans for procuring these vessels include transferring design risk to the builder,

purchasing design rights to enable follow-on Class construction, and conduct of final trials along with acceptance after delivery to Richmond, BC.

Have risks been identified to a reasonable standard, and are mitigation plans sufficient?

Risks have been identified to a reasonable standard along with mitigation options. In particular, the possibility of delayed delivery and options for the extended operation of existing assets have been considered. Fuel consumption characteristics have been estimated conservatively and will be verified through detailed design and towing tank tests as the procurement progresses. Design risks will be contractually assumed by the builder and appropriate change-order procedures will be put in place to ensure that BC Ferries personnel oversight during build does not conflict with this assumption of risk. Timeline risks are acknowledged but prospective bidders have verified achievability. Delay consequences have also been considered.

Section 55 Questions

Have all of the questions in the Commission's guidelines for Section 55 applications been adequately addressed?

Based on the information provided in the Application and supplemental information from BC Ferries, all of the questions have been adequately addressed.

Financial Analysis

Is the discount rate used to calculate life cycle costing appropriate and reasonable?

The discount rate used appears to be appropriate and reasonably based. BC Ferries uses the same discount rate on the procurement of all new vessels it undertakes, including the recent Salish class.

Overall is the business case for the replacement vessels reasonable and does the preferred option(s) provide the best NPV?

The NPV for the preferred option is effectively the same as the least preferred option. However, the qualitative characteristics of the preferred option make it the more favourable choice. It is anticipated that the actual cost of the preferred option should be lower than what is stated in the analysis for this filing. This is based on an RFP cost that is higher than anticipated on the final build cost and foreign exchange risk. Additional value is anticipated for in-service support given the identical nature of the two vessels being procured.

Conclusions

MNP was engaged to assist the BC Ferries Commissioner on the review of BC Ferries' Section 55, Subsection 2 Application of the procurement of two minor class vessels for routes 18 and 25. In support of BC Ferries staff, the following key external experts were engaged to provide information in respect of the proposed capital expenditure:

- Lloyd's Register Canada (Vessel Condition Assessments)
- 3GA Marine Ltd (LNG/Propulsion)
- Urban Futures Inc. (Traffic Forecast Validation)

BC Ferries has adequately answered all questions in the Section 55 Application Guidelines. Based on the information provided, the Application for the proposed major capital expenditure is reasonable, prudent, and consistent with long term plans.

Reasonable

The Howe Sound Queen and the North Island Princess are nearing the ages of 55 and 61 respectively, which poses higher risk of disruptions to service continuity for BC Ferries. The existing vessels are costly to keep in operation and pose an increased risk if they are in operation past the planned retirement dates. Standardization of a new fleet of minor vessels can reduce operating costs, provide consistent customer experience and increase continuity of service. BC Ferries established their procurement costs to reflect the high end of the spectrum of pricing received, and has included a contingency in the Project budget to address unforeseen cost pressures.

Prudent

The proposed major capital expenditure is in alignment with BC Ferries' capital plans. The vessels will operate on ultra low sulphur diesel with battery capability to reduce emissions. The design also provides the potential to increase the capacity of the stored energy to further reduce emissions in the future.

Two options were identified in the BC Ferry Services application; procure two new minor class vessels or extend the life of the existing vessels. The procurement of two minor class vessels is the more affordable option based on the NPV analysis and potential risks involved with each choice. MNP reviewed this analysis and confirmed that the preferred option (replace with two minor class vessels) was prudent and includes other beneficial aspects that the option to extend the life cycle of the vessels did not provide. There are no price cap impacts for the current performance term noted as a result of undertaking the preferred option. The preferred NPV option will also have the least impact on future price caps, with a favourable impact over the 45-year lifecycle of the two minor class vessels.

Consistent

The BC Ferries' application demonstrates consistency in planning, operations, and compliancy with the service contract. This major capital expenditure aligns with the BC Ferries' long-term capital plan. It is included in BC Ferries' 12-year capital plan for Performance Term Four, demonstrating future compliance with the Coastal Ferry Services Contract.

Appendix A - Section 55 Questions

Assessment	Questions	Observations and Reported Information from BC Ferries												
Adequately Responded ✓	Describe the proposal for the capital expenditure, and provide a comparison to the capital currently in use, in terms, for example, of size, capacity and staff and/or crew requirements.	BC Ferries proposes to procure two new minor class vessels, each of which would have vehicle capacity of 44 AEQ and carry a complement of up to 300 passengers and crew. These vessels would be the first of a series of new standardized minor class vessels and would serve on Routes 18 and 25. Their acquisition would enable the retirement of the North Island Princess and the Howe Sound Queen, which at their planned retirement dates, will be 61 and 55 years old, respectively. This undertaking was included in the Company’s 12-year capital plan (for fiscal years 2015 through 2026). BC Ferries submits that the total expenditure, as described in this Application, is reasonable, affordable and prudent and consistent with the Coastal Ferry Services Contract between the Company and the Province of British Columbia. North Island Princess <table><tr><th></th><th>Size</th><th>Capacity</th><th>Staff/Crew</th></tr><tr><td>Current Vessel</td><td>61.04m 804 tonnes</td><td>38 AEQ 143 Passengers</td><td>7</td></tr><tr><td>New Vessel</td><td>85m (estimated and to be determined at final design)</td><td>44 AEQ 143 Passengers</td><td>7 (estimated and to be determined at final design)</td></tr></table>		Size	Capacity	Staff/Crew	Current Vessel	61.04m 804 tonnes	38 AEQ 143 Passengers	7	New Vessel	85m (estimated and to be determined at final design)	44 AEQ 143 Passengers	7 (estimated and to be determined at final design)
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Assessment	Questions	Observations and Reported Information from BC Ferries												
		Howe Sound Queen <table><tr><td></td><td>Size</td><td>Capacity</td><td>Staff/Crew</td></tr><tr><td>Current Vessel</td><td>74.40m 921 tonnes</td><td>52 AEQ 202 passengers</td><td>7-8</td></tr><tr><td>New Vessel</td><td>85m (estimated and to be determined at final design)</td><td>44 AEQ 143 Passengers</td><td>7 (estimated and to be determined at final design)</td></tr></table>		Size	Capacity	Staff/Crew	Current Vessel	74.40m 921 tonnes	52 AEQ 202 passengers	7-8	New Vessel	85m (estimated and to be determined at final design)	44 AEQ 143 Passengers	7 (estimated and to be determined at final design)
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Adequately Responded ✓	In the case of a new vessel, has an independent marine surveyor provided a condition assessment of the current vessel and is that assessment factored into the business case supporting the requested capital expenditure?	BC Ferries contracted Lloyds Register Marine in 2015 to undertake an independent condition assessment for both the Howe Sound Queen and the North Island Princess. This condition assessment factored into the business case, with related issues (e.g., condition of the hull, the engine, electronic systems, lead paint, and asbestos, etc.) supporting the need for the requested capital expenditure.												
Adequately Responded ✓	Is there a regulatory driver for the proposed capital expenditure?	While there is no regulatory requirement to retire the vessels, as most systems and materials fitted to these particular vessels are regulated to the original regulations applicable to the ships (so called “grandfathering”), there are significant existing gaps in these vessels as compared to modern safety and fleet standards. According to the Coastal Ferry Services Contract: • 60-year service contract. • Continued ability to adhere to contractual core service levels and minimize disruption of services. North Island Princess: • While still meeting all safety requirements, the lifesaving arrangements are less modern and efficient than the other vessels in the system that are equipped with slide evacuation systems. • The vessel contains asbestos and some abatement has been effected to ensure that the vessel meets all safety and health requirements.												

Assessment	Questions	Observations and Reported Information from BC Ferries
		However, it becomes ever more difficult to conduct repairs and maintenance when the potential for asbestos exists. Howe Sound Queen: • The main engines and auxiliary machinery are of date and need to be renewed to current industry standards. • The vessel contains lead paint and asbestos and the scope of abatement adds to the complexity and cost of any intrusive life extension program. The new vessels will meet the latest (modern) standards and requirements, and reduce regulatory risk.
Adequately Responded ✓	Provide information on the operating costs of the vessel, terminal, information technology or other capital asset to be replaced and/or to be upgraded, covering the most recent three year period, including the current year	Operating costs have been provided and are primarily based on the Tachek. Although this ship is older, of a different hull design and of a smaller size, BC Ferries believes that the efficiencies gained on the new hull shape and more fuel efficient engines will make fuel costs comparable. Terminal upgrades are independent of the vessel replacement programmes. All vessels in the fleet are to have a standardized interface with terminal berths. Therefore, the current Application entails no consequential impact on terminals.
Adequately Responded ✓	Compare the annual maintenance costs of the existing capital asset with those expected for the replacement and explain any significant variances.	When BC Ferries undertakes life extensions on vessels, it brings vessels up to a working operating level to be “like new”. Therefore, BC Ferries believes that maintenance costs are anticipated to be similar to those of the extended life maintenance costs of existing vessels and the analysis provided uses this assumption. Furthermore, Lloyd’s Register’s vessel condition assessments informed the ten-year life extension estimates developed by BC Ferries for each vessel. A contingency was added to reflect BC Ferries experience with refitting and/or life-extending older vessels. It is also assumed that using maintenance expenditures of the Tachek are on the conservative (more expensive) end of the spectrum with respect to costs incurred each year as that vessel is not newly built. BC Ferries acknowledges that the cost assumptions for the preferred option are unknown, and using the estimates from

Assessment	Questions	Observations and Reported Information from BC Ferries
		the Tachek provide costs at the higher end possible to be incurred for maintenance on the new vessels. Increases were made to adjust for the fact that the new vessels will employ right angle drives (RADs) which have higher maintenance costs. Although the Application does not explicitly detail relative maintenance costs of new vessels versus old ones, BC Ferries has provided adequate information to demonstrate that maintenance costs will be within estimates which are based on precedents.

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Adequately Responded ✓	Have there been service disruptions due to inadequacy of the existing capital asset?	The history of service interruptions is included in the Application: <table><tr><th colspan="8">North Island Princess: History of Recorded Mechanical Incidents</th></tr><tr><th>Fiscal</th><th>All Mechanical Incidents</th><th>Mechanical Incidents that impacted service</th><th># of Sailings</th><th># of Delays</th><th>% Delays (per sailing leg)</th><th># of Cancels</th><th>% Cancels (per sailing leg)</th></tr><tr><td>2009</td><td>12</td><td>7</td><td>7,278</td><td>44</td><td>0.60%</td><td>26</td><td>0.36%</td></tr><tr><td>2010</td><td>4</td><td>4</td><td>6,676</td><td>4</td><td>0.06%</td><td>7</td><td>0.10%</td></tr><tr><td>2011</td><td>5</td><td>8</td><td>7,244</td><td>56</td><td>0.77%</td><td>6</td><td>0.08%</td></tr><tr><td>2012</td><td>13</td><td>12</td><td>5,734</td><td>28</td><td>0.49%</td><td>79</td><td>1.38%</td></tr><tr><td>2013</td><td>9</td><td>10</td><td>7,250</td><td>7</td><td>0.10%</td><td>20</td><td>0.28%</td></tr><tr><td>2014</td><td>12</td><td>9</td><td>6,009</td><td>4</td><td>0.07%</td><td>16</td><td>0.27%</td></tr><tr><td>2015</td><td>7</td><td>8</td><td>4,950</td><td>16</td><td>0.32%</td><td>12</td><td>0.24%</td></tr><tr><td>2016</td><td>5</td><td>3</td><td>5,582</td><td>5</td><td>0.09%</td><td>2</td><td>0.04%</td></tr><tr><td>Average</td><td>8</td><td>8</td><td>6,340</td><td>21</td><td>0.31%</td><td>21</td><td>0.34%</td></tr></table> <table><tr><th colspan="8">Howe Sound Queen: History of Recorded Mechanical Incidents</th></tr><tr><th>Fiscal</th><th>All Mechanical Incidents</th><th>Mechanical Incidents that impacted service</th><th># of Sailings</th><th># of Delays</th><th>% Delays (per sailing leg)</th><th># of Cancels</th><th>% Cancels (per sailing leg)</th></tr><tr><td>2009</td><td>12</td><td>8</td><td>10,052</td><td>40</td><td>0.40%</td><td>15</td><td>0.15%</td></tr><tr><td>2010</td><td>18</td><td>7</td><td>10,064</td><td>23</td><td>0.23%</td><td>4</td><td>0.04%</td></tr><tr><td>2011</td><td>18</td><td>7</td><td>10,044</td><td>25</td><td>0.25%</td><td>8</td><td>0.08%</td></tr><tr><td>2012</td><td>3</td><td>2</td><td>8,029</td><td>5</td><td>0.06%</td><td></td><td>0.00%</td></tr><tr><td>2013</td><td>13</td><td>7</td><td>9,050</td><td>22</td><td>0.24%</td><td>2</td><td>0.02%</td></tr><tr><td>2014</td><td>17</td><td>14</td><td>10,073</td><td>27</td><td>0.27%</td><td>13</td><td>0.13%</td></tr><tr><td>2015</td><td>14</td><td>7</td><td>9,022</td><td>34</td><td>0.38%</td><td>2</td><td>0.02%</td></tr><tr><td>2016</td><td>14</td><td>5</td><td>7,878</td><td>20</td><td>0.25%</td><td></td><td>0.00%</td></tr><tr><td>Average</td><td>14</td><td>7</td><td>9,277</td><td>25</td><td>0.26%</td><td>7</td><td>0.06%</td></tr></table>	North Island Princess: History of Recorded Mechanical Incidents								Fiscal	All Mechanical Incidents	Mechanical Incidents that impacted service	# of Sailings	# of Delays	% Delays (per sailing leg)	# of Cancels	% Cancels (per sailing leg)	2009	12	7	7,278	44	0.60%	26	0.36%	2010	4	4	6,676	4	0.06%	7	0.10%	2011	5	8	7,244	56	0.77%	6	0.08%	2012	13	12	5,734	28	0.49%	79	1.38%	2013	9	10	7,250	7	0.10%	20	0.28%	2014	12	9	6,009	4	0.07%	16	0.27%	2015	7	8	4,950	16	0.32%	12	0.24%	2016	5	3	5,582	5	0.09%	2	0.04%	Average	8	8	6,340	21	0.31%	21	0.34%	Howe Sound Queen: History of Recorded Mechanical Incidents								Fiscal	All Mechanical Incidents	Mechanical Incidents that impacted service	# of Sailings	# of Delays	% Delays (per sailing leg)	# of Cancels	% Cancels (per sailing leg)	2009	12	8	10,052	40	0.40%	15	0.15%	2010	18	7	10,064	23	0.23%	4	0.04%	2011	18	7	10,044	25	0.25%	8	0.08%	2012	3	2	8,029	5	0.06%		0.00%	2013	13	7	9,050	22	0.24%	2	0.02%	2014	17	14	10,073	27	0.27%	13	0.13%	2015	14	7	9,022	34	0.38%	2	0.02%	2016	14	5	7,878	20	0.25%		0.00%	Average	14	7	9,277	25	0.26%	7	0.06%
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Adequately Responded ✓	If age of the existing capital asset is a factor, what is the estimate of future costs of continuing its use?	The current vessels will require substantial refits in order to keep them operating (see NPV analysis). The NPV calculation used figures and estimates provided by the current refit teams for this projection. They also used current vessel condition assessments and projected work that would need to be performed such as lead paint and asbestos abatement to estimate the costs of life extending the current vessels. It is BC Ferries position that although they bring a life extended vessel up to like new operational standards, older vessels inherently have increased refit and asset reliability risks, hence implications for continuity of service. This is due to unseen problems in the initial assessments which are expected and would need to be addressed in any refit, life extension or regular maintenance performed. • Cost estimate (in NPV) of extending life of the North Island Princess and Howe Sound Queen is similar to building new ships. • Extending life is higher risk in terms of safety and reliability of service.																																								
Adequately Responded ✓	Have there been complaints from the public, or other stakeholders about the existing capital asset?	Overview of Customer Feedback: <table><tr><th>Fiscal</th><th>Total Comments</th><th>Category: Northern Islands/Southern Gulf Islands</th><th>Route/Vessel Specific: Texada – Powell River/North Island Princess</th><th>Route/Vessel Specific: Crofton – Vesuvius/Howe Sound Queen</th></tr><tr><td>2010</td><td>6,014</td><td>231/460</td><td>14</td><td>31</td></tr><tr><td>2011</td><td>9,260</td><td>362/724</td><td>30</td><td>49</td></tr><tr><td>2012</td><td>8,351</td><td>616/673</td><td>128</td><td>52</td></tr><tr><td>2013</td><td>7,653</td><td>333/503</td><td>47</td><td>54</td></tr><tr><td>2014</td><td>8,273</td><td>511/714</td><td>100</td><td>43</td></tr><tr><td>2015</td><td>7,319</td><td>632/658</td><td>98</td><td>43</td></tr><tr><td>2016</td><td>7,371</td><td>604/757</td><td>65</td><td>41</td></tr></table>	Fiscal	Total Comments	Category: Northern Islands/Southern Gulf Islands	Route/Vessel Specific: Texada – Powell River/North Island Princess	Route/Vessel Specific: Crofton – Vesuvius/Howe Sound Queen	2010	6,014	231/460	14	31	2011	9,260	362/724	30	49	2012	8,351	616/673	128	52	2013	7,653	333/503	47	54	2014	8,273	511/714	100	43	2015	7,319	632/658	98	43	2016	7,371	604/757	65	41
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Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Provide an estimate of the total capital costs associated with the proposed investment.	.
Adequately Responded ✓	How was the cost estimate derived? Entirely with BC Ferries' staff or was there an external review?	BC Ferries used the higher end of the spectrum of pricing received to establish their NPV build cost and contingencies. These estimates are prior to technical clarifications and contract negotiation so there is some uncertainty over the final purchase price. However, they believe that using the high end of the spectrum of pricing received provides the most conservative net present value.
Adequately Responded ✓	In the case of a new vessel was the international ship broking industry contacted to determine if there are existing vessels available for purchase that may, with adaptation, be appropriate?	The Application notes that the international market of used ships has been assessed and that there are no suitable vessels available. International ship brokers advise BC Ferries of used vessels available for purchase and brought forward approximately 25 used vessels for the Company's consideration. All were reviewed; however, none were determined to meet the requirements as replacements for the North Island Princess and the Howe Sound Queen due to their age or capacity.
Adequately Responded ✓	Provide an estimate of the incremental capital costs to provide "ancillary services", including catering and retail concessions, and provide estimates of the incremental operating costs to provide the ancillary services and the incremental revenue expected to be generated from those services.	Based on the size of the proposed vessels and the routes on which they will operate, each sailing would require additional crew members, such as catering attendants, to operate any additional ancillary services. BC Ferries prepared a preliminary analysis of the costs associated with offering these additional services on board the vessels. Their analysis shows a relatively small negative return of each year. BC Ferries believes a crew of seven is reasonable to staff the minor class vessels; however, it will be Transport Canada that determines what level is required. An additional crew member would be required on each sailing to perform the duties required for ancillary services and they are not necessary for the safe operation of the vessels under the regulatory requirements placed on BC Ferries. Finally, the proposed vessels are considered similar replacements of the existing vessels which do not have any additional ancillary services. It was also mentioned in the community feedback that simplicity with the vessels is encouraged. Based on costs and service requirements for the routes affected, it appears prudent that additional ancillary services on these new minor class vessels have not been proposed.

Assessment	Questions	Observations and Reported Information from BC Ferries									
Adequately Responded ✓	In the case of a new vessel, demonstrate on a lifecycle cost or present value basis that the decision to build a new vessel versus the cost of acquiring a second hand vessel, if applicable, is a net benefit. Include sensitivity analysis in case of cost overruns.	An NPV analysis was used to demonstrate that purchasing a newly built vessel is superior to life extending the current vessels on these service routes. The options are similar in nature when compared on a NPV basis. However, it is BC Ferries position that the qualitative aspects of the new build (lower operational risk related to vessels' continuity of service, fleet standardization of equipment, etc.) are in favour of the preferred option. Furthermore, as the new vessels final cost has not been confirmed, the capital cost to build the ships is potentially overstated in the Application and assumptions around operational costs are overly conservative. BC Ferries support this by using contingencies in their analysis and basing costs on the Tachek, a recently refitted vessel. It is anticipated that the service and operational costs will be no worse than this vessel and BC Ferries commented that they anticipate the new builds to be below the costs expected to be incurred on the Tachek. <table border="1"> <thead> <tr> <th></th><th>Total Project Cost (including IDC)</th><th>45-Year NPV</th></tr> </thead> <tbody> <tr> <td>Option 1: Life Extend Existing Vessels for Ten Years and Replace</td><td>\$<> M</td><td>-\$236.2 M</td></tr> <tr> <td>Option 2: Replace with Two Minor Class Vessels</td><td>\$<> M</td><td>-\$235.1 M</td></tr> </tbody> </table> A separate sensitivity analysis was not provided by BC Ferries in the application's net present value calculations. However, they stated that by using a contingency on the highest RFP cost to date, the NPV analysis has the highest anticipated life costs built in and therefore, additional sensitivity analysis is not warranted. The contingency accounts for the uncertainty of shipyard selection, cost negotiations, foreign exchange risk, change orders and unidentified spares requirements. Negotiations between BC Ferries and the shipyards which have submitted the RPF's are ongoing at the time of this analysis. However, it is anticipated that a contingency will be sufficient to cover any changes in costs from the RFP's received.		Total Project Cost (including IDC)	45-Year NPV	Option 1: Life Extend Existing Vessels for Ten Years and Replace	\$<> M	-\$236.2 M	Option 2: Replace with Two Minor Class Vessels	\$<> M	-\$235.1 M
	Total Project Cost (including IDC)	45-Year NPV									
Option 1: Life Extend Existing Vessels for Ten Years and Replace	\$<> M	-\$236.2 M									
Option 2: Replace with Two Minor Class Vessels	\$<> M	-\$235.1 M									

Assessment	Questions	Observations and Reported Information from BC Ferries
		It is BC Ferries opinion that based on previous RFP experience the actual contingency once a yard is chosen will be lower. Using this rate would provide for a lower NPV for the preferred option. Although a separate sensitivity analysis was not performed to analyze changes in various cost drivers, it appears that using the higher spectrum of potential cost estimates in the NPV analysis is a prudent substitute which yields an NPV for the preferred new vessel build option that is similar to the life extend option.
Adequately Responded ✓	Does the proposal include significant features that are innovative or untried?	The Application proposes a vessel well within the current state of technology, with no risks associated with innovative or untried features. The technical statement of operating requirements issued to shipyards as part of the RFP for the Project referenced diesel propulsion; however, shipyards were invited to propose alternative propulsion plant configurations that included stored energy (batteries) as a means of providing power during peak demand and thus saving fuel. The stored energy alternative was based on BC Ferries' experience with the Tachek which employed a hybrid system involving diesel generators and batteries to provide the ship's service power. This is considered an appropriate technology for the minor class, as the power demand and operational profile is on a scale where batteries can cost-effectively supplement diesel power. The stored energy (batteries) feeds on the main DC-bus to provide running power reserve, and with capacity such that the battery bank could be expanded in the future to provide the full ship's power requirement (including propulsion) for possible "zero-emission" operation (i.e., battery powered). Battery technology is rapidly evolving and the cost per kilowatt hour reduces annually as this technology achieves wider use in the transportation and industrial sectors. BC Ferries' intention is to phase in the battery storage capability for the minor class vessels from an initial limited installation intended to provide reserve power to the two main generators and offset peak demand, and moving to an expanded stored energy capability when conditions warrant, on a route-by-route basis. To achieve full battery operation cost-effectively will require the development of some shore infrastructure in the form of rapid charging installations at the berth and an interface with BC Hydro. Discussions with BC Hydro in regard to this matter are underway.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Is there an allowance in the estimate for inflation from the date of acceptance of a proposal to the completion date (escalation clause)?	The analysis provided uses a 2% average inflation figure over the term of the NPV. This figure has been used consistently across other capital project analyses.
Adequately Responded ✓	Are financing costs included in the cost estimate between first payment to the supplier and the in-service date?	The source of funding for the minor class vessels is undetermined at this time. Interest on development costs has been included as part of the analysis with the estimate based on a percentage of overall Project budget as experienced with other new vessel builds. Actual interest to be capitalized on the Project will be calculated based on a cost of debt applied to the cumulative project cashflows prior to the assets being available for use. As such, interest costs are dependent on factors including: • Interest Rate (to be determined) • Total Project capital cost (currently under negotiation). • Payment terms (currently under negotiation). • Date the assets are available for use. Average cost of debt for BC Ferries is approximately 5%. BC Ferries provided a sensitivity analysis on forecast interest costs based on reasonable assumptions for payment terms and available for use dates, while varying the assumed interest rate from three to five percent. These changes did not materially impact the result for the two options. On a NPV basis, both options have approximately the same life time costs.
Adequately Responded ✓	Compare the operating costs of the existing capital asset with those expected for the replacement, to include, in the case of vessels, fuel costs, crew costs and depreciation.	Operating costs of the new minor class vessels including fuel, crew and maintenance are all based on the MV Tachek which BC Ferries believes is the closest proxy to the preferred option, due to its size, crew compliments, route distances, recent life extension and refit costs, and engine technology and fuel usage, all of which are anticipated to be similar to the new minor class vessels. Furthermore, the life extension option is based on actual costs incurred on the vessels as well as anticipated life extension costs. This is derived from an analysis prepared by BC Ferries using the current vessel's condition reports performed by Lloyd's Register an independent third party. The tax effects of depreciation should be included in a NPV analysis. However, BC Ferries is considered a "Tax Exempt Corporation" as described in the <i>Income Tax Act</i> and as such is exempt from federal and provincial income taxes. BC Ferries did not include depreciation in the analysis as it is a non-cash item and does not affect the NPV analysis.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Does BC Ferries intend to capitalize any of its own internal costs with respect to the capital expenditure?	BC Ferries intends to capitalize some of its own costs of project management activities related to the purchase of these new vessels including: • Labour, which includes, project management, vessel replacement program and other internal labour such as vessel documentation, training devolvement materials, subject matter experts and on-site inspections; • Design review and specialty services, studies and reports; • Regulatory oversight and compliance; • Owner furnished equipment such as information technology and security equipment; • Vessel load out operation equipment to ensure operational readiness; • Travel costs to support the project team and subject matter experts during construction, trials and delivery. This component will be highly influenced based on yard location and foreign exchange rate changes. BC Ferries has used a percentage of total capital costs to build the vessels based on the actual internal amounts capitalized as part of the Salish class new builds. It should be noted that the Salish class is a larger vessel with different service requirements. However, BC Ferries believes that based on past experiences, the project team and processes involved are not scalable to the vessel size. The processes, certifications and staff involved in the projects are roughly the same regardless of the size of the vessel. • A contingency has been added to this calculation. The contingency is less than the percentage used for the capital cost of the build as there is no foreign exchange risk component since all costs will be in Canadian dollars. • As the Salish class vessels are the most recent new builds, they appear to be a reasonable proxy to use for the application. It is BC Ferries' contention that the expenses used are conservative and consistent with recent BC Ferries' experience on other vessel construction projects. Once a yard is chosen and the fixed price contract is complete, this figure will be finalized.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Identify any parts of the capital expenditure that are to be provided by BC Ferries or its subsidiaries.	Project management and capital are the only portions that are provided by BC Ferries.
Adequately Responded ✓	In the case of vessels, if tenders are to be sought from foreign shipbuilders, what is the applicability of custom tariffs on importation of the vessels?	Customs tariffs are no longer applicable on the importation of foreign built ferries as announced in 2016 federal budget, which waived the 25% tariff on ferries of all sizes imported after October 1, 2015.
Adequately Responded ✓	In the case of vessels, will BC Ferries require the contracting shipyard to bear the design and construction risk?	BC Ferries will require the contracting shipyard to bear design and construction risk in accordance with their recent procurement practice on new construction. Key risks, including vessel design, will be fully assumed contractually by the selected shipyard. To ensure that the vessels enable BC Ferries to meet its contractual service level requirements, BC Ferries included in the RFP minimum functional and technical conditions, and operating performance targets along with amenities that must be satisfied in the final design and construction of the vessels. BC Ferries has followed the same approach in the earlier phases of the vessel replacement program BC Ferries intends to enter into a design-build contract, which will transfer construction risk to the shipyard. However, even under a design-build contract, the construction phase of any project brings with it potential risks to cost, quality and timeline, arising from: • improper procedure development; • lack of clear authority for change orders; • inadequate project reporting; • assimilation/compromise of project team members; or • accidents caused by negligence of team members. Once the final shipyard is selected through the RFP process, a shipyard-specific project management strategy will be developed to address these risks. This will include finalization of a change order process to reduce the risk of design changes being made by BC Ferries personnel without a clear understanding of the impact of those changes, thereby potentially increasing costs or creating delays in the Project.

Timing and In-Service Date

Assessment	Questions	Supporting facts, analysis and other information
Adequately Responded ✓	For new or replacement vessels what is the expected in-service or deployment date and how was it derived?	The expected in-service dates for the vessels are as follows: - North Island Princess Replacement: In-Service May 2019 - Howe Sound Queen Replacement: In Service September 2019 The in-service dates were based on the retirement dates for the vessels included in BC Ferries Fleet Master Plan to guide and plan vessel procurement, along with delivery dates, which are negotiated as part of shipyard contracts.
Adequately Responded ✓	Were potential builders, for example shipyards, contacted to determine if the proposed date is reasonable?	In discussion it was noted that potential builders have all indicated at the RFEI/RFP stage that the timelines are achievable. It was acknowledged that the timelines are aggressive.
Adequately Responded ✓	What are the consequences of a delay in the in-service or deployment date?	In discussion it was noted that the consequence of delay would be a need to provide an additional maintenance period (and possibly a refit) to maintain the current vessels in service. This was considered achievable, albeit undesirable. Although not fully quantifiable in either financial or engineering terms, a key consideration is that there is a greater likelihood of a service disruption, and the potential consequences of any such disruption become much more significant the longer these vessels remain in service.

Rationale and Explanations

When considering a Section 55 application the Commission will base their decision on the following tests:

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Does the proposed capital expenditure demonstrate good judgment, based on wisdom, experience and good sense?	Overall, the proposed expenditure appears to demonstrate good corporate judgement, embodying full consideration of past experience in operations and acquisition, and an appropriate consideration of various choice factors.
Adequately Responded ✓	Does the proposed capital expenditure indicate a wise use of resources?	The proposed expenditure demonstrates a wise use of resources. The operating costs included in the NPV calculation are based on the MV Tachek. BC Ferries asserts that although this vessel is smaller than the proposed new vessel builds, it is a sufficient proxy for the proposed new minor class builds due to the following: • The hybrid technology used on the Tachek demonstrates that the technology is practical, supportable and delivers predictable reductions of fuel consumption; • Route lengths and water conditions are broadly consistent with those that the Tachek currently operates in; • Fuel consumption for the Tachek of 22.1 litres per nautical mile (l/n.m.) is similar to that of the Quadra Queen II (22.95 l/n.m.) and the North Island Princess (22.93 l/n.m.) and the new vessels are expected to have similar fuel usage rates; • Comparative, average historical maintenance costs of the North Island Princess and Howe Sound Queen were noted by BC Ferries to be comparable to the Tachek. • Refit costs used in the NPV analysis were based on the Tachek's Long Range Maintenance plan ("LRMP") and increased for the right angle drives to be used on the new minor class vessels. BC Ferries stated that these systems have higher refit costs. The estimates used based on the LRMP are similar to those that have been incurred on the North Island Princess and the Howe Sound Queen. BC Ferries has used current operating vessels with comparable operating systems and routes as a proxy to estimate the operational costs of the new minor class vessels. As such, if these assumptions hold, the new minor class vessels appear to be affordable to operate and a wise use of resources.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Does the proposed capital expenditure show due consideration for the future?	The proposal shows due consideration for the future in respect of adhering to the corporate philosophy favouring series building and in proposing to acquire design rights to enable follow-on members of this new minor class. The stored energy (battery) engine provides the opportunity to extend this technology to a full battery for potential “zero-emission” operations.
Adequately Responded ✓	Has it been demonstrated that the proposed capital expenditure would not reasonably be considered excessive?	With respect to the NPV analysis performed, as both options have similar NPV’s and costs have likely been overestimated through contingencies and worst case cost scenarios, the preferred option does not appear to be excessive.
Adequately Responded ✓	Does the proposed capital expenditure provide good value, at a moderate and fair price? Is it affordable?	BC Ferries perceives the capital expenditure to be of good value, fair price and affordable for the following reasons: • The project was included in BC Ferries’ 12-year capital plan. • Purchasing the vessels would incur similar costs as refitting the vessels.
Adequately Responded ✓	Is the proposed capital expenditure provided for in a board approved capital plan?	The Project was included in BC Ferries’ 12-year capital plan (2015-2026) approved by the BC Ferries Commissioner.

Specific Questions

Does the proposed capital expenditure demonstrate good judgment, based on wisdom, experience and good sense?

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Why is the proposed capital expenditure required now, and what are the consequences of any delay?	Delays in the in-service dates for the replacements of the North Island Princess and the Howe Sound Queen significantly increase the possibility of service disruptions due to the following factors: • The longer the vessels operate, the higher the risk of unforeseen operational issues and serviceability; • Critical spares availability, original equipment manufacturer knowledge and supportability for these aged vessels are already at levels that may compromise service reliability; and • Vessel long-range maintenance plans have been “glide-sloped” for the planned in-service dates of the new vessels, and extensions to these plans could result in reduced vessel reliability and operational availability, without significant investment to achieve a very short life extension Even with regular maintenance, refit, and dry-docking, service reliability issues are prevalent with the North Island Princess and Howe Sound Queen, and they are costly assets to keep in operation.
Adequately Responded ✓	How has this capital expenditure project been prioritized relative to other capital expenditure projects within the long term capital plan?	This project is of a high priority based on the condition of the assets being replaced and the need to ensure ongoing continuity of service on Routes 18 and 25. BC Ferries uses a two-step prioritization process for capital projects. First, projects are sorted by mandatory and discretionary. Discretionary projects are ranked according to strategic fit and may end up in or out of the plan depending on their ranking, while mandatory projects are given precedence in the plan. BC Ferries deemed these vessel replacements as mandatory.
Adequately Responded ✓	What sources of expertise and experience have been relied upon in deciding to proceed with this capital expenditure?	BC Ferries internal sources of expertise and experience include: • A robust planning, approval and reporting process. • A formal project management framework, guidelines and best practices. • BC Ferries Board of Directors approved 12-year capital asset plan (annual). • Formal business cases for all capital projects.

Assessment	Questions	Observations and Reported Information from BC Ferries
		• A Capital Projects and Budget Committee who approves all major capital expenditures along with the Executive Management Committee and the Board of Directors. • Formal risk management systems. • Procurement policies to ensure capital projects are delivered in a cost-effective manner. In support of BC Ferries staff, the following key external experts have been engaged to provide advice in respect of the proposed project: • Lloyd's Register Canada (Vessel Condition Assessments) • 3GA Marine Ltd (LNG/Propulsion) • Urban Futures Inc. (Traffic Forecast Validation)
Adequately Responded ✓	Provide detail on completed and/or planned consultations, in particular with the provincial government or other stakeholders.	BC Ferries has engaged with the public about replacement vessels via the Ferry Advisory Committee ("FAC") process. FAC meetings are open to the public and advertised in advance. In BC Ferries Section 55 Application it states, "In September 2016, a dedicated discussion was held with the FACs to discuss more specific details of the minor class vessels. BC Ferries sought input on the broad attributes of a new minor vessel in such areas as amenities, comfort, ride qualities, and accessibility. BC Ferries is planning at least two rounds of direct engagement with the public, the BC Ferry and Marine Workers' Union (the "union") and employees on the routes receiving, or closely affected by, the two new minor class vessels. The public, union and employees will be asked to comment on areas including: lounge configuration, amenities, car deck arrangement, accessibility and tourism features. All comments will be considered as the design is finalized prior to the start of construction." The majority of the public comments were related to the smaller capacity of the Quinitsa replacing the Howe Sound Queen. (See Appendix B for details).

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	In the case of new vessels, has BC Ferries considered any alternative to building and owning the new vessels?	The Application documents consideration of alternatives to acquiring and owning the vessels. In discussion it was noted that the option of renting/leasing vessels was identified but that there are no economic factors that would make this a realistic option. Factors that influenced the decision to go with new vessels included: • commercial compatibility; • physical compatibility; • regulatory compatibility; • fleet compatibility; and • standardization. In most cases, the used market does not provide the opportunity to purchase multiple ships with a common platform or a common standard. Considering the acquisition of a used vessel, any possible savings in acquisition cost must necessarily be weighed against the possible higher operating costs associated with deployment of a vessel that is unique to the fleet. BC Ferries actively monitors the market for used vessels. Several international ship brokers routinely advise BC Ferries of used vessels available for purchase and, in the past 24 months, have brought forward approximately 25 used vessels for the Company's consideration. All were reviewed, but none were determined to meet the requirements for the replacements of the North Island Princess and the Howe Sound Queen.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Will a new or replacement vessel require any modifications to any terminals? If so, at what additional cost?	Terminal modifications will not be necessary. BC Ferries uses standardized interfaces on its berths and a separate capital program is in place to spread standardization throughout the Company's terminals, therefore, costs have not been included in the analysis. Depending on the final design of the minor class vessels, there is a potential, however, that minor marine structure modifications may be required at Blubber Bay (Texada Island) on Route 18. The capital cost associated with any such required work would be incremental to the Project cost set out in this Application. Terminal renewal and upgrade projects are being completed as part of the Company's infrastructure renewal with a standardized berth design, such that the berths will meet the needs of future vessels being built under BC Ferries fleet renewal and standardized class strategy.
Adequately Responded ✓	What are the procurement cost risks and how will they be mitigated?	The procurement cost risks are listed as follows: Price Escalation: • The pricing for the Project is based on the proposals received in October 2016 in response to the RFP and is conservative in that it reflects the high end of the spectrum of pricing received. • BC Ferries has included a contingency in the Project budget to address unforeseen cost pressures, including shipyard prices that might exceed current estimates. This will mitigate against potential cost escalation that may occur during the contracting process as a direct result of scope finalization and specific equipment selection. In the event that negotiated pricing rises from that received through the RFP process, a supplemental Application to the Commission may be required. Depending on the magnitude of the cost variance, scope changes to the Project may also need to be considered. Currency: • BC Ferries has specified in the RFP that the contract is to be negotiated to a fixed firm price in Canadian dollars, and the four proposals received have been submitted on that basis.

Assessment	Questions	Observations and Reported Information from BC Ferries
		Affordability: - BC Ferries has a financial plan in place that ensures the capital expenditures can be accommodated within the constraints of its key lending agreements. The analysis of the Project on a total cost of ownership basis ensures that affordability is considered based on the full life cycle costs of the Project. Financing Plan: - Plans to finance the Project with cash flow from operations, draws on its credit facility and/or through the issuance of bonds in the capital markets. - Long term financing instruments are secured through a Capital Markets Platform.
Adequately Responded ✓	What are the consequences or the alternatives if the application is rejected?	BC Ferries has considered the option of life extending the vessels for another 10 years of service. This was considered as a substantially higher risk alternative in terms of ensuring continuity of safe reliable service. Acquiring used vessels to replace the North Island Princess and the Howe Sound Queen was another alternative considered by BC Ferries. The Company considered approximately 25 vessels; however, none could meet the age and capacity requirements to replace the vessels effectively. Therefore, BC Ferries perceives there to be no obvious alternatives to the two options presented in this application. If both of the options are rejected, they may not be able to serve Routes 18 and 25, which would place BC Ferries in default under the Coastal Ferry Services Contract.

Wise use of resources

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	For shorter routes were non-vessel options considered, such as a fixed link?	Non-vessels options were not applicable to the routes considered and are therefore not considered in the Application.
Adequately Responded ✓	Can an existing vessel be reassigned instead?	The project involves redeployment of the Quadra Queen II and Quinita; BC Ferries has no spare vessel to reassign to avoid the need to replace the Howe Sound Queen or North Island Princess.
Adequately Responded ✓	Were non-vehicle vessels (e.g. passenger only ferries, barges, other) or a mix of vessel types considered?	Non-vehicle options are not suitable to the service demands on the routes considered and are therefore not considered in the Application.
Adequately Responded ✓	Has a used vessel option been considered?	Availability of used vessels was considered, as noted above, but no vessels were found that were considered suitable. The used market does not provide the opportunity to purchase multiple ships with a common platform or standard. Several international ship brokers routinely advise BC Ferries of used vessels available for purchase and, in the past 24 months, have brought forward approximately 25 used vessels for the Company's consideration. All were reviewed, but none were determined to meet the requirements for the replacements of the North Island Princess and the Howe Sound Queen due, for example, to their age or capacity.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	How does the vessel align with the concept of standardization of the fleet?	The Application supports the fleet standardization concept. BC Ferries commenced a substantial program to renew its fleet in 2004. A key objective of BC Ferries' fleet renewal program, and the proposed acquisition of the minor class vessels as set out in this Application, is to achieve capital and operating cost savings and efficiencies through a strategy of vessel standardization. Any possible savings in acquisition cost must be weighed against the possible higher operating costs associated with deployment of a vessel that is unique to the fleet.
Adequately Responded ✓	Would investments in technology, such as an expanded reservation system, better IT systems or a yield management program allow for a smaller sized vessel?	Not at this time. This factor was not explicitly addressed in the Application. Given the routes and service schedules involved, this is considered unlikely to have resulted in a smaller vessel. BC Ferries Fare Flexibility and Digital Experience Initiative ("Initiative") includes consideration of a new demand management system which could further improve overall AEQ capacity utilization on the routes to which it is applied. At this time, in accordance with Order 15-01, implementation of the Initiative is envisaged for only those routes that currently accept vehicle reservations and, thereby, excludes Routes 6, 18 and 25. Accordingly, no impact on capacity utilization from the Initiative on the Project is envisaged, which would affect the determination of the optimal size of the replacement vessels.

Showing due consideration for the future

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	How does the proposed new vessel contribute to overall fleet flexibility?	Increasing standardization of the fleet will improve flexibility in terms of greater ease and efficiency in redeploying specific vessels across multiple routes if unforeseen circumstances arise or if the service needs change over time.
Adequately Responded ✓	What new technologies or innovations will be incorporated, and why are they considered necessary?	Technology that will be incorporated includes: • Diesel-electric power generation using two generator sets; • A redundant DC-power main electrical bus employing AC/DC conversion technology for power consumers; and • Stored energy (batteries) feeding the main DC-bus to provide running power reserve, and with expandable capacity such that the battery bank could be expanded in the future to provide the full ship's power requirement (including propulsion). This configuration was selected on the basis that it is sufficiently supportable on the Minor Routes, is flexible in operating configuration over the variety of Minor Route profiles, and can eventually be configured for “zero-emission” operation (full battery usage).
Adequately Responded ✓	Will there be provision for a conversion to an alternative to marine diesel engines, such as LNG?	The Application does not explicitly address the potential for subsequent conversion. However, in discussion it was noted that the design is considered sufficiently flexible that alternate propulsion could be considered in subsequent members of the class if technology development and economic factors supported such a change.
Adequately Responded ✓	Is dual fuel capability planned and if so provide the rationale?	Dual fuel was considered but is not intended in these vessels. The principal impediment cited was the lack of convenient refueling infrastructure on the routes concerned, and limited availability of dual fuel engines in the applicable power range.

Adequately Responded ✓	Will the new or replacement vessel be appropriate if the ratio of vehicle to foot passenger traffic changes in future?	The Application does consider potential changes to the balance of vehicle/passenger traffic. BC Ferries observed there is a positive structural shift in traffic believed to be driven by an increase in domestic travel due to the US/CAD dollar exchange rate, lower gas prices and improving local economic conditions. This is assumed to evolve over the next 1 to 3 years and the impacts were added on top of historical traffic trends.
Adequately Responded ✓	Is vessel capacity sufficient to meet current and projected future demand?	The Application considers reasonable projections of future demand. It is also noted that demand beyond projections can be met by the addition of extra sailings.
Adequately Responded ✓	What is the estimated impact of the proposed capital expenditure on future price caps assuming no change in non-passenger related revenues?	The proposed capital expenditure is estimated to be less than the PT4 capital plan. Compared to the PT4 capital plan, the Project has a later schedule for the North Island Princess replacement vessel and an earlier schedule for the Howe Sound Queen vessel. Higher fueling costs are expected due to the anticipated diesel consumption of the Quinitsa when it replaces the Howe Sound Queen on Route 6. The PT4 model assumed that an intermediate vessel with LNG propulsion would replace the Howe Sound Queen. The Project results in a baseline decrease of approximately .05% per annum through PT7 from the forecast in PT4. This is expected to have a small but favorable impact on price caps and will contribute to reducing upward pressure on fares. Option 1 has a baseline increase in price cap of .02% per annum.

Not excessive

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	What passenger amenities will be provided, and why are they considered appropriate for the intended use of this vessel?	Limited amenities and ancillary services are planned, such as: • A passenger lounge arrangement accessible from main vehicle deck; and, • Vending machines. This appears consistent with other routes served by vessels of this size.
Adequately Responded ✓	Do any of the proposed passenger amenities require crewing levels to be higher than what is required by Transport Canada regulations?	No, it will be a relatively simple ship with limited amenities, therefore the crewing levels need not be higher than what is required by Transport Canada regulations.
Adequately Responded ✓	Is the vessel the right size and how has the capacity requirement been determined?	The Application clearly outlines the considerations of capacity relative to the three routes impacted by the initial procurement and redeployment proposed. The vessel size was determined based on a review of the forecast sailing demand for each route on which this class of vessel could potentially operate. The capacity is sufficient to carry the highest traffic demand route (Route 18). This capacity serves as the initial threshold of maximum size needed for the new class of vessel in support of the move towards a standardized fleet. BC Ferries Fare Flexibility and Digital Experience Initiative includes a consideration of a new demand management system that could improve overall AEQ capacity utilization on the routes it is applied. Currently this initiative is only for routes that accept vehicle reservations which excludes routes 6, 18, 25. Therefore, no impact on capacity utilization on the Project is envisaged which would affect the determination of the optimal size of the replacement vessels.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Describe the objectives of BC Ferries' design standards for passenger accommodations for vessels of similar size and scope. Will the passenger accommodations for the replacement vessel deviate from these standards? If so, what is the rationale for the deviation and what impact, if any, will it have on the capital and operating costs of the vessel?	The minor class vessels will have a passenger lounge arrangement that complies with current accessibility requirements. The vessels will have basic ancillary services (vending machines). BC Ferries will reportedly adhere to the interior design standards meeting the following criteria: • Durable; • Commuter friendly; • Easily cleanable; and • Low life-cycle cost.
Adequately Responded ✓	Will the application of logos or other BC Ferries' brand images to the vessel be consistent with BC Ferries' current practice for similar vessels. If not, how will it differ and what will be the effect on capital costs?	Yes. The minor class vessels will be branded similar to other BC Ferries vessels. No information was made available on how or if it will differ and what the effect on capital costs are if there are slight changes.
Adequately Responded ✓	What would have to be sacrificed to reduce total costs by 10%, and by 20%?	An analysis was not prepared by BC Ferries. However, BC Ferries indicated that these vessels are providing the minimum required service levels for the routes they will be operating on. Replacing the Howe Sound Queen with the Quinista instead of an intermediate vessel outlined in the PT4 capital plan, generates capital cost savings of 50% as a result of the difference in cost between building the two classes of vessels. There are no other obvious opportunities to reduce the proposed capital expenditure without a significant impact on the scope of the Project. For example, a 10% to 20% reduction in total costs would include: • A requirement of instrumental reductions. While it may be possible to achieve some upfront capital cost savings through less costly shipboard equipment, it is not considered a prudent approach as it would negatively impact BC Ferries move toward fleet standardization. • Reducing shipboard amenities (upper deck viewing area) however this would negatively impact the customer experience possibly affecting traffic demand and revenue.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Does vessel design or expected operating speed have any impact on labour costs?	The vessel speed is 1.5 knots in excess of the maximum current vessel speed. In discussion it was noted that this constitutes both a service speed margin against fouling as well as a 'catch-up' margin to maintain service schedules. There is no impact on labour costs. In case of using ridership expansion potential (150-300), labour costs will be scaled in accordance with regulatory requirements for crew relative to passenger numbers.
Adequately Responded ✓	Are engines sized for efficient operations, fuel consumption and ability to recover schedule?	As above. Smaller vessels require a low horsepower rating of the engines. Engine manufacturers do not manufacture LNG engines at this low power rating that meets BC Ferries standards.

Demonstrating good value at a fair, moderate price

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	For new vessels what alternatives were considered? Provide the rationale (cost or otherwise) for why the alternatives were not accepted.	BC Ferries has considered the option of life extending the vessels for another 10 years of service. This was considered as substantially higher risk alternative in terms of ensuring continuity of safe reliable service. Acquiring used vessels to replace the North Island Princess and the Howe Sound Queen was another alternative considered by BC Ferries. The Company considered approximately 25 vessels; however, none could meet the age and capacity requirements to replace the vessels effectively.
Adequately Responded ✓	Has the business case been built on a full life cycle costing basis?	An NPV has been prepared based on an estimated 45-year life of the vessels. This is the typical life span of these types of vessels and each option includes refits and three, quarter life, upgrades. BC Ferries performs these upgrades at predetermined intervals for all vessels and the NPV analysis of each of the options takes into account these life cycle upgrades and refits.
Adequately Responded ✓	How fuel efficient will the new vessels(s) be?	The assumptions of fuel efficiency are prudent and conservative based on comparable vessels in the existing fleet. It is reasonably expected that the new vessels will meet or (more likely) exceed this standard.

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Will the new or replacement vessel have any impact on efficient use of labour?	Minimum crew levels for the vessels have yet to be determined and set by Transport Canada. Design requirements in the RFP focus on an efficient ship design with key safety systems in order to achieve a minimum crew size. BC Ferries will create a program to train the crews before ship deployment. The training costs form part of the project budget.
Adequately Responded ✓	Are the operating costs reasonable?	Operating costs for the new vessels appear to be reasonable as the NPV analysis prepared by BC Ferries is based on actual costs incurred to date for the MV Tachek and projected into the future. This vessel operates on a similar route, with similar crew compliments and similar engine technology and is therefore, considered the most suitable proxy for the expected costs to be incurred on the new minor class vessels. Furthermore, the engineering department was consulted to determine the anticipated refit and life extension costs to be incurred in the future for the new minor class vessels. All of these estimates used past cost data to project future anticipated costs. Based on the design and crew compliments of the proposed vessels, the assumption made on the operating costs appear to be reasonable.
Adequately Responded ✓	How do the operating costs compare with the vessel being replaced?	Labour, fuel, repairs and maintenance, and refit costs are all based on current operating costs incurred and expected to be incurred on the Tachek as it is the closest analogy for similar vessels. BC Ferries has indicated that refits are performed to a level that brings the vessels up to a “like new” status and therefore, costs to operate should be similar on any new vessels. It is expected that operating costs will be no worse than those incurred by the vessels to be replaced. This is due to the similarity of the technology employed in the vessels (fuel usage), route lengths, minimum safe operating crew requirements and past experience with maintenance costs, refitting, and life extending the current fleet of vessels. The company modeled the future anticipated costs of the new vessels as well as the costs to be incurred if the current vessels underwent life extensions. Under the life extend option, BC Ferries believes it to be highly likely that additional refit costs will be incurred despite the current vessel surveys that have been done. This is based on past experience that additional remedial work will need to be performed on the vessels which was not identified in the survey. This additional work is typically uncovered during the refit process and must be remedied as it is

Assessment	Questions	Observations and Reported Information from BC Ferries
		BC Ferries' intention to bring all life extended vessels back to as close to a like new state as possible and address all safety and all operational issues encountered.
Adequately Responded ✓	Is there any expected impact on revenue?	BC Ferries perceives there to be no expected impact on revenue. While traffic is expected to grow over time, the new minor class vessels are not anticipated to drive incremental traffic. Also, the nature of the routes does not lend to additional ancillary services.
Adequately Responded ✓	Will crew training and certification activities be in excess of that required to meet regulatory requirements? If so, explain the rationale for this approach and whether it will result in incremental operating costs.	No, crew training and certifications will be sufficient to meet regulatory requirements. Operational training will also be provided to meet service reliability goals.

Terminal (new or upgrades)

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Will the project contribute to flexibility and interoperability within the fleet?	Interoperability is a principal objective underlying BC Ferries vessel replacement strategy. Greater flexibility in scheduling realized through standardization as assets are better managed with similar capabilities. Standardization also enhances interoperability across variety of routes, lowering redeployment costs such as training, management effort, technical support and berth fits. Vessels will ideally operate effectively and efficiently on different routes in order to provide supplemental service during peak periods, refits and emergencies. Around 83% of respondents to the provincial government's 2012 consultation process were in agreement with standardizing vessels and docks to allow flexibility to switch ferries and crews between routes.
Adequately Responded ✓	Will there be any improvements to loading, unloading and turnarounds?	The Application does not explicitly address improvements to loading/unloading cycle times. However, in discussion it was noted that the proposed new ships are to be designed with sufficiently sized bulwarks and hydraulic spray barriers to address (and minimize to the extent possible) salt water ingress on the car deck.

Coastal Ferry Services Contract

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	Is the proposed capital expenditure consistent with the current requirements of the Coastal Ferry Services Contract?	BC Ferries asserts that to ensure continued ability to deliver safe, reliable and cost-effective service that meets the requirements of the Coastal Ferry Services Contract, the Company will need to replace (or life-extend) a further ten vessels over the next ten years. After reviewing the Coastal Ferry Services Contract, it is confirmed that the Project is consistent with the current Coastal Ferry Services Contract.

Long Term Vision for Coastal Ferry Services in British Columbia

Assessment	Questions	Observations and Reported Information from BC Ferries
Adequately Responded ✓	How does the proposed expenditure support the government approved long term vision for the future of coastal ferry services?	The Province envisions a coastal ferry system that is affordable, efficient and sustainable, while protecting basic services. The proposed capital expenditure supports the Province's vision in the move toward standardization improving its efficiency while protecting basic services for coastal communities for future generations. BC Ferries deemed these vessel replacements mandatory and necessary to continue safe and reliable operations within the 12-year Capital Plan. A placeholder in the Capital Plan has been reserved for these vessels since before the performance term four submission.

Appendix B - Public Comments Regarding Proposed New Vessels

Themes		Comments
Capacity of the Quinitsa	Overloads	- Decreasing capacity of the vessels should be reconsidered on a route that experiences frequent overloads. - Concerns of the replacement vessel's potential inability to cope with demand. - No major problem with the redeployment of the Quinitsa on route 6 apart from the problem of vehicular capacity - Route 6 is the top financial performer for all minor routes. Decreasing capacity may discourage business and cause traffic to divert to route 4 that already experiences a volume problem. - Mitigating by increasing the number of sailings seems reasonable. - The Quinitsa temporarily took over for the Howe Sound Queen due to mechanical issues prior to the summer of 2016. This caused many overloads and the Quinista was unable to meet demand for vehicle traffic. - BC Ferries' report includes population growth measures from 2015 to estimate the future population growth; Salt Spring Island experienced 5 to 6% traffic growth in the summer of 2016 causing many overloads. - Provide the flexibility to use a larger vessel during periods of heavy usage. - Maintain or increase capacity of the vessel. - Adding an additional sailing will not adequately accommodate the patterns of heavy tourist traffic in the summer months not to mention daily peak demands from those passengers going to and from work. - Historically, capacity utilization has been systematically and significantly underestimated. - Reducing the size of the ferry may increase the number of weather related cancelled passages.

Themes		Comments
	Time/Schedule	• Restore the sailings cut by the actions of the Ministry three years ago. • Many passengers use route 6 to commute to and from work and some responses state that they have to arrive at least an hour earlier of a sailing to try and catch the ferry due to overloads. • The 5:50 pm sailing from the Crofton terminal is invariably near full with the Howe Sound Queen with the next sailing at 7:40vpm leaving daily commuters arriving home much later. • A smaller capacity ship may increase delays.
	Population Growth	• Salt Spring Island is growing both in full-time population as well as summer visitors. • There was a 30% increase in visitors this past summer. • Increase in residential traffic due to a new residential housing complex is being built on the road to the Vesuvius terminal.
Amenities		• Value simplicity for smaller routes. • Include computer stalls and padded seats for students and workers to commute comfortably daily. • Enable the vessel on route 25 to continue to be able to accommodate loaded logging trucks and lowbed trucks hauling over width machinery.
Other Suggestions		• Suggest that the Quinitsa should be purely used as an interim ferry on Route 6. • Deploy cable ferries on a number of new and existing smaller coastal ferry routes instead of using the funding to build new vessels. BC Ferries can benefit from lower capital and operational costs as well as the opportunity of freeing up a vessel for service elsewhere. • Consult with the former BC Ferry Commissioner who is familiar with a cable ferry feasibility study • Implementing the “triangle route” wherein the Powell River – Comox ferry stops at Texada on each crossing.

Themes	Comments
Other Comments	• Recommend a very similar replacement for the North Island Princess. • Refit the current vessels as backup vessels instead of selling the retired vessels. • Build the ferries in BC to contribute to the local economy. • Developing electric ferries for all shorter runs will decrease fuel and maintenance costs. • Will the Quinitsa be replaced in the foreseeable future? • Create a more open dialogue with the residents of Salt Spring Island. • Due to the redeployment of the Quinitsa, more traffic congestion will occur on Vesuvius Bay Road on Salt Spring Island and on Chaplin Street in Crofton. Will there be any plans to enlarge the holding areas at both terminals to accommodate additional vehicle overloads?

Appendix C - Additional Comments from Richard Greenwood

REVIEW OF BC FERRIES APPLICATION Dated 31 January 2017

1. My initial remit asked me to consider the BC Ferries Application with regard to the following questions:
 - a) Are the proposed new vessels reasonably required, and is the decision to replace existing vessels reasonable based on the condition of the existing vessels and the options analysis?
 - b) Are the design characteristics of the proposed new vessels, including the propulsion and fuel system, appropriate and reasonable?
 - c) Are the assumptions used in the analysis of options reasonable?
 - d) Are the replacement vessels a prudent choice, i.e. a wise use of resources, not excessive, affordable to both build and operate?
2. My conclusions and observations are as follows:
 - a) I believe that the requirement for replacement is sound based on the surveyed condition of the existing vessels and the options analysis. I have noted particularly:
 - i. The past re-engine-ing and the limited life-extension of that approach;
 - ii. The intent for the new class to form the basis of (eventually) an 8-ship class; and
 - iii. The intent for BCFS to acquire the design rights as a basis for subsequent vessels (beyond the first two).
 - b) The proposed design characteristics of the new vessels are generally appropriate and reasonable. I note particularly the following:
 - i. The vehicle and passenger capacity is sized based on a reasonable projection of current system demands and forecast growth on three of the minor class routes (i.e., 6,18, & 25) but the available material does not present the capacity requirements and projections for the other minor vessel routes that would be served by the intended additional six members of this class;
 - ii. The vessel speed indicated is 1.5 knots over the maximum speed of vessels currently serving the routes considered for the minor class. In discussion with BC Ferries it was noted that this is intended as a service-life, fouling, and schedule-recovery margin – this is accepted as a prudent measure.
 - c) The assumptions used in the analysis are generally appropriate and reasonable. I note particularly the following:
 - i. The cost of fuel used in the application (p. 31, \$0.933/litre) and that used in the 3GA Power Conversion Task Report of 30 Sep 2016 (p.5, \$0.845/litre) do not match. This point was explained in meetings with the BC Ferries staff and will not materially impact the decision;
 - ii. The LNG payback period was noted to exceed 45 years (the proposed lifespan of the vessels) when the vessels being replaced are projected to end service at 10 and 16 years older than that;
 - iii. The 45-year NPV analysis of replacement vs extend options assumes in the case of the latter a replacement after a 10-year life extension. In discussion with BC Ferries it was noted that, due to the policy of ensuring integrated disposal of an operating asset (rather than being caught with a disposal liability), there was no value ascribed to vessels at end-life. This is a prudent and conservative assumption;

- iv. From a current date stand-point, the projected delivery date of Feb 2019 (per p. 17, 3 months before in-service date of May 2019) seems quite ambitious, as is the projected contract award date of February 2016 (p.41). Timeline risks are mentioned (p. 44), and as with past BC Ferries contracts, it is advisable to ensure procurement conditions include delay penalties;
 - v. On p.32, the application notes that the “cost estimate is considered quite conservative”. Given that the re-engine-ing is based on past experience re-engine-ing vessels that at their extended retirement dates are only the age at which these ones might be re-engined, and given the cost uncertainties of dealing with asbestos etc., it would seem to me that the extension cost estimates would risk being on the low side, rather than being ‘conservative’ in the sense of being on the safe side. This may be a question of syntax, and the detailed estimate may have added explicit margins to ensure that the estimate is indeed conservative in the sense indicated;
 - d) The proposed replacement vessels are considered a prudent choice for the initial two vessels intended. Additional comments on this conclusion are noted in the following paragraph.
3. My additional comments are related to the stated intent for this design to be the basis for an eventual class of 8 vessels, 2 to be built initially, 4 more in about 10 years, and 2 more thereafter. I have the following comments:
- a) In general, I support the points made in favour of commonality and standardization of the fleet in a small number of classes. However, the proposed/anticipated gap of ten years between the first two and follow-on members of the class suggests to me a potential risk of the design being based on current technology and pricing facts which are likely to be overtaken by technology developments over the next decade. I am thinking particularly here of developments in integrated electric propulsion and in energy storage which may substantially change the order of preference for the propulsion options considered. To be clear, this is not to suggest disagreement with the preference analysis at this date, but rather to suggest the unlikelihood of this analysis being reliable and unchanged over a ten-year period
 - b) Following from above, if the intent to establish a common class is firm, future analysis may be prudent to more explicitly address the potential for follow-on vessels to have significantly different main propulsion packages than the first two; and
 - c) Also related to the points above, is the suggested risk mitigation strategy (per p.43) of acquiring the ‘ultimate design rights’ to enable further competitive processes with a ‘tested design’. This statement buries a number of implicit assumptions, as a design can be considered ‘tested’ at a number of different levels. The ‘build to a proven design’ is a simple notion which cloaks a number of complexities, such as
 - i. whether all future build competitors will be willing to accept the design as ‘proven’ and hence accept contractual liability for performance;
 - ii. the unlikelihood of being able to ‘build to print’ in a shipyard other than the original design yard (or even in the original design yard, after 10 years);
 - iii. whether all legacy systems and equipment will still be available in a decade to enable the objective of commonality to be preserved; and
 - iv. accepting the three points above, and noting that between vessels 2 and 3 there is certain to be substantial change. Future consideration may be warranted as to whether the ultimate economical objective of commonality is best served by wedding oneself to a fixed hull-form and structure, or by rather defining the commonality objective in more functional, systems-oriented terms.

4. The comments in paragraph 3 were raised in discussion with BC Ferries, and the further points noted:
 - a) The notion of purchasing design rights is not necessarily to support a build-to-print concept for follow-on ships, but rather to protect the BC Ferries' intellectual property against potential competitors, and to permit its subsequent use (without restriction) in follow-on ships;
 - b) The design rights so-acquired could be used in subsequent builds on the basis of building vessels with selective identicality (i.e., selectively incorporating features that will have proven themselves in service; and
 - c) The build of subsequent vessels of the Minor Class in the future will be governed by new Applications at the appropriate time, which will then reassess the state of technology readiness of alternate propulsion plants.
5. With these clarifications of intent and commitment, the proposal to acquire design rights is accepted as prudent and reasonable.
6. Overall, the application seems a reasonable justification for the technical solution to the requirement to maintain the current level of service on Routes 18, 25, and 6. For reasons as noted above, further consideration may be advisable around the proposed solution for an extended class intended to be built over a period exceeding a decade.

R.W.GREENWOOD

P.ENG, C.ENG, FRINA, FSNAME

**Response by British Columbia Ferry Services Inc. (“BC Ferries” or the “Company”) to
Public Comments to the British Columbia Ferry Commission on B.C. Ferries’ Proposed New Minor Route Vessels
February 8, 2017**

#	Date	Comments
1.	4-Jan-17	Thank you for your notice of seeking approval for minor class vessels. Would the minor class vessels be anything like a smaller class of intermediate vessels? It appears from a customer's point of view that the intermediates are the most efficient and practical, the coastal class being more on the extravagant side.
<u><i>BC Ferries’ Comments:</i></u> <i>The new minor class vessel will be a relatively simple ship with basic amenities and ancillary services that are consistent with other routes served by vessels of this size. While the design of the vessel will be finalized after a shipyard has been selected, BC Ferries expects that the vessel will have a single vehicle deck with a passenger lounge arrangement that is accessible without a need for passenger elevators. Foot passenger access to the lounge(s) will be configured to interface with passenger walkways on BC Ferries’ standardized berths.</i> <i>BC Ferries is seeking input on the broad attributes of the new minor vessel in such areas as amenities, comfort, ride qualities, and accessibility. BC Ferries is planning at least two rounds of direct engagement with the public, the BC Ferry and Marine Workers’ Union (the “union”) and employees on the routes receiving, or closely affected by, the two new minor vessels. The first round occurred in fall 2016. The public, union and employees were invited to submit feedback at the meetings and via a dedicated e-mail address. The e-mail submission address (vesselreplacement@bcferries.com) will remain open and active through the end of the second round of engagement in 2017, expected to take place in .the summer of 2017 after a shipyard has been selected and preliminary design is available for discussion. The public, union and employees will have an opportunity to comment on such areas as lounge configuration, amenities, car deck arrangement, accessibility and tourism features. All comments will be considered as the design is finalized prior to the start of construction.</i> <i>In terms of overall efficiency, the vessel will be designed with a view to ensuring cost-effective operation. BC Ferries’ intent is to include key safety systems that will ensure high standards of customer and passenger safety, while minimizing crew size and labour costs. All systems on the ships will be designed for low energy consumption and cleanest practical environmental performance. The ships will be fitted with a diesel-electric hybrid propulsion system with stored energy (battery) capability installed to provide the ship’s service power. This configuration will cost-effectively and reliably enhance the vessels’ environmental performance and can yield a full electric solution in future when and where the infrastructure and business case warrants.</i>		

2.	7-Jan-17	Hi, I just read about the changes to the boat in the near future with regards to the Howe Sound (and with changes as well to the Long Harbour route) and would like to say that I am not sure how well thought out this plan is. It can be a challenge to get on and off the island, in particular during holidays, or throughout the late spring – fall months. Replacing the Howe Sound Queen with a boat that takes almost half the amount of cars seems like a horrible idea. Please reconsider. Thank you kindly,
<u><i>BC Ferries' Comments:</i></u> <i>BC Ferries believes that the Quinitsa is a suitable vessel to meet the service requirements of the route now and into the future.</i> <i>Key considerations in the decision to redeploy the Quinitsa to route 6 include the following :</i> • <i>The service level requirements of the Coastal Ferry Services Contract ("CFSC") between the Province and BC Ferries, will continue to be met. Specifically:</i> ○ <i>the Quinitsa is capable of carrying the previous year's traffic operating on the same schedule as the Howe Sound Queen and, therefore, meets the capacity requirements of the CFSC;</i> ○ <i>the Quinitsa is capable of executing the same schedule and, therefore, meets the requirements of the CFSC in regard to hours of operation, sailing frequency and number of round trips.</i> • <i>The need to construct a new vessel, which would cost in the order of \$45 million, is avoided.</i> • <i>Fleet utilization rates will be improved without significantly impacting the ability of route 6 customers to travel on the sailing of their choice. BC Ferries believes that the sailing choices of route 6 customers are improved with this deployment.</i> <i>BC Ferries acknowledges that the Quinitsa is a smaller vessel than the Howe Sound Queen. When originally built, the Howe Sound Queen was classified as having a vehicle capacity of 70 automobile equivalents ("AEQ") based on the standard unit of measurement for an AEQ formerly used by BC Ferries of 2.6 metres by 5.34 metres. In recent years, physical modifications to the vessel resulted in the actual capacity of the vessel being reduced to 61 AEQ (based on the former AEQ measurement), although a higher measurement</i>		

continued to be reflected in certain reports and decisions until quite recently.

Effective for fiscal 2017, the standard unit of measurement for an AEQ applicable to all vessels in BC Ferries' fleet was revised to 2.6 metres by 6.1 metres. Based on this new measure, the stated vehicle capacity of the Howe Sound Queen was changed to 52 AEQ. For comparison, the stated vehicle capacity of the Quinitsa under the former measure was 50 AEQ and under the new measure it is 44 AEQ. The difference in size between the Quinitsa and Howe Sound Queen was 9 AEQ under the former measure and is 8 AEQ under the current measure (see table below).

	<i>Vehicle Capacity</i>	
	<i>Using former AEQ Measure (2.6 metres x 5.34 metres)</i>	<i>Using current AEQ Measure (2.6 metres x 6.1 metres)</i>
<i>Quinitsa</i>	<i>50 AEQ</i>	<i>44 AEQ</i>
<i>Howe Sound Queen</i>	<i>61 AEQ</i>	<i>52 AEQ</i>
<i>Difference</i>	<i>9 AEQ</i>	<i>8 AEQ</i>

BC Ferries understands the smaller size of the Quinitsa is a concern to customers. BC Ferries notes that the capacity utilization on route 6 was in the order of 40 percent in fiscal 2016 (about 38 percent in fiscal 2015), so there is some inherent capacity available. However, BC Ferries understands the concern at peak travel times, in particular, and plans to partially offset the smaller capacity of the Quinitsa by adding one round trip per day above the existing schedule. In addition:

- Faster loading and better on-time performance (see rationale below) will allow a more reliable and consistent service.*
- Smaller, more frequent sailings will provide more travel choice for customers. Over time customers will be able to spread their travel across a larger number of sailings.*
- Smaller, more frequent sailings will reduce negative traffic congestion impacts on terminal neighbours and island roadways.*
- Vessel utilization, while increasing, still leaves a considerable latent capacity in the system.*

BC Ferries believes that the Quinitsa will result in better service on route 6 for the following reasons:

- The Quinitsa has higher deadweight handling capability, resulting in fewer short-loaded sailings and therefore more reliable service for commercial and other customers. Although BC Ferries does not track short loaded sailings, anecdotally it is a*

frequent occurrence for the Howe Sound Queen. Short loading leaves traffic in the terminal and contributes to vessel overloads, which have negative impacts on customers and terminal neighbours and island roadways due to traffic congestion.

The Quinitsa does not short load due to her higher weight carrying capability. Any overloading resulting from the Quinitsa's smaller size will be partially offset by elimination of "short loading induced" overloads.

Route 6 carries a large amount of commercial traffic to the island on weekday mornings and off-island weekday afternoons. Eliminating short loading will release inaccessible deck space for all traffic.

- *Route 6 on-time performance with the Howe Sound Queen was 91.8 percent in fiscal 2016 which compares favorably with the minor route on-time performance average of 92.6 percent. Route 6 on-time performance can be expected to improve with the Quinitsa for the following reasons.*
 - *The Quinitsa's open car deck is faster and more efficient to load. Ease of loading the car deck is one of the prime determinants of on-time-performance. The Howe Sound Queen's reduced on-time performance in heavy traffic periods is partially caused by slow loading due to its configuration.*
 - *The smaller capacity of Quinitsa also makes it inherently faster to load. Round trip time may be reduced, contributing to higher on-time performance. Assuming no schedule changes, faster loading will introduce some amount of "lay time" into the schedule.*
- *The Quinitsa has more modern machinery and greater mechanical redundancy (four propulsion systems versus two) than the Howe Sound Queen. This will contribute to reliable operation. Operating on the Denman Island to Buckley Bay route (route 21), the Quinitsa had the highest reliability in the fleet for many years, often 100 percent (i.e. no sailing cancellations).*
- *The Quinitsa has four main car deck lounges and washrooms, improving comfort and accessibility for travelers. These lounges are better suited to short runs like route 6 than the overhead type lounge found on the Howe Sound Queen.*
- *The Quinitsa's sea keeping and maneuvering characteristics are well suited to conditions on route 6.*

3.	7-Jan-17	Hello, In response to a recent newspaper add in the Powell River Peak, I would like to provide feedback on vessel replacement as was called for. The vessels to be replaced were the North Island Princess and Howe Sound Queen. My input is simple and I believe resonates with all ferry users: -Make the vessels simple, our ferries, especially those for short routs do not need over the top gift shops, cafeterias or guest services. They also do not need fancy badging and murals, I point to the new Salish Orcas graphics as an example. Contrast that with a relatively new Washington State ferry such as the Samish and the unnecessary cost becomes clear. Those of us that live and work on the west coast don't need whales painted on the side of a ferry, we can see them from out windows at work and home. -Build the ferries in BC! An overall cost-benefit analysis has to show that any savings would be greatly over shadowed by the contribution to the local economy. In addition to tangible fiscal benefits other things such as building up our pool of people are can take on further work from outside the province and the pride we can take in having it built here! As I said in my opening, simple input.
<u>BC Ferries' Comments:</u> <i>Please refer to the response to Comment #1 regarding the design and amenities of the vessel.</i> <i>In response to the comment about the jurisdiction within which the vessel will be built, BC Ferries' notes that it conducts an extensive procurement process before awarding a contract to build a vessel in order to ensure that the best proposal is obtained for the Company's customers and the taxpayers of British Columbia. BC Ferries welcomes the participation of local shipyards in the process.</i> <i>The procurement process for the two minor class vessels included the issuance of a request for expressions of interest for the design and construction of the vessels to leading shipyards in British Columbia, Canada and around the world. Responses were received from 28 shipyards, and of those, 12 shipyards, including one British Columbian yard, were short-listed to proceed to the request for proposals stage. Proposals were received from four international shipyards. As the local shipyard chose not to submit a proposal, the option of building the vessels in British Columbia is not available to BC Ferries.</i>		

BC Ferries plans to build more vessels in the coming years to replace its aged fleet, and will continue to ensure local shipyards are given the opportunity to participate in the procurement process for those vessels. BC Ferries spends millions of dollars per year at local shipyards on refits, repairs, mid-life upgrades and life extension projects for its vessels. BC Ferries is fully committed to the shipbuilding and repair industry in British Columbia.

4.	8-Jan-17	Dear sirs Can you confirm the car carrying capacity of the Howe Sound Queen @ 70 vs the proposed replacement vessel Quinetsa @ 50? I find this change to be unreasonable, unprudent and not consistent with "The Contract" for the following reason. With Howe Sound Queen there are frequent overloads. With Quinetsa at much smaller car carrying capacity there will be eternal overloads. Please revisit this proposal. Salt Spring Island
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BC Ferries' Comments:

Please refer to the response to Comment #2.

5.	8-Jan-17	I would like to comment on the replacement of the North Island Princess on the Texada to Powell River run. I must say I expected the new Salish Orca to be stopping on Texada and making a kind of triangular run but it sounds like that is not the case. At any rate, upon replacing the NIP, I suggest making the new boat very similar to the current one as it has been an excellent seaworthy vessel and I feel a ship just like her but with all modern technology, would be perfect. Keeping in mind that students and workers commute daily, some computer stalls would be welcome, as well as padded seats. Currently there are no padded seats on the NIP whatsoever. Please consider building another NIP! She will be missed Resident of both Powell River and Texada Island and frequent commuter.
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[BC Ferries' Comments:](#)

Please refer to the response to Comment #2.

6.	8-Jan-17	Dear Sirs/Madam, I write with regards to the proposal to downsize the current vessel, for the above route, utilizing MV Quinitsa. From my observations as a regular commuter between Salt Spring and Vancouver Island, I would respectfully suggest that on many sailings the replacement vessel would simply be unable to cope with the demand and therefore would be oversubscribed. Also late comers would readily find their sailing to be full well before the sailing time. On a personal level, I often return from my clinic to the Crofton terminal at 5.45. This particular sailing at 5.50 is almost invariably near full with the current vessel the MV Howe Sound Queen. I would therefore be regularly enforced, depending upon vehicle numbers ahead of me, to wait until the much later sailing at 7.40pm. I would appreciate your comments in response.
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[BC Ferries' Comments:](#)

Please refer to the response to Comment #2.

7.	9-Jan-17	I am writing to express concern over the proposal to replace the Howe Sound Queen with the Quinetsa on route 6. I can readily understand why this proposal is attractive to BC Ferries as it offers a convenient spot to place a vessel that would be hard to place elsewhere -- efficient use of resources. My concern is that on a route where traffic is growing and where during the busy months the current vessel is very often many minutes off schedule , the move to a smaller vessel may simply compound problems. From my reading of the annual reports route 6 looks awfully good. Am I correct in saying that it has the top financial performance of all the minor routes ? It would be folly to discourage traffic on 6 and in doing so lose business or perhaps divert traffic to 4 where we already have a volume problem.
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		It is likely that for a significant portion of the year the Quinetsa could serve route 6 adequately but what happens " in season " ? If the service plan developed had the flexibility to provide a larger vessel during periods of heavy usage , all could be well. I travelled from Crofton to Vesuvius on the second day of operation of what is now route 6 on Nov. 11, 1955. The service took the place of the launches and small barges that had provided the connection since the early days in the settlement of Salt Spring. The service proved popular and continued to grow. During the 70s the Board of BC Ferries made an ill considered attempt to get the government to terminate route 6 but we managed to head that one off. In summary, this connection has been in place for a very long time providing a vital service on a very efficient basis and it needs to be treated with respect.
<u>BC Ferries' Comments:</u> <i>Please refer to the response to Comment #2</i>		
8.	9-Jan-17	Replacing the Howe Sound Queen (capacity of 70 Vehicles) with the smaller (71% of the size) Quinitsa is bad for Salt Spring Island. You are already reducing capacity on the LH – TSA run with a vessel 70% of the size. Now you are doing this to the connection to mid-Vancouver Island as well. Meanwhile Salt Spring is growing both in full-time population as well as in the number of summer visitors. This past summer saw a 30% increase in visitors to the island and yet you are set on reducing capacity on 2 of the connections by 30% each. This is backwards. You need to increase capacity instead. Please do not reduce the capacity of the Vesuvius – Crofton run!
<u>BC Ferries' Comments:</u> <i>Please refer to the response to Comment #2</i>		
9.	12-Jan-17	Sir Rather than selling our retired ferries at an enormous loss, I believe we should suck up a small loss at our own expense and refit these ferries as backup vessels. No excuses, just do it. I do understand why it has not been done in the past but leaving your clients out in the cold is not acceptable either and frankly, in the past year, BC

		Ferries' record sucks when it comes to dependability. Quadra Island
<u>BC Ferries' Comments:</u> <i>When ferries are considered for retirement, BC Ferries reviews all existing and future route requirements to determine if the vessel can be re-used immediately or in the near future. If the vessel is declared surplus, it is then offered for sale in the open market or for disposal, as appropriate. Retaining used vessels in a standby state, just in case another vessel is temporarily out of service, is very costly in terms of: maintenance, both regulatory and safety systems, moorage, security, and in maintaining necessary crew to sail the vessel if and when it is needed. For these reasons it is not practical or cost efficient to maintain surplus vessels in the fleet as backup or emergency relief.</i>		
10.	14-Jan-17	Greetings A. REPLACING HOWE SOUND QUEEN WITH QUINISTA On the face of it, replacing the Howe Sound Queen with the Quinista does not matter one iota as long as you increase the frequency of ferry Trips due to the smaller capacity. However, I ask about two items: 1. Passenger comfort. I hope the standards are not as bad as they are on the Swartz Bay/Fulford route. You advertise the views but Only one glimpse on one side of the ship is possible. The seats are extremely uncomfortable. It is good to have a few separations Of cabins but this Fulford bound ferry overdoes it. People wander all over looking for the washrooms that are appropriate 2. Difficult to comment without a video of the ship and it's contents from a passenger point of view. How old is ship? No info. Given!!! 3. I can never understand why the very best ships are put on the runs to Saturna and the outer Islands when there are so few people Living there during most of the year! Salt Spring is often left with ships that are far from deluxe or schedules are lousy for

		Our Island patrons....or there is no bus connections to ship at Tsawwassen. I have noticed during the winter that some of The outer Island ships run with only one or two cars during the winter!! This brings down the profitability of all the Gulf Island services when added together. Surely, winter trips to Salt Spring could make the Islands more usable and customer friendly and boost the ferry usages. B A GREATER CONSIDERATIONJOINT STUDY OF FERRY VERSUS HIGHWAY USAGE FOR COWICHAN VALLEY It is interesting that while the Gulf Island Driftwood has had a couple of surveys of whether people would like ferries or a bridge between Salt Spring and south of Crofton. The overwhelming answer has been yes. Neither Dept. should look to the Trust because this organization Is run by the Outer Islands which show no interest in Salt Spring when it comes to the way we live. Instead there is a need for a study: Considerations of study 1. Cost of a floating bridge. One waits for an average of half an hour for ferries now. So stopping while a yacht passes by would not be a hardship A floating bridge over an area south of Crofton where it narrows would be simplistic, inexpensive and certainly less cost than the replacement Of the Quinista in the future. 2. A bridge would bring ferry service for all of the Cowichan Valley closer if spring, winter, fall thru tickets were issued for bridge tolls and Long Harbour ferry For Cowichan residents. It would make even winter service pay for the second ship which could run direct runs frequently between Long Harbour And Tsawwassen. 3. Take traffic off busy Island Highway.....every bit helps.
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		4. Could make a full service hospital closer to Islands and available to all Islands saving untold dollars and significantly improving care while Lowering costs for frequent air ambulance use. Also, there is a shortage of parking at Long Harbour so shopping in Duncan would be an alternative to going to Vancouver when there is often No place to park even after recent terminal upgrading!!!!
<u>BC Ferries' Comments:</u> <i>In response to the comments on the design and amenities of the vessel, please refer to the response to Comment #1.</i> <i>In response to the comments on pursuing a fixed link alternative to ferry services, BC Ferries suggests that this is a public policy matter for the consideration of the provincial government.</i>		
11.	17-Jan-17	Dear Commissioner, I am writing in concern of the recent announcement of BC Ferries Services putting in a request to go forward with building 2 new minor vessels for its fleet. My concern is with the size of a smaller vessel planned for route 6 on Salt Spring Island. BCF is advising that it would take the Quinitsa vessel of 44 car capacity and place it on route 6 replacing the aging Howe Sound Queen vessel of 52 car capacity. In 2016, prior to the busy summer traffic, the Quinitsa took over for the Howe Sound Queen for mechanical issues. During this period there were many overloads as the Quinitsa was unable to meet demand for vehicle traffic, again, this was prior to the busy summer traffic and is a good example of how inadequate this smaller vessel would be on this run on a regular basis and during peak season traffic. We are told in the report to the commissioner that the Quinitsa will be a faster loading ferry, though overloads always take longer to load and delay sailings as the crew take more time to get as many vehicles onboard as possible, leaving passengers with an unreliable ferry service/schedule. This summer the Howe Sound Queen sailed late almost every day due to heavy traffic and overloads, some days getting so behind they would cancel runs altogether to get back on schedule. This is a heavy commuter run and left commuters going to work etc., unsure of when they would arrive in Crofton, sometimes having to leave on an earlier ferry than usual to be able to count on getting to their destination on time. In the report BCF chooses to quote an

		article from 2015 suggesting the islands future population growth to only be 0.37-0.62, when the summer of 2016 seen BCF traffic on Salt Spring Island up 5-6% with many overloads all summer long on route 6 including weekday runs. During the times of overloads, cars were lined up out of the holding compound out onto the street, sometimes up to a couple blocks long. The end result leaving the only option for vehicle access into Vesuvius to go into head on traffic as the single road in was blocked with cars lined up for the ferry to Crofton. Recently, the old Vesuvius pub property which has been closed for 10 plus years has sold. There is a new residential housing complex being built there. The only way for new owners to access their homes will be through this one road into Vesuvius and past the ferry terminal. This new development will have more vehicle traffic coming in and out of Vesuvius during all times of day. Vessel overloads make access into Vesuvius an unsafe practise as owners trying to get to their homes will be forced to go down the opposite side of the road into oncoming traffic. With the new smaller Salish class ferry planned for route 9 in 2016 this will force yet more traffic onto routes 4 and 6 for people trying to leave the island and unable to through route 9 when it is fully booked. The 2 new minor vessels are planned to be added to routes that will carry more that their current vehicle capacity. Route 6 would receive their smaller ferry at a time when vehicle traffic is going up, a smaller vessel is going to route 9, pushing more traffic to routes 4 and 6 in the very near future, and the larger capacity Howe Sound Queen grossly unable to keep up with the summer demand. With BCF still trending towards smaller vessels for Salt Spring Island the future ferry travel on and off of the island will reach a breaking point quickly and leave much uncertainty for its passengers. I do not believe a smaller vessel for route 6 is the answer and is short sighted considering these above issues. More consideration is needed of placing a smaller ferry on route 6 to avoid safety issues, constant overloads and an unreliable ferry schedule due to overloads from a smaller vessel on this route and route 9.
<i>BC Ferries' Comments:</i> <i>Please refer to the response to Comment #2.</i>		
12.	17-Jan-17	Re : Proposal to replace the Howe Sound Queen with the Quinitsa (Route 6) I am writing in support of the proposal to replace the Howe Sound Queen with a slightly smaller ferry. We are SSI residents and use the BC Ferries on average once a week . Yes, a slightly smaller ferry might mean an overload at peak times but the Vesuvius to Crofton crossing is much shorter than Fulford to Swartz Bay which

		means more frequent trips. We are pleased that an additional trip is being considered. In a perfect world the Howe Sound Queen would be replaced with a ferry of equal or better capacity but the plans for replacement as announced seem reasonable to us. The commission must have studied the numbers (data) and feel the Quintsa will be an adequate replacement . One more point : The cost of operating the BC Ferry fleet (excluding capital replacement) we believe should be borne by the users. However, the Capital Costs should be borne by the Province as a whole.....not by the users as is the case now. There is unfairness in the present accounting and as a result the ferry fares are becoming more onerous every year. A great pity. Premier WAC Bennett believed that BC Ferries were an extension of the BC Highways which is not a view taken by Premiers since his tenure. Again, this has caused a significant financial hardship on Ferry riders . This matter is probably beyond the mandate of the BC Ferry Commissioners but still we think the funding formula for the BC Ferries should be reviewed.
<u><i>BC Ferries' Comments:</i></u> <i>With respect to the comments on vessel capacity, please refer to the response to Comment #2.</i> <i>With respect to the suggestion that the provincial government fully fund the capital costs of acquiring the minor class vessels, BC Ferries suggests that this is a public policy matter for the consideration of the provincial government. BC Ferries notes, however, that it has made application for federal funding support for the acquisition of the two minor class vessels under the New Building Canada Fund and, should that be successful, it will have a positive effect in terms of lessening the upward pressure on fares.</i>		
13.	18-Jan-17	Hello, I am commenting on the upcoming replacement of the Vesuvius to Crofton ferry. I think a strong case can be made for going electric on all the shorter runs. I have been researching the electric ferry that was put into service in Norway in 2015. Looks like it has been very successful, and projected cost savings in fuel and maintenance is on the order of 60%!

		Ship owner Norled operates on the ferry link across Sognefjord between Lavik and Oppedal, Norway. The fully electric ferry travels six kilometers across the fjord 34 times a day, with each trip taking around 20 minutes. Capacity for 360 passengers and 120 vehicles. Norwegian ship owner Norled has reduced the cost of fuel by 60 percent. A company in Norway studied electric ferries: The main findings of the survey are very encouraging showing that Norway can greatly reduce emissions via their fleet of ferries: 84 ferries suitable for all-electric operation 43 ferries suitable for hybrid technology The total cost is 3.5 billion (including infrastructure and charging solutions), but the savings will be 700 MILLION PER YEAR. Additional investments by electric power will thus be repaid within 5 years because of lower costs for fuel and maintenance (life of a ferry is 30-40 years). The measure would reduce CO2 emissions by 300,000 tons a year . It corresponds to a large Norwegian industrial company, or 150,000 cars. No time like the present to do something right, and save money at the same time. Salt Spring Island
<u>BC Ferries' Comments:</u> <i>BC Ferries actively investigates new technologies for possible application to its fleet. The Company is aware of the advances in electric propulsion technology, and is encouraged about the possibility of someday moving to "all-electric" propulsion systems for some of its routes when the appropriate shore-based charging infrastructure is in place. In the meantime, the proposed minor class vessels will incorporate a diesel electric hybrid main propulsion system that will include battery storage, discharge and charging capabilities, with the capability for all-electric operation if and when the appropriate shore-based charging infrastructure is in place. The stored energy alternative for the minor class vessels is based on BC Ferries' experience with the Tachek which, since 2014, has employed a hybrid system involving diesel propulsion and batteries to provide the ship's service power.</i>		
14.	18-Jan-17	I am writing to make a few comments on the plan by B.C. Ferries to replace the Howe Sound Queen with the Quinitsa. This may be a good plan for B.C. Ferries because of the economics of it, but for the citizens of Salt

		Spring it is totally unacceptable. According to the information on the B.C. Ferries website, this is a reduction in car capacity of almost 1/3, (70 to 50 vehicles). At present there are times where cars are left behind and replacing the Howe Sound Queen with a smaller vessel, makes the situation far worse. The article in the Gulf Islands Driftwood is confusing, as it also refers to an assessment report and the cost to perform life extension measures to the two ships costing \$235 million compared to replacement costs of \$236.2 million. Does the plan to substitute the Quinitsa mean there would be no proper replacement in the foreseeable future? As a Crown Corporation providing this public service, I believe the residents of Salt Spring deserve a more responsible plan, and more open dialogue. Giving residents three weeks to provide written comments is unacceptable. A lot of school children, trades people and patients visiting the hospital in Duncan, families taking their children to sporting events, and tourists contributing to our economy, count on this ferry and will be affected by this plan. I know if B.C. Ferries proceeds with this plan, as date of replacement draws nearer, there will be quite an outcry from the citizens of Salt Spring. On a different issue: How are the fares arrived at on the various smaller routes? As I understood it had a lot to do with distances traveled? This appears to be incorrect as on reviewing three routes covering virtually the same distances I discovered very different fares. The following ferries travel approximately three miles according to B.C. Ferries: <table><tr><td>Nanaimo to Gabriola</td><td>\$26.95 Vehicle charge</td></tr><tr><td>Horseshoe Bay to Bowen Island</td><td>\$34.85 Vehicle charge</td></tr><tr><td>Crofton to Vesuvius</td><td>\$36.90 Vehicle charge</td></tr></table> Why is Crofton to Vesuvius the most expensive with comparable distance in fact shortest. I would appreciate your response.	Nanaimo to Gabriola	\$26.95 Vehicle charge	Horseshoe Bay to Bowen Island	\$34.85 Vehicle charge	Crofton to Vesuvius	\$36.90 Vehicle charge
Nanaimo to Gabriola	\$26.95 Vehicle charge							
Horseshoe Bay to Bowen Island	\$34.85 Vehicle charge							
Crofton to Vesuvius	\$36.90 Vehicle charge							
<u>BC Ferries' Comments:</u> <i>The tariff on which today's pricing has evolved from was set many years ago prior to BC Ferries' transformation in 2003 from a Crown Corporation into a company, regulated by the British Columbia Ferries Commissioner; the pricing was not based on distance. Since 2003, BC Ferries has applied the same annual pricing adjustments to all minor routes, for consistency.</i>								

15.	19-Jan-17	It has come to my attention that the current ferry on Route 6 (Vesuvius-Cerofton) will be replaced by another older ferry, the Quinetsa, with less capacity than the current Howe Sound Queen. The Howe Sound Queen is frequently over capacity. There are several larger developments planned for North Salt Spring and the population is expected to increase. Tourism is rapidly growing in the region. All these facts point at the need for a faster ferry connection with higher capacity. I find it hard to understand why BC Ferry is planning to replace one old inefficient ferry with another one and reduce capacity at the same time. This does not appear to be cost effective in the long run. I kindly ask you to, at the very least, maintain current capacity when frankly both frequency, capacity and speed of crossing should be improved.
<i>BC Ferries' Comments:</i> <i>Please refer to the response to Comment #2.</i>		
16.	24-Jan-17	I am writing to formally register my complaint with the proposal to replace the current vessel on the Route 6 Vesuvius/Crofton run with the Quinetsa, which only has a 44 car capacity. I live on Salt Spring Island, and my life is bracketed by the ferry schedule. It is already stressful enough to try to get to the terminal early enough to get on the Howe Sound Queen, the Quinetsa will be a greater hardship. Currently, it's difficult to enjoy visits to my children off island when I need to rush off to get the ferry home because I'm worried I'm not going to get on the sailing, in the summer, with the tourists, it's a nightmare. I have to arrive at least an hour ahead of a sailing to try to get on the ferry because of overloads. I can't imagine what it'll be like with the smaller vessel. We also have a growing population on Salt Spring Island and with few jobs on the island, we have people who need commute to work on that vessel. Why reduce capacity when we will need be able to accommodate these workers? Replacing our ferries with smaller ferries and reducing the sailings?!? This is not what I want my tax dollars supporting. Please serve the communities you are supposed to be serving.

BC Ferries' Comments:

Please refer to the response to Comment #2.

17.	25-Jan-17	Dear Commissioners, As permanent residents of Texada Island, we are writing to strongly urge the Commission to consider implementing the so-called 'triangle route' wherein the Powell River - Comox ferry stops at Texada on the way by on each crossing. I realize that the potential for ridership is presently fairly limited, but the additional cost for this service is also small, given the proximity of Blubber Bay terminal on Texada to the Comox ferry's established route. It is our understanding that this terminal has already been upgraded to accommodate the new Comox ferry, though we may be misinformed. With continued pressure on housing prices in the Comox Valley area, and the relative bargains to be found on Texada, we can't help but think that increased access to Texada would open new, affordable markets for retirees like ourselves. While this route change would offer only limited sailings per day, compared to the present schedule, the remaining sailings could be in-filled with a much smaller vessel. We believe that it is part of the Ferry Corporation's mandate to encourage travel and increase access to the whole of B.C.'s coast. Build it and they will come! Thank you for your consideration.
<u>BC Ferries' Comments:</u> <i>This topic is frequently discussed with the regional Ferry Advisory Committee. The committee process includes a method for residents and customers to request changes to their ferry service. The residents have discussed the triangle service with BC Ferries but as yet have not submitted a formal request. We have advised residents and customers that BC Ferries is ready to consider such a request if and when it is formally made. In the meantime, BC Ferries continues to engage and support the discussion.</i>		
18.	26-Jan-17	This letter is in response to the request for public feedback regarding the proposed new ferry that will service route 25 (Port McNeill, Sointula, Alert Bay).

		As long term residents of Malcolm Island, and long term Forest Industry business owners, we believe it is important that the new ferry to be able to accommodate loaded logging trucks, and also lowbed trucks hauling over width machinery. The present ferry, Quadra Queen 2, has been good for this purpose.
<u><i>BC Ferries' Comments:</i></u> <i>The minor class vessel is designed to accommodate all provincially regulated road legal vehicles, including loaded logging trucks and low-bed trucks with over width loads.</i>		
19.	29-Jan-17	Dear Sir/Madam, Re: proposed changes to Route 6 (Vesuvius-Crofton) 1. Your proposal to put the Quinitsa on this route instead of the Howe Sound Queen, even with one more round trip sailing per day, will not address the overload issues that occur. In fact the route will lose capacity and there will be more overloads. This is especially true during high season, but is also the case during most late afternoon sailings year round. Therefore, it would be useful to have a higher capacity vessel (or to have two vessels running simultaneously, although I realize that this would not be as cost effective) on Route 6 at least during high season. 2. Secondly, having the Quinitsa on Route 6 also will cause more traffic congestion on Vesuvius Bay Road on SSI and on Chaplin St in Crofton. Do you have plans to enlarge the holding areas at both the Vesuvius and Crofton terminals in order to accommodate these additional vehicle overloads? Thank you for the opportunity to comment on this matter. Salt Spring Island

BC Ferries' Comments:

Please refer to the response to Comment #2. No changes are planned to the size of the holding areas at the Vesuvius and Crofton terminals.

20.	29-Jan-17	The attachment is Strait Solutions' submission to the BC Ferry Commission regarding BC Ferries' new ship building program. Thank you for considering it. I write in response to your recent request for public input regarding BC Ferries' plan to build several new conventional ships. My company Strait Solutions Ltd. (StraitS), initiated and introduced the concept of using cable ferries to BC Ferries for their saltwater routes and later, under an MoU with BC Ferries, demonstrated their feasibility for the Denman and Hornby Island routes. I remain convinced that cable ferries should be seriously investigated and deployed on a number of new and existing coastal ferry routes before BC Ferries builds new ships, accumulates further debt and passes those costs on to ferry users and taxpayers. I am concerned that BC Ferries may not make use of cable ferry technology for other routes and fear that the potential of using cable ferries will be squandered when further capital is sunk into building conventional ships and upgrading their existing terminals. A recent public statement is revealing; "BC Ferries wants to be on the leading edge of innovation - not the bleeding edge." However, the Denman Island cable ferry has successfully demonstrated their utility for BC Ferries' saltwater routes. To the cost savings due to lower capital and operational costs of the new ferry, estimated at NPV \$20 million, can be added the \$20 - 25 million value of the Quinitsa which has been liberated to serve another route and allowed the corporation to avoid the cost of building a new ship to replace an aging vessel there. That brings StraitS' estimate of the total monetary benefit of one conversion to a cable ferry to NPV \$40 - 50 million. Similar benefits of freeing up ships for service elsewhere would likely apply wherever conversions of BC Ferries' routes to cable ferries can occur. Those are some of the reasons why StraitS remains committed to the prospect of converting a number of other BC Ferries saltwater routes to cable ferries. In addition, StraitS has driven three advancements in cable ferry technology of which the Ferry Commission should be aware. 1. A feasibility study to convert an existing BC Ferries' route to a cable ferry that has not been made public. The study shows substantial cost savings as well as dramatic service improvements. 2. StraitS' proprietary technology that will allow cable ferries to be used in applications that exceed the distance limit that conventional wisdom has established for cable ferry routes. It is a game changer. 3. StraitS' patent for technology for using electricity stored mechanically in flywheels to power cable ferries that will provide lower operational costs, zero emissions and several other advantages.
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		The Ferry Commission can obtain further substantiation of these developments by the following methods. 1. Consult the former BC Ferry Commissioner, Martin Crilly, who is familiar with StraitS' unpublished study and is inspired by its findings to the extent that he has urged me to release it and offered to corroborate its' potential publically. Mr. Crilly can corroborate that this study raises the possibility of substantial cost savings and service improvements on at least one more route. 2. Submit StraitS' intellectual property to a qualified, credible, third party engineering firm(s) in order for them to investigate the feasibility and share their conclusions with the Ferry Commission. It is a matter of record that significant savings resulted from the adoption of StraitS' 2006 unsolicited proposal. We are providing strong evidence to support a prompt review of using cable ferries wherever possible. If BC Ferries borrows the money for building these new ships coastal communities will be locked into paying for the long term debt with no foreseeable way out. It is an urgent matter to coastal communities and the province that requires the tools, mandate and leadership of your office. I appreciate the opportunity to provide my comments
<u>BC Ferries' Comments:</u> <i>BC Ferries routinely considers all types and modes of ferries when replacement of assets, or new assets, are undertaken. The entire BC Ferries system was examined for the potential adoption of cable ferries, among other forms of ferries. The only current route that proved feasible for a cable ferry is the route connecting Denman Island to Buckley Bay (route 21) where BC Ferries operates its sole cable ferry, the Baynes Sound Connector. This reflects the technology available, adoption to the route in question and the relative reliability and risk factors in adoption. On this basis, there are no other plans for additional cable ferries in the BC Ferries fleet at this time or in the near future.</i>		
21.	30-Jan-17	To: Office of the BC Ferries Commissioner Dear Commissioner: I write to comment on BCFS current application under section 55 of the Coastal Ferry Act: some points made in Strait Solutions Ltd's letter, sent to you on 29th January 2017 and copied to me, warrant corroborating and amplifying. Strait Solutions Ltd originated the notion of saltwater cable ferries in BC during my term as BC Ferries Commissioner. They brought it to the attention of BCFS, who went on to launch the Baynes Sound Connector last year. In recalling pre-feasibility studies seen a decade ago, I believe there may be a solid case on a second BCFS route

		for conversion from propeller-driven to cable-driven operations, leading to lower-than-otherwise future price caps and/or service fees. As in Baynes Sound, this second conversion could be practical from an engineering and economic standpoint, showing worthwhile cost-effectiveness to meet or better the service requirements of the current Coastal Ferry Service Contract. Existing vessel capacity would be freed for redeployment elsewhere in BCFS' system. Unlike the Baynes Sound circumstance, service quality in terms of the route's convenience of use could inherently and markedly improve compared with today. Also, this particular conversion would require especially close collaboration with the Ministry of Transportation and Infrastructure. Because of concerns about confidentiality of information, I do not wish to identify the location of this second route. I respectfully suggest that the office of the commissioner is positioned to foster an authoritative investigation of this opportunity. Absent an effort to acquire further knowledge here, BCFS' current proposal for major expenditures on new vessels might be considered not as reasonable and prudent as it should be.
<i>BC Ferries' has no comments.</i>		
22.	30-Jan-17	Please find attached a letter which I would like to submit to the BC Ferries Commission when considering the request to replace the vessel on Route 6. This letter outlines some substantial concerns I have with this plan, which I invite the Commission to consider. I am a full-time resident of Salt Spring Island and frequently travel this route. I write to express my profound concern about BC Ferries' request to replace the Howe Sound Queen with the Quinitsa on Route 6 (Crofton-Vesuvius Bay). On the surface this may appear to be a substitution of almost similar vessel capacities, with the Quinitsa's capacity stated to be 44 AEQs and the Howe Sound Queen's now-stated capacity of 52 AEQs. BC Ferries has publicly indicated that it would consider adding an additional sailing to accommodate the traffic; presumably this would reinstate the late-morning sailing that was cancelled after your 2013 decision. As a frequent traveller on this route, however, I can attest to the potential negative impact of the reduction of

		vessel capacity. By its very nature, vehicular traffic is concentrated at certain times of the day year-round and subject to significant seasonal variations. To add one extra sailing in the late morning will do very little in particular to accommodate the delivery trucks and trades vehicles which need to travel in the first half of the morning. Nor will it adequately accommodate the patterns of heavy tourist traffic coming to Salt Spring in the summer months. Travel from Salt Spring to Crofton is also subject to its own periods of peak demand, for which there is little flexibility available for those going for work, deliveries, school, medical appointments, etc. The current capacity of the Howe Sound Queen already significantly struggles to handle peak demand cycles, with frequent full sailings. These delays will only be exacerbated by a smaller vessel on the route. The minor routes have been very poorly treated by BC ferries in the past number of years, with drastic fare increases coupled with service reductions. I urge you to scrutinize the current BCF proposal very carefully, as previous representations of theoretical and annualized actual utilization have been factually misleading. I am concerned that BC Ferries has previously played a numbers game in presenting figures which do not reliably portray the reality of their traffic and vessel statistics. For example, the cuts approved in 2013 were based on BC Ferries stated conclusion that Route 6 ran at a low annualized capacity. At the time the request was made for service reduction to Route 6, BC Ferries maintained that the Howe Sound Queen had a vehicle capacity of 70 theoretical car units; BC Ferries has now revised the official capacity to 52 AEQs. These changes have a substantial impact on the picture presented to your office about traffic and utilization rates. Thus, the annualized utilization BC Ferries gave in 2013 for Route 6 was just over 35.5%, based on the theoretical annualized capacity of 705,040 AEQ's. (http://www.bcferrries.com/files/PDFs/2012-2013_Annual_Report_to_the_BC_Ferry_Commissioner.pdf) With a 52 car capacity, this annualized rate would be scaled to 47.8%. But even this figure does not adequately capture utilization in real-world terms. I urge your office to examine very carefully BC Ferries' representations of how full ferries travel at particular times of the day. Please insist that historic data are adjusted to the new, realistic vessel capacity. Please note as well that a number of sailings depart with empty deck space due to weight restrictions arising from heavy-weight commercial vehicles. The counting of AEQs for large trucks is also problematic; in practice, large commercial vehicles fill three lanes when side by side. The size & weight of vehicles mean the ferry is often filled with less that 52 AEQ counts actually aboard. As well, Dangerous Cargo sailings should be excluded from general-service calculations, because they always travel with very few vehicles on board. Historically, capacity utilization has been systematically and significantly underestimated. I also note that the service cuts to minor and Northern routes approved in 2013 were said to be necessary cost-saving measures. Your Order Number: 12-02A states in Paragraphs 3 & 4 that the service reductions were intended to achieve coast savings totalling \$18.9 million during Performance Term 3. I note, however, that BC
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		Ferries' latest Annual Report provides the following sums for (positive) net income in the relevant period: 2014, \$25.5 million; 2015, \$41.4 million; 2016, \$64.8 million. The 2017 target net income is \$59.5 million. I urge you to exercise your mandate effectively to protect service and fare levels for the minor routes. My own first-hand experience with Route 6 is that a smaller vessel would have significant negative effects. Indeed, I firmly believe that traffic on Route 6 merits a larger not smaller vessel.
<i>BC Ferries' Comments:</i> <i>Please refer to the response to Comment #2.</i>		
23.	31-Jan-17	VESUVIUS - CROFTEN FERRY ROUTE - REPLACEMENT OF THE HOWE SOUND QUEEN Dear Madam/Sir, I believe the BC Ferries' proposal to change the service or capacity on the Vesuvius - Croften ferry route will further add to what is currently proving to be an unsatisfactory service. 1. Background - My wife and I are residents of Salt Spring Island and we have been regular users of this route and other BC Ferries routes for eleven years. I make the following observations and recommendations: - A. Observations a. In the first few years we lived on SSI I was always impressed by the service and that there was rarely a problem of getting on the ferry from either Vesuvius or Croften. That was except in the high tourist season. b. Now if you decide to depart Vesuvius on or after 8.15 am or return from Croften before the 7.40 pm sailing you have to plan to be at the ferry at least 45 minutes before the sailing. Or you will be sure to be a disappointed customer. c. Already the Howe Sound Queen is a small ferry. This is proven by its inability to cater for the increasing number of large trucks that use this route. I have personal experience of having cement trucks come over from Duncan on the 7.40 am ferry to deliver concrete for our new house foundations. The cement trucks were the first in line, however only the pumper truck and one (of two) cement truck could get on the ferry along with a few cars. Though there was space for the cars they couldn't load because then the ferry would be over

		capacity. The second pump truck had to wait till the next ferry along with all the vehicles and workers coming to SSI to work. Our own building crew were not able to get their vehicle on the ferry. It was only by luck they realized they would not be at the house site to supervise the concrete delivery and in seeing their predicament they were able to hitch a ride on the pumper and cement truck. Similarly when we had deliveries of the house construction materials, such as roof trusses, siding, etc., from Pacific Homes in Duncan the delivery truck and trailer had to travel to Swartz Bay and come to SSI via Fulford. Again because the 'small' Howe Sound Queen did not have the capacity for such a heavily laden truck and trailer. Ironically once offloaded the truck and trailer return to Pacific Homes by way of the Vesuvius - Croften ferry. d. In support of the above statement regarding the increase in number of large 'delivery' trucks using the Vesuvius - Croften route. The large trucks and trailers often take up a couple of lanes, and therefore it is now quite a regular event that the smaller cars and small trucks cannot get on the ferry for their planned trip. e. I think the offer of an extra sailing will do nothing to improve the service provided by a 44 Vehicle Equivalent ferry. I reason that the extra sailing cannot be added to an already tight schedule and crossing time of 20 minutes. f. I was recently witness to a cancelled crossing due to high wind and seas of the Howe Sound Queen. How often this occurs or whether such events are increasing, I don't have the records. However for one thing for sure to reduce the size of the ferry will only increase the number of weather related cancelled passages in the future. B. Recommendations a. I recommend that BC Ferries do not reduce the ferry capacity for the Vesuvius - Croften route from 52 Vehicle Equivalent to 44 Vehicle Equivalent. I reason that a reduction of capacity will only serve to compound the sort of problems mentioned above, and to further aggravate BC Ferry client base of either the residents or daily workers on SSI. It will also alienate the Tourist who wants to enjoy a visit to SSI and not have to sit and wait for the next ferry while fretting that he may now also miss his connecting ferry. The Tourists provide an essential source of income to SSI residents. BC Ferries should do more to increase the number of Tourist travelling to Vancouver Island and SSI and other smaller islands and thereby make more revenue for the island and the company.
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		b. I would also recommend that BC Ferries seek a ferry design that will provide an increase in capacity by at least 30%. Or better still increase the capacity by 50%. The reason being that this is essential for future needs and something that should be done in the next 2 to 3 years. Otherwise BC Ferries will find the cost of such an exercise will have escalated to the point it may not be able to afford to increase the route capacity by way of introducing a new ferry for the Vesuvius to Croften route in the future. Lastly many of the above points also apply to the Fulford - Swartz Bay route.
<u>BC Ferries' Comments:</u> <i>Please refer to the response to Comment #2.</i>		
24.	31-Jan-17	Good afternoon, Gordon and Sheldon; In summary, our concern is almost entirely concerned with the peak season capacity of the Quinitsa. Below are our comments after circulation among the members of the SSIFAC. The Salt Spring Island Ferry Advisory Committee views the potential replacement of the Howe Sound Queen by the Quinitsa on Route 6 with considerable concern regarding sufficient capacity. In raw numbers, using the current AEQ numbers there would be a reduction in vehicle capacity of 15.4% per sailing on a route which has, in the last two years, experienced significant growth in traffic. Salt Spring has recently been recognized by several major tourism publications as a prime destination and there is reason to believe that summer traffic in particular will remain on an upward trend. During July of 2016, out of 772 sailings on the route (excluding DC sailings), overloads occurred on 6.62% of the trips or 48 times. In August there were 106 overloads out of 770 sailings or at a rate of 13.7% of the total. It should be noted that some of the overloads would have been because of weight rather than deck space. As BC Ferries makes clear in the Application, capacity utilization varies considerably depending on the time of day and the time of year. The Quinitsa would have adequate capacity during the off season but the summer travel season could be very problematic. The SSIFAC would view the redeployment of the Quinitsa to Route 6 as an interim measure. Having been built in 1977, she is only 13 years newer than the Howe Sound Queen and her scheduled lifespan would theoretically end in 15 years or so. She was well liked on the Denman Island run and

	we have no major problem seeing her on Route 6 apart from the problem of vehicular capacity. We recognize the logic of not moving her to either Route 18 or 25 because of the potential tougher sea conditions on those routes. In some ways she is a good fit for Route 6 if it were not for the capacity problem. She does not have the weight limitations of the Howe Sound Queen and hopefully would never sail with empty deck space while vehicles are left behind. She is a quick loading vessel with straight unencumbered lanes. She has 4 rather than 2 engines and has a very good reputation for reliability. In fact, the Chair of the Denman/Hornby FAC said we would be lucky to get her. It is unfortunate that she is not twenty AEQ's larger. If the Quinitsa is to be redeployed to Route 6 as an interim measure, we have several recommendations to ameliorate the capacity issue. 1) Restore the sailings cut by the actions of the Ministry three years ago to maximize capacity with a smaller ship. Do this sooner rather than later. Even the HSQ could use some help in the summers. 2) Don't assume much if any increased capacity by implementing a shuttle mode. The Route 6 schedule is already so tight that there is little scope for gain by shuttling. 3) Speed up the loading in Crofton by vastly improving the signage requesting drivers to walk down to the ticket booth to pick up a boarding pass. Consider a long-run major improvement by relocating the ticket booth to the entry end of the parking lot. The less time loading, the easier it is to maintain the schedule and move the traffic. 4) Investigate consolidating the DC sailings to twice a week rather than three times or move them to less heavily used sailings. 5) In the longer run, consider seasonal vessel redeployment by bringing in a larger ship for the summer service. It is recognized that this would require more flexibility in ship usage and availability but it is not a foreign concept. BCF does it now with the major routes by parking several ships in the off season. In summary we would suggest that the Quinitsa should be considered purely as an interim ferry on Route 6 only until such time as a Bowen Class replacement becomes available. We recognize that BC Ferries needs to make good use of the Quinitsa and that Route 6 is a possible fit in the short run but if traffic patterns evolve as we expect they will, then there will be a need for a larger ship well before the Quinitsa reaches its out of service
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<i>BC Ferries' Comments:</i> <i>Please refer to the response to Comment #2.</i>		