British Columbia Ferry Services Inc.

Application to the
British Columbia Ferries Commissioner

Pursuant to
Section 55 (1) of the *Coastal Ferry Act*

for
Mid-Coast Ferry Service

March 8, 2017

Note: In this copy of the Application information of a confidential and commercially sensitive nature has been redacted.

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Executive Summary

British Columbia Ferry Services Inc. ("BC Ferries" or the "Company") proposes to invest in the assets needed to establish a new direct seasonal summer service to be provided between Bella Coola and Port Hardy ("Route 28") and to continue service between Port Hardy and the mid-coast ports of Shearwater, Ocean Falls, and Bella Coola via a transfer at Bella Bella ("Route 10s") (the "Project"). The Project includes the procurement and modification of a used vessel to provide the service on Route 28 and Route 10s (the "mid-coast service"), which will enable the retirement of the *Nimpkish* (built in 1973) that currently serves Route 10s, and the required terminal modifications necessary to support the replacement vessel and the new service.

In July 2016, the Ministry of Transportation and Infrastructure confirmed its interest in amending the Coastal Ferry Services Contract to include a seasonal direct service between Port Hardy and Bella Coola to meet the summer tourism demand. It is the Ministry's desire that such a service be in place by summer of 2018.

In December 2016, BC Ferries and the Ministry of Transportation and Infrastructure signed a letter agreement ("2016 letter agreement") outlining the terms of the expanded mid-coast service, including its service profile, which is to use one vessel to provide service on the new Route 28 and the existing Route 10s. BC Ferries agreed to aggressively seek to procure one suitable used or new vessel to service both routes, and the Province acknowledged that the provision of the service and the related capital investments would require an increase in the Ferry Transportation Fees payable and compensation for the required capital investments. In March 2017, BC Ferries and the Ministry of Transportation and Infrastructure executed an amendment to the Coastal Ferry Services Contract to include Route 28 as a designated ferry route.

The *Nimpkish,* which has provided service on Route 10s since the retirement of the *Queen of Prince Rupert* in 2009, lacks the necessary capabilities to service the new Route 28 in terms of size, speed, seakeeping and passenger and crew amenities. The Route 28 service will require a vessel with good seakeeping ability and a medium service speed, enhanced facilities and offerings for passengers, and live aboard accommodations for crew.

Due to the time required to build a new vessel, the target timeline for the start of the mid-coast service can only be met by acquiring a suitable used vessel, or by bridging the time required until a new vessel can be procured and brought into service (estimated to be summer 2020) with the continued deployment of the *Nimpkish* for the Route 10s service and the redeployment of a surplus vessel in the BC Ferries' fleet, the *Queen of Nanaimo*, for the Route 28 service. The latter option would require investments to life-extend the *Nimpkish* and the *Queen of Nanaimo* for two years, and is more costly than the recommended option of acquiring a used vessel for the mid-coast service.

A comprehensive global search for a suitable used vessel was conducted. A selection of candidate used vessels that met the basic requirements to provide the mid-coast service in terms of vessel safety, age, condition, speed, draft, vehicle capacity, amenities and seakeeping ability was initially considered. Further technical investigations and inspections determined that only one candidate vessel is viable, suitable and available.

The candidate used vessel has vehicle capacity of at least 35 automobile equivalents ("AEQ")[1] and can carry a complement of up to 150 passengers and crew. Consistent with the requirements for the mid-coast service, the vessel has strong seakeeping ability, enhanced amenities and ancillary services and could be considered a smaller version of the single ended and square stern *Northern Adventure*. As would be expected with the acquisition of any used vessel, significant modifications of the vessel and terminals to meet regulatory and operational requirements will be necessary and are included as part of the Project.

While the candidate used vessel would be a unique asset to the fleet, BC Ferries' objective of realizing efficiencies through greater standardization will be advanced through the use of fleet-standardized components, equipment selection, systems and procedures. The candidate used vessel will have many elements similar to and compatible with BC Ferries' two northern ships (*Northern Adventure* and *Northern Expedition*), and the ship and shore design will enable its operation on the other northern routes, should the need ever arise in the future.

The capital cost of the Project includes the purchase and modification of the candidate used vessel and the modification of the existing terminal berth structures to accommodate it. The terminal upgrades are focused on creating an acceptable interface between the used vessel and the existing berth structures. Further terminal modifications may be required to address new berth structures and improved uplands facilities to accommodate the new service and potential growth in demand. The scope of work for the latter is outside the Project and would be considered in a future phase.

[1] One AEQ is 6.1 metres long by 2.6 metres wide.

The Company has in place rigorous processes to identify, monitor and address the risks of the Project.

BC Ferries has undertaken extensive analysis in support of the Project and believes that the Project is reasonable, affordable, and prudent. The planned expenditure will help ensure safe, reliable and efficient service for the mid-coast communities in the years to come.

Section 1 – Introduction

1.1 Application Overview

BC Ferries submits this Application pursuant to section 55 (1) of the *Coastal Ferry Act* ("CFA").

BC Ferries proposes to procure a used vessel, which will have vehicle capacity of at least 35 AEQ and carry a complement of up to 150 passengers and crew, and to make the necessary vessel and terminal modifications and/or upgrades to ensure safe and reliable service on Route 28 and Route 10s that meets the service level requirements of the Coastal Ferry Services Contract.

A portion of the Project (the like-for-like replacement of the *Nimpkish*) was included in the Company's 12-year capital plan (for fiscal years 2015 through 2026) submitted to the Commissioner for performance term four (April 1, 2016 – March 31, 2020) ("PT4"). The Project requires a higher level of capital investment than was envisaged in the PT4 capital plan due to the new Route 28 service requirement which brings with it the need for a larger and different type of vessel, as well as enhanced facilities and offerings for passengers and live-aboard accommodations for crew. Based on the 2016 letter agreement with the Ministry of Transportation and Infrastructure, it is BC Ferries' expectation that the Ferry Transportation Fees paid by the Province under the Coastal Ferry Services Contract will be increased to address the higher capital and operating costs of the Project, thereby ensuring that there is no required increase to the price cap going forward.

By Order 17-02 dated March 2, 2017, the Commissioner defined a major capital expenditure for which the Company must seek approval under section 55 (2) of the CFA to include any capital expenditure which exceeds $50 million for a new vessel or $25 million for terminal upgrades. As the capital expenditure for the Project falls below the threshold levels set by Order 17-02, BC Ferries submits this Application in accordance with section 55 (1) of the CFA.

By this Application, the Company seeks the approval of the Commissioner for a total capital expenditure for the Project, inclusive of interest during construction ("IDC"), of up to $<> million, comprised of a capital expenditure of up to $<> million for the acquisition of a used vessel and a capital expenditure of up to $<> million for terminal upgrades. The Project also

includes operating expenditures of up to $<> million and route start-up operating expenditures of up to $<> million, for total Project expenditures of up to $<> million.

In view of the terms of the December 2016 letter agreement between BC Ferries and the Ministry of Transportation and Infrastructure in regard to the mid-coast service, and the March 2017 amendment of the Coastal Ferry Services Contract to include Route 28 as a designated route, BC Ferries submits that the expenditure for the Project is reasonably required, and will enable BC Ferries to enhance the delivery of safe, quality, reliable and efficient ferry service to the mid-coast region.

1.2 Organization of Application

This Application is organized as follows:

- Section 2 describes the Company's strategy for the mid-coast service.
- Section 3 describes the Project, including the reasons why the *Nimpkish* should be retired, and the analysis that has been undertaken to develop the recommended replacement strategy.
- Section 4 provides an assessment of the service options that have been considered, together with a recommended option.
- Section 5 addresses matters related to timeline and risk mitigation strategies for the Project.

Section 2 – Mid-Coast Service Overview

2.1 Overview

BC Ferries is an independent company providing ferry services on the west coast of British Columbia. The Company provides frequent year-round transportation service with 34 vessels currently operating on 24 routes out of 47 terminals spread over 1,600 kilometres of coastline. In the year ended March 31, 2016 ("fiscal 2016"), BC Ferries carried 8.1 million vehicles and 20.7 million passengers on over 170,000 sailings.

In September 2016 the Province announced its intention to initiate a seasonal direct ferry service between Port Hardy and Bella Coola to support tourism and the mid-coast economy. The service is intended to be a tourist-oriented summer service beginning in June 2018.

In December 2016, BC Ferries and the Ministry of Transportation and Infrastructure signed a letter agreement outlining the terms of the expanded mid-coast service, including the service profile which is to use one vessel to provide service on the new Route 28 connecting Port Hardy and Bella Coola, and the existing Route 10s connecting the mid-coast ports of Bella Bella, Shearwater, Ocean Falls, and Bella Coola. This will enable the retirement of the *Nimpkish* which currently services Route 10s.

In March 2017, BC Ferries and the Ministry of Transportation and Infrastructure executed an amendment to the Coastal Ferry Services Contract to include Route 28 as a designated ferry route. The service levels for Route 28 and Route 10s will be confirmed in a subsequent amendment of the Coastal Ferry Services Contract. Table 2-A outlines the expected service characteristics for each route and Table 2-B outlines the expected service levels, based on the terms of the 2016 letter agreement.

Table 2-A: Service Characteristics - Route 28 and 10s[2]

Route	***PROPOSED*** ***New Route 28*** *Bella Coola to Port Hardy*	***PROPOSED*** ***Revised Route 10s*** *Bella Bella, Shearwater, Ocean Falls and Bella Coola*	***CURRENT*** ***Route 10s*** *Bella Bella, Shearwater, Ocean Falls and Bella Coola*
General Objectives	Marketable service Northern style ferry	Reasonable, sustainable and prudent investment Avoidance of an unutilized Route 28 asset for off peak	Reasonable, sustainable and prudent investment
Seasonal Availability	Summer service only (mid-June to mid-September)	Year-round service (for connectivity to Port Hardy via Bella Bella transfer to Route 10)	Year-round service (for connectivity to Port Hardy via Bella Bella transfer to Route 10)
Round Trips	2.5 round trips per week (peak only)	One round trip per week, year-round	One round trip per week, off peak 3.5 round trips per week, peak
Trip Duration	Sailing duration of 10 hours or less Vessel service speed in excess of 13.5 knots Service provided within 12 hour crew work day	Sailing duration equal to or less than current service Vessel service speed to meet or exceed the *Nimpkish* Service provided within 12 hour crew work day	Sailing duration of 9.5 hours *Nimpkish* service speed of 10 knots Service provided within 12 hour crew work day
Vessel Capacity	Capacity to meet the estimated demand: • at least 35 AEQ and up to 150 passengers/crew	Capacity to meet current demand: • approximately 5 AEQ each weekly sailing in fall/winter/spring, • estimated AEQ each direction per week in summer	Current demand: • average 5 AEQ each weekly sailing in fall/winter/spring, • average 25 to 30 AEQ each direction per week in summer (includes Bella Coola to Port Hardy customers)
Vessel Amenities	On-board amenities commensurate to the type of tourism experience being marketed: food services, comfortable seating, lounge spaces, outdoor viewing, wheelchair accessible No passenger cabins Crew cabins for live-aboard	Basic amenities with minimal food service; services to meet or exceed the *Nimpkish* No passenger cabins Crew cabins for live-aboard	*Nimpkish* offers basic amenities with limited food service (coffee, tea, snacks) No passenger or crew cabins on *Nimpkish*

[2] Subject to confirmation through a subsequent amendment of the Coastal Ferry Services Contract.

Table 2-B: Expected Service Levels - Route 10s and Route 28[3]

Route		Peak		Off Peak	
		Ports	Service	Ports	Service
Current	Route 10s ^	Bella Coola, Ocean Falls, Shearwater and Bella Bella.	Every two weeks: four stops at all ports travelling eastbound and three stops at all ports travelling west bound.	Bella Coola, Ocean Falls, Shearwater and Bella Bella.	Every week two stops at all ports for Port Hardy connectivity.
Proposed	Route 10s ^*	Bella Coola, Ocean Falls, Shearwater and Bella Bella.	Every week two stops at all ports for Port Hardy connectivity.	Bella Coola, Ocean Falls, Shearwater and Bella Bella.	Every week two stops at all ports for Port Hardy connectivity.
	Route 28	Bella Coola and Port Hardy.	2.5 round trips per week, 13 weeks.	N/A	N/A

^ Connectivity to/from Port Hardy occurs through transfer at Bella Bella to Route 10.

* In the peak season, service provided for Route 10s will be on days when the vessel is not servicing Route 28.

With this Project, BC Ferries is responding to a specific service request from the Province. The Province has defined the type, frequency, level of service and amenities to be offered, and has committed to compensate BC Ferries for the incremental costs of providing the service. BC Ferries is given to understand the Province has determined there is a satisfactory economic rationale for the establishment of the route. As a result, BC Ferries has not undertaken dedicated research into the traffic potential, tourism opportunities, ancillary service potential or economic impact. However, BC Ferries has examined internal historical data to forecast traffic demand and to assist with creating tentative schedules for the new service.

BC Ferries has examined the operational feasibility of the new route. This internal study considered factors directly related to the provision of the defined service such as safety, operational profile, route conditions, vessel attributes, vessel capacity, schedule, terminal condition and compatibility, and capital and operating costs.

On-board passenger amenities and service offerings referenced in this Application have been determined in discussion with the Province about its requirements. Based on the Company's experience operating long duration northern routes, BC Ferries is proposing on-board

[3] Subject to confirmation through a subsequent amendment of the Coastal Ferry Services Contract.

amenities generally consistent with its existing northern vessels adjusted for the physical constraints of the candidate used vessel.

One or more mid-coast stakeholders have produced report(s) to the Province concerning the attributes proposed ferry service. One such report can be found at:

http://aboriginalcanada.ca/ corporate/wp-content/uploads/2016/03/AtBC-Central-Coast-Ferries-Report-FINAL.pdf.

BC Ferries was not involved with the creation of these reports.

Section 3 – Project Description

3.1 Vessel Retirement and Implementation

At this time, BC Ferries proposes to procure a used vessel and modify it accordingly for service on Route 10s and Route 28.

The timeline for the Project is described in section 5.1.4 and reflects the necessary retirement of the *Nimpkish,* which is near the end of her service life and scheduled for retirement in fiscal 2019, and the Province's summer 2018 target in-service date for the mid-coast service.

3.2 *Nimpkish* Retirement

The *Nimpkish* was built in 1973 and at its planned retirement date will be 45 years old. The *Nimpkish* is the smallest vessel in the BC Ferries fleet and lacks the necessary capabilities to service the recently announced Route 28 in terms of size, speed, seakeeping ability and passenger and crew amenities. Prior to operating on Route 10s, the *Nimpkish* provided refit relief sporadically in the Northern Gulf Islands region.

Due to the *Nimpkish's* limited vehicle capacity, it is not well suited to resume a refit relief role for any other current BC Ferries route. In addition, given the age and condition of the vessel, regulatory and operational upgrades would be required to keep the vessel in-service beyond the current planned retirement date. This view is supported by condition assessments conducted by BC Ferries and by Lloyd's Register Canada, which was contracted by BC Ferries in 2015 to provide independent verification.

3.2.1 Vessel Condition

The *Nimpkish* has been in service since 1973. While the vessel operates safely and in compliance with regulatory requirements, it is evident that she is nearing the end of her useful life.

As identified in the vessel condition assessment survey completed by Lloyd's Register, the *Nimpkish* will require extensive work on the hull, machinery, electrical systems, outfitting and fire protection systems to comply with recent safety standards and environmental requirements.

3.2.2 Historical Information

Appendix A provides historical information about the *Nimpkish,* including maintenance and refit expenditures and capital investments since 2005, projections of such expenditures and investments through fiscal 2020, and data on historical service disruptions due to mechanical issues.

3.3 Replacement Vessel

3.3.1 Vessel Characteristics

The vessel characteristics necessary to provide service on Route 28, which includes crossing open ocean, are significantly different than the characteristics required on a shorter inner island service such as Route 10s. The conditions for providing service on Route 28 require a single ended vessel with good seakeeping ability and a medium service speed. Due to the extended voyage of this route, enhanced facilities and offerings for passengers are required. Live-aboard accommodations for crew are also considered necessary in order to optimize crewing considerations and minimize operating costs.

The candidate used vessel will need to be modified to meet regulatory and service requirements, as well as BC Ferries' safety and passenger service standards. The cost of these modifications, together with the cost of acquiring the vessel, will be less than the overall cost of building a comparative new vessel. Major modifications and upgrades will include renewal of the main engines and generators; blasting and application of a new coating system in all voids, tanks, and double bottoms; removal of the existing platform deck and ramp; regulatory surveys and upgrading as required of all machinery and navigation; safety and alarm systems; and the replacement of all lifesaving equipment.

Table 3-A provides a comparison between the operational characteristics of the *Nimpkish,* which currently services Route 10s, and the candidate used vessel which BC Ferries proposes will service both Route 10s and Route 28.

Table 3-A: Summary of Operating Characteristics for Route 10s and Route 28 Current and Replacement Vessels

Specification	*Nimpkish (Route 10s)*	*Candidate Used Vessel (Proposed – Routes 10s & 28)*
Voyage Classification	Near Coastal 2	Euro SOLAS B to be classed in Canada as Near Coastal 2
Maximum Length	33.5 metres	75.4 metres
Draught	2.2 metres	3.2 metres
Service Speed	10 knots	14 knots
Propulsion	2x Geared Diesel Fixed Pitch Propeller	2x Geared Diesel Controllable Pitch Propeller
Fuel Consumption (Transit Service Speed)	13 litres per nautical mile	TBD
Vehicle Capacity	12 AEQ	35 AEQ (approximately)
Commercial Vehicle Height (maximum)	4.26 metres	4.4 metres
Passengers and Crew Licences	Crew/Passengers A: 6/94 = 100	Crew/Passengers A: 15/135= 150
Passenger Decks	Overhead / one Deck	Overhead / one internal and one external deck
Passenger Facilities	Washrooms, access to passenger area is via stairs only	Washrooms, lounges, catering facilities. Access to passenger area is via stairs or elevator
Flexibility of Use on Alternative Routes	Not sized well for relief on other routes	Route 10,11 (with potential vessel and berth modifications)

Vessel Capacity

The candidate used vessel will have a vehicle capacity of at least 35 AEQ and will carry up to 150 passengers and crew.

The range of acceptable vessel size for the mid-coast service has been identified at between 35 – 50 AEQ. This is based on sailings that most closely approximate the new service, vessel size that most likely supports a 'right-sized' crew of 15 or fewer, and a schedule that allows for flexible service levels of up to 3.5 round trips per week. While there is a continued scarcity of

used vessels within that size range, the ability to grow capacity through increased frequency of sailings allowed for flexibility in choosing a ship sized at the lower end of the identified range.

Route 10s Demand

Historic traffic volumes suggest that the both the peak and the off peak demand for Bella Bella, Bella Coola, Ocean Falls and Shearwater on Route 10s will be sufficiently served by the candidate used vessel. The modelling of historic peak traffic volumes indicate that one round trip per week will carry Ocean Falls and Shearwater demand 100 percent of the time with a 35 AEQ vessel. During the off peak season, the modelling of historic traffic volumes indicated that one round trip per week will meet the Bella Bella, Bella Coola, Ocean Falls and Shearwater demand 99 percent of the time with a 35 AEQ vessel. The results of the modelling are shown in Table 3-B, which provides Route 10s annual capacity utilization based on the capacity of the candidate used vessel and the revised service of one round trip per week year round.

Table 3-B: Modelled Annual Capacity Utilization of Historical Volumes for Route 10s Ports with one Round Trip Per Week Using a 35 AEQ Vessel

Fiscal Year	**Peak** to/from Ocean Falls and Shearwater	**Off Peak** to/from Bella Coola, Ocean Falls and Shearwater
F2010	***34.1%***	***8.5%***
F2011	***32.5%***	***10.3%***
F2012	***33.7%***	***11.4%***
F2013	***27.9%***	***13.3%***
F2014	***30.9%***	***13.6%***
F2015	***19.5%***	***17.5%***
F2016	***32.9%***	***21.7%***

Route 28 Traffic Demand

There is uncertainty in predicting future demand for a service not previously provided in the manner currently envisaged by the Province. BC Ferries has used a five-year period of historic traffic demand on the former Route 40 between Port Hardy and Bella Coola to model the capacity utilization of the candidate used vessel based on its capacity and a revised service of 2.5 round trips a week year round. Average capacity utilization was determined to be 59 percent, which equates to an average of approximately 21 AEQ and 55 passengers per sailing. The results are shown in Table 3-C. It is important to note that the demand for the Route 28 service will likely need to be built up over a few seasons. If traffic demand on Route 28 exceeds historical levels, capacity can be added between Bella Coola and Port Hardy through additional sailings, with the provision that an increase in service to 3.5 or more round

trips per week would require the addition of another vessel or a service alternative for the weekly peak season Route 10s demand for Bella Bella, Bella Coola, Ocean Falls and Shearwater.

Table 3-C: Modelled Capacity Utilization of Historical Volumes Between Bella Coola and Port Hardy for Route 28 Service with 2.5 Round Trips Per Week Using a 35 AEQ Vessel

Fiscal Year	**Peak** to/from Bella Coola and Port Hardy	Modelled average AEQ per sailing
F2010	***70.0%***	25
F2011	***63.5%***	22
F2012	***54.5%***	19
F2013	***54.2%***	19
F2014	***53.1%***	19
5 year average	***59.1%***	21

Fuel

The candidate used vessel will operate on ultra-low sulphur diesel. The option to modify or upgrade the vessel to operate on liquefied natural gas ("LNG") is not feasible. The vessel lacks the space needed and the hull is too shallow to retrofit an LNG tank internally, and there is insufficient area and stability margin to mount a tank above.

Crew Accommodation

The candidate used vessel currently operates as a live-aboard vessel. To optimize crewing considerations and minimize operating costs, BC Ferries intends to operate the vessel as a live-aboard ship consistent with the Company's other northern operations.

Passenger Accommodations and Amenities

The candidate used vessel has a passenger lounge arrangement accessible from the main vehicle deck that complies with current accessibility requirements including a passenger elevator. Foot passenger access to the lounge(s) will be configured to interface with passenger walkways on BC Ferries' standardized berth. The vessel will have catering services consistent with similar routes. Proposed modifications to the vessel will follow BC Ferries' northern vessel interior design standard, which aims to provide a reasonable level of passenger comfort to support customer satisfaction and revenue generation on a longer voyage.

Branding

BC Ferries' has a mature brand identity recognized in the communities it serves and throughout the world. The candidate used vessel will have similar branding to other northern BC Ferries vessels. In general, BC Ferries' vessels are painted white and carry the BC Ferries logo and, in most cases, the funnel wave (favicon) graphic on port and starboard sides. All vessels also carry a blue stripe in addition to carrying the vessel name and Port of Registry. The candidate vessel will be renamed according to BC Ferries' vessel naming standards.

Environment

To further the Company's objective of minimizing its environmental footprint, the candidate used vessel will:

- Operate with ultra-low sulphur diesel;
- Have a low friction hull coating to reduce fuel consumption;
- Have no overboard discharge of any kind, including black/grey water, sewage, garbage and recycling; this will all be disposed of ashore in accordance with environmental policies; and
- Revert to shore power connection during layovers and after operational service.

3.3.2 Standardization Efficiencies

A key objective of BC Ferries' fleet renewal program is to achieve capital and operating cost savings and efficiencies through an overall class and standardization strategy. BC Ferries' research shows that reducing the degree of fleet diversity brings significant potential benefits.

While the candidate used vessel will be a unique asset to the fleet, efficiencies will be realized through the use of fleet-standardized components, equipment selection, systems and procedures that are intended to remain the same across a wide variety of vessels.

The challenges of BC Ferries' northern services, which consist of long voyages requiring live-aboard operations and transit through rougher waters, increase the vessels' functional requirements and support the procurement of a single asset designed for the distinctive conditions of the service as opposed to building one more of a standard class. Inasmuch as the candidate used vessel is different from the south coast ship design, it has many elements similar and compatible to the Company's two northern ships (*Northern Adventure* and

Northern Expedition). The ship and shore design will allow the proposed used vessel to operate on the other northern routes, should the need ever arise in the future.

3.4 Terminal Modifications

Appendix B provides an overview of the ownership and existing infrastructure at the mid-coast terminals.

Terminal modifications will be required at each of the mid-coast ports to accommodate the candidate used vessel. The proposed modifications reflect the Company's terminal network master plan which directs that:

- The terminal network will be optimized for safe, efficient, effective and sustainable operation;
- Routes and their interactions will be studied to determine ways to optimize operating and capital costs and increase system reliability; and
- Terminal improvements will emphasize safety, environmental stewardship, efficiency and customer experience.

3.4.1 Terminal Modifications – Phase 1

The Project includes modifications to the mid-coast terminals to create an acceptable interface between the candidate used vessel and the existing berth structures.

The candidate used vessel is a square stern vessel. The docks at Bella Coola, Ocean Falls, Shearwater, and McLoughlin Bay (Bella Bella) are each unique in design and were originally constructed to accommodate round stern vessels. This design presents challenges for accommodating a square stern vessel.

BC Ferries replaced the berth infrastructures at Bear Cove (Port Hardy), Prince Rupert, Skidegate and Klemtu, and modified the McLoughlin Bay structures, to accommodate the *Northern Expedition* and *Northern Adventure,* both square stern vessels, when they were brought into service on Route 10 (connecting Port Hardy and Prince Rupert) and Route 11 (connecting Prince Rupert and Skidegate). At present, the berth infrastructures at Bella Coola, Ocean Falls, and Shearwater are not capable of supporting a square stern vessel; as such, terminal modifications are required to accommodate the candidate used vessel. While the berth infrastructure at Bear Cove and McLoughlin Bay can accommodate a square stern

vessel, modifications will be required at those locations to address the geometry and fit of the candidate used vessel (e.g. beam, freeboard, and ramp size).

The vessel interface and terminal modification plans for each port are described below. These plans are currently at the preliminary design stage and, as such, the scope of work is subject to change as the design progresses.

Port Hardy (Bear Cove)

- Installation of a bow tie-up arm.
- Modifications to the shore landing platform gates.
- Subject to vessel rubbing strake construction, possible adjustments to the floating lead fender panels such that the vessel's rubbing strake does not underride it.

Bella Coola

- Installation of a bow tie-up arm.
- Pontoon modifications including fendering and a pontoon mooring dolphin.
- Installation of two dolphin structures for the vessel to lay against.
- Upgrades to the shore to ship power.

Ocean Falls

- Replacement of existing structures with a new ramp, pontoon, and dolphin structures in accordance with the northern standardized berth requirements.

Shearwater

- Removal of old fendering elements and installation of a new fender and frame.
- Ballasting of the barge and installation of a landing platform to accommodate the vessel door.
- Installation of a bow tie-up arm.
- Repositioning of the floating lead.

Bella Bella (McLoughlin Bay)

- Transition of platform/ramp modifications to suit vessel alignment.
- Hydraulic cylinder modification so that the transition to the platform can accommodate the vessel freeboard.
- Installation of a bow tie-up arm.

3.4.2 Future Terminal Modifications - Phase 2

Further terminal modifications may be required to address new berth structures and improve uplands facilities to accommodate the new service and potential growth in demand. The scope of work for this is outside the Project and would be considered in a future phase. This work may include:

- <>;
- Additions/improvements to customer facilities, amenities, holding compound areas, parking, and ticketing; and
- Marine structure replacements to address the age, condition, standardization, and interoperability of the mid-coast and other northern terminals.

3.5 Summary

BC Ferries is of the view that the age and condition of the *Nimpkish* is such that it is prudent to retire the vessel; further BC Ferries believes that the *Nimpkish* is ill-equipped and lacks the technical characteristics to provide service on Route 28. BC Ferries believes that the potential benefits of proceeding with procurement and modification of the candidate used vessel are significant and will result in a service offering on Route 10s and 28 that is consistent with the recommended route attributes (in-service date of June 2018) and internal corporate objectives. Moreover, the required Phase 1 terminal modifications that focus on the anticipated marine structure work to accommodate the candidate used vessel are sufficient to provide a safe and reliable interface with the vessel. The envisaged size and configuration of the candidate used vessel is intended to ensure that all regulatory and operating requirements will be met effectively, efficiently and in a manner that demonstrates the Company's commitment to strong environmental stewardship, and that the customer experience will continue to be positive and enhanced in the region.

Section 4 – Analysis of Options

4.1 Options Analysed

Two options are presented to provide the mid-coast service by the summer of 2018:

- Option 1: Purchase the Candidate Used Vessel
- Option 2: Life Extend the *Nimpkish* and the *Queen of Nanaimo* and Build a New Vessel

4.2 Key Assumptions

Revenue

The financial analysis assumes tariff revenue for the new Route 28 consistent with historical traffic volumes on Route 40. Tariff revenue for Route 10s is based on traffic statistics for existing operations, adjusted to reflect the revised service level (see section 2.1).

Fuel Price

The fiscal 2018 set fuel price of $0.93 per litre has been applied to estimated fuel consumption.

Inflationary Factor

An annual escalation for inflation of 2 percent has been applied to all capital and operating costs.

Discount Rate

A discount rate of 7 percent is used for the net present value ("NPV") analysis.

NPV Period

A period of 20 years was used in the NPV analysis to align with the expected life of the used vessel under the preferred option (Option 1). In order to address with the 45-year asset life of the new build vessel in the alternative option (Option 2), a residual value calculation was used in the final year of the NPV analysis for that option.

4.3 Option 1: Purchase the Candidate Used Vessel

This option involves the purchase of the candidate used vessel (as described in section 3) for the mid-coast service. This will enable the retirement of the *Nimpkish* on Route 10s.

Capital and Operating Costs

The cost estimate for this option is based on an expected purchase price of the candidate used vessel and a comprehensive refurbishment consistent with a typical vessel mid-life upgrade project undertaken by BC Ferries. The vessel modifications include those required for safety and regulatory purposes as well as desired upgrades to bring the vessel to BC Ferries' standard and provide an appropriate level of passenger amenities and services for the route. The cost estimates for the phase 1 terminal modifications (as described in section 3.4.1) include only work needed to safely interface with the proposed vessel. They do not include provisions to address the age, condition, or standardization of the terminals, nor do they include any uplands improvements to enhance customer comfort, expand holding compounds, or add parking. To the extent that those improvements are desired by the Province or by BC Ferries, they would need to be addressed in future phases and are not included in the scope of this Application. A contingency is included to address uncertainty of the final purchase price of the candidate used vessel and to address uncertainty of the scope of the vessel and terminal modifications required.

Crew Complement

Crew size for the candidate used vessel is expected to be 15 or fewer based BC Ferries' analysis of minimum safe manning levels set by Transport Canada for other vessels. The final determination on minimum crew size rests with Transport Canada and will reflect the final design of the vessel.

Federal Funding Support

BC Ferries has applied for funding for 33 percent of eligible Project costs through the New Building Canada Fund. However, as no decision has been made by the federal government on the application, the analysis includes no federal funding support for the Project.

Project Costs

Total Project costs for this option are set out below:

Option 1: Purchase the Candidate Used Vessel	
Total Project Cost (including IDC):	$<> Million
20-Year NPV:	-$122 Million

4.4 Option 2: Life Extend the *Nimpkish* and the *Queen of Nanaimo* and Build a New Vessel

This option involves the procurement of a new vessel with a carrying capacity of 35 - 50 AEQ to be in service on Route 28 and Route 10s commencing the summer of 2020. While the vessel is being built, the *Queen of Nanaimo,* which will be surplus upon the deployment of the *Salish Eagle* in 2017*,* and the *Nimpkish* would each undergo a two-year life extension project. The *Queen of Nanaimo* and the *Nimpkish* would operate on Route 28 and Route 10s, respectively, until the new vessel is in service, at which time they would be retired.

Capital and Operating Costs

Vessel Life Extensions

The work required to upgrade the *Nimpkish* and the *Queen of Nanaimo* for a further two years of service is set out below. BC Ferries estimates it will cost $<> million and $<> million, respectively to complete this work. It is important to note that the cost estimates include a very high degree of uncertainty, particularly with regard to asbestos and lead-based paint abatement and steel renewals and, as such, are considered conservative.

Queen of Nanaimo and _Nimpkish_
Life Extension Scope

- Engineering, Drawings and Approvals
- Blast and Paint Hull, Decks, Voids and Machinery Spaces
- Asbestos Abatement
- Steel Renewal
- Ship Ramp Addition
- Overhaul Main Engines, Gear Boxes and Alternators
- Overhaul Propeller Hubs and Blades
- Safety Upgrades
- Survey All Fire Doors
- Upgrade Bridge Instrumentation and Navigation
- Crew Accommodation Upgrades

New Build Vessel

The construction cost for the new vessel in this option has been derived from indicative pricing from two independent shipyards, and includes overseas build and project costs. A contingency was added to account for uncertainty in contracting, detailed specifications and finalized design.

Terminal Modifications

Terminal modifications would be undertaken to allow for a safe interface with the *Queen of Nanaimo* at Port Hardy and Bella Coola during the initial two-years of service, and to allow for a safe interface with the new vessel at all Route 28 and Route 10s terminals once it is brought into service in summer 2020. The latter upgrades would be comparable in scope to the Phase 1 terminal modifications envisaged for Option 1.

Crew Complement

The financial analysis assumes that the new vessel will operate with a crew of 13, as the vessel will be designed with redundancies to minimize required crew levels set out by Transport Canada.

Other Costs

Other capital and operating costs were estimated based on BC Ferries' experience in recent projects and research of recent ship build reports.

Project Costs

Total Project costs for this option are set out below:

Option 2: Life Extend the Nimpkish and the Queen of Nanaimo and Build a New Vessel	
Total Project Cost (including IDC):	$<> Million
20-Year NPV:	-$139 Million

This option has higher costs than the alternative option of acquiring the candidate used vessel. It is also considered higher risk in terms of the possibility of service disruptions in the first two years due to the age and condition of the vessels proposed for life-extension and the possibility of premature asset failure. Under this option, the *Nimpkish* and the *Queen of Nanaimo* would be 56 and 47 years old respectively, at their retirement.

4.5 Financial Summary of Options

The results of the financial analyses are summarized in Table 4-A below.

Table 4-A: Project Cost and NPV Summary of Options

		Total Project Cost (including IDC)	20-Year NPV
Option 1:	Purchase the candidate used vessel	$<> Million	-$122 Million
Option 2:	Life Extend the *Nimpkish* and the *Queen of Nanaimo* and Build a New Vessel	$<> Million	-$139 Million

4.6 Preferred Option

Option 1, involving the retirement of the *Nimpkish* and providing a new service on Route 10s and 28 with the candidate used vessel, is preferred by the Province and BC Ferries. Moreover, Option 1 is considered to be a 20-year commitment, which allows BC Ferries the option to scale the service on both Route 10s and Route 28 up or down based on future demand. Additionally, life extending the two existing vessels and building a new vessel (Option 2) is more costly than the alternative of replacing the *Nimpkish* now and, given the age and

condition of the vessels proposed for life extension, there is a risk of premature asset failure, which in turn presents a risk of service disruption.

Additional potential benefits of the used vessel option include:

- Shorter implementation lead-time. BC Ferries estimates that a used vessel will reduce the project execution timeline by about 24 months, thus replacing the *Nimpkish* sooner than would otherwise be possible under a new build scenario.

- A lower acquisition cost compared to building a new vessel. The purchase price plus the investment required to bring the candidate used vessel into regulatory and operational compliance is significantly lower than the alternative option.

- Earlier availability of a potential relief vessel for the northern routes during the off-peak season.

4.7 Price Cap Implications of Preferred Option

A portion of the Project (the like-for-like replacement of the *Nimpkish)* was included in the Company's 12-year capital plan (for fiscal years 2015 through 2026) submitted to the Commissioner for PT4. The Project requires a higher level of capital investment than was envisaged in the PT4 capital plan due to the new Route 28 service requirement which brings with it the need for a larger and different type of vessel, as well as enhanced facilities and offerings for passengers and live-aboard accommodations for crew. Based on the 2016 letter agreement with the Ministry of Transportation and Infrastructure, it is BC Ferries' expectation that the Ferry Transportation Fees paid by the Province under the Coastal Ferry Services Contract will be increased to address the higher capital and operating costs of the Project, thereby ensuring that there is no required increase to the price cap going forward.

4.8 Scenarios for Reducing Capital Expenditures

To achieve capital cost savings in the order of 10 percent, substantial scope change and instrumental reductions would be required to the planned upgrade and modification of the candidate used vessel, resulting in the bare minimum regulatory and safety requirements being met. This is not seen as a viable option given that this would not meet the Province's expected service level. While the candidate used vessel functions well and could service the routes in her current condition, many of the vessel's systems have reached mid-life status and require upgrading to ensure the vessel's future reliability. Overhauling main propulsion, power

generation, alarm and monitoring, navigational equipment, hull integrity and firefighting/safety systems are the primary risk areas for the mid-life scope. Additionally, with the route profile planned, there would not be another lengthy out of service period where the magnitude of this scope could be performed in the foreseeable future.

Capital cost savings in the order of 20 percent would not be achievable.

Section 5 – Procurement and Risk

5.1 Vessel Acquisition and Modification

5.1.1 Project Governance

The Company has in place a vessel replacement program, reporting through the engineering division, for all used and new vessel projects. The vessel replacement program draws on expertise across the Company, as well as from external subject matter experts. The procurement of the candidate used vessel will be undertaken under the auspices of this program, with contract signing subject to the approval of the Company's executive management committee and the board of directors.

5.1.2 Vessel Acquisition

BC Ferries is following a standard procurement process to acquire a used vessel using brokerage services to identify suitable options. Two international European-based brokerages have been utilized to monitor the global market for vessels that meet BC Ferries' requirements. From the myriad of vessels offered on the open market, and of those that were not officially on market, two suitable vessels were identified for detailed inspection. In each case a BC Ferries technical team of senior representatives visited the vessel in operation and conducted detailed inspections with the owner. A purchase offer was made on the first vessel but was not concluded due to the owner's inability to release the vessel from current operations. An initial purchase offer was made on the candidate used vessel and negotiation of a final offer is currently underway with the assistance of a broker.

5.1.3 Vessel Modifications

Upon arrival, the Company's Fleet Project Management Office ("Fleet PMO") will oversee the modifications and upgrades to the candidate used vessel. The Fleet PMO will refine and finalize the vessel project scope and schedule, for implementation including dry-docking and underwater work at a subcontracted shipyard, as well as internal and externally contracted labour and services while the vessel is afloat at BC Ferries' Fleet Maintenance Unit in Richmond.

5.1.4 Vessel Timeline

The timeline for the vessel acquisition, modification and deployment is set out below.

Purchase and Delivery	Modification		Training, Integration, Certification	In-Service
	Start	Finish		
March 2017 - September 2017	September 2017	March 2018	April 2018 - May 2018	June 2018

5.2 Phase 1 Terminal Modification Process

The Phase 1 terminal modifications outlined in section 3.4 will be overseen by the Company's terminal engineering and terminal construction departments, reporting through the engineering division. Planning for the Phase 1 terminal modifications will commence in April 2017, with construction scheduled to begin in September 2017 for expected completion in May 2018.

5.3 Consequences of In-service Delays

Delay of the in-service date for the replacement of the *Nimpkish* will significantly increase the possibility of service disruptions due to the following factors:

- The longer the *Nimpkish* operates, the higher the risk of unforeseen operational issues and serviceability;
- Critical spares availability, original equipment manufacturer knowledge and supportability are already at levels that may compromise service reliability; and
- Vessel long range maintenance plans have been "glidesloped" for the planned in-service date of the candidate used vessel, and extensions to these plans could result in reduced vessel reliability and operational availability, without significant investment in order to achieve a very short life extension.

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 the *Nimpkish* remains in service.

A delay in the in-service date will also mean that the timeline publicly announced by the Province for the start of the service will not be met.

5.4 Risk Identification and Mitigation

An overview of the key risks to the Project, together with planned mitigation strategies is provided below.

It is important to note that the Project follows highly successful phases of the Company's vessel replacement program and incorporates best practices and lessons learned from those phases. This in and of itself serves to mitigate risk in that the Company is implementing processes and procedures that have been tested and proven successful in the recent past.

5.4.1. Financial Risks

Affordability

Affordability is defined as the ability of BC Ferries to undertake the Project while adhering to its debt covenants. The Company has in place a financing plan (see below) that ensures that 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

BC Ferries 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.

BC Ferries' long term financing instruments are secured through a capital markets platform. This platform is capable of accommodating a variety of corporate debt instruments and borrowings ranking equally, including term bank debt, revolving bank lines of credit, publicly issued and privately placed debt securities, commercial paper, medium-term notes and interest rate and currency swaps and other hedging instruments.

Detailed documentation associated with the capital markets platform can be viewed online through the System for Electronic Document Analysis and Retrieval (SEDAR) at www.sedar.com or on BC Ferries' website at www.bcferries.com/about/investors.

5.4.2. Scope and Timeline Risks

There is limited time to complete all the activities required to have the candidate used vessel ready for summer 2018 service. Additionally, the risks below could directly affect the required in-service date.

Vessel Procurement, Modification and Delivery

Vessel Acquisition

The purchase agreement for the candidate used vessel is currently under negotiation. The Company has engaged a ship broker to assist with negotiating the purchase offer. They are expert in ship brokering and provide valuable insight and contact with owners who have assets for sale or who are approached to consider selling a suitable asset. A standard form of sales agreement is being used to negotiate and document the specifics of the final agreement. Once a final offer is signed, a deposit will be paid by BC Ferries to hold the vessel until final closing of the purchase. BC Ferries expects to present its final offer on the vessel shortly. The Project budget includes contingency as the purchase price has not been finalized. It is possible that that the seller and BC Ferries cannot reach agreement on the terms of the purchase agreement. Should that be the case, the Company has the option of reverting to 'Option 2' presented in section 4 to meet the mid-coast service requirements.

Administration in Region of Transfer

BC Ferries has engaged local counsel in the seller's region to assist with the procurement of the candidate used vessel. This will help mitigate the risk of unanticipated administrative requirements in the region of transfer, which could negatively impact the Project timeline.

Vessel Modifications and Upgrades

- Known and anticipated defects are to be remedied through the planned modifications and upgrades to the candidate used vessel to optimize operating performance. With a used vessel there exists the material risk of unknown or undiscovered defects. Such defects may only become apparent after purchase when the vessel is undergoing conversion for the new service. This risk is partially mitigated by the detailed surveys and inspections undertaken before the purchase. Residual risk is mitigated by contingency built into the schedule and budget.

- Late supply of necessary materials and equipment for the upgrade and modification of the candidate used vessel would negatively impact the Project timeline. A procurement strategy focussed on the identification and expedited procurement of long lead items will be developed to help mitigate this risk.

- The candidate used vessel will require dry-docking to complete the planned upgrades and modifications. Work is underway to identify a suitable shipyard, with early indication that the planned timeframe for the dry-docking will be achievable. Strong project management by BC Ferries is planned to help mitigate schedule risk and to manage scope creep, once the ship is in dry-dock. Residual risk is mitigated by contingency built into the dry-docking schedule.

Vessel Delivery

BC Ferries' present intent is to contract an internationally experienced service provider to deliver the candidate used vessel immediately to Canada once the purchase is complete. BC Ferries' staff will participate as owner representatives in the transit of the vessel. The delivery voyage schedule includes contingency in order to minimize the impact on the Project of a delay in vessel delivery.

Terminal Modifications

Vessel to Terminal Interface

There are no detailed AutoCAD drawings for the vessel and marine structures at Shearwater, Ocean Falls and Bella Coola. This increases uncertainty around the accuracy of concept development and preliminary design and cost assumptions. PDF drawings have been used in conjunction with field measurements to produce interim working drawings. Higher contingencies have been applied to account for the level of accuracy. Additional surveys will be completed prior to continuing design.

Design

BC Ferries is in early stages of design for the required Phase 1 terminal modifications. A contingency has been applied to allow for a design solution to achieve a safe and functional ship/shore interface within budget. BC Ferries will utilize its northern standard designs, where applicable, to reduce design time and expedite construction.

Land and Water Lot Tenures

Issues of property ownership and lease agreements at Bella Coola, Ocean Falls and Shearwater will require resolution in a timely manner in order to enable the necessary modifications to the respective terminals to proceed. BC Ferries will work with the tenure holders and the Province to resolve these issues.

Site Information

There is limited to no geotechnical, seabed or upland survey information available for the berths at Bella Coola, Ocean Falls and Shearwater. General assumptions have been made to allow for concept development. The Project budget includes funding to complete further investigations.

Construction Costs

Construction work in the northern parts of British Columbia is very difficult to accurately price and previous experience has shown that predicting tender prices for work in these areas is subject to large variations depending upon market conditions. Plans are at a preliminary stage and as a result, the cost estimates are approximate and are subject to significant change as the scope of work is further developed for berth and upland terminal modifications. A project delivery and contracting strategy will be completed to ensure cost effective solutions are implemented with the proposed timelines. BC Ferries will utilize its northern standard designs, where applicable, to reduce construction risk and subsequently reduce construction costs. A contingency has been applied within the proposed budget to allow for construction uncertainty.

Contractor Availability

Within the marine construction industry in British Columbia, there are a limited number of companies with the equipment and capacity to complete the proposed works at Ocean Falls and Bella Coola. A project delivery and contracting strategy will be developed with input from local marine contractors to address this risk.

5.4.3. Operational and Deployment Risks

Crew Levels

Minimum crew levels for the proposed used vessel will be determined and set by Transport Canada. BC Ferries will work with Transport Canada to the extent possible to obtain early notification of the minimum safe manning levels for the candidate used vessel, however, a final decision by Transport Canada will not be made until the vessel has been delivered and the regulatory inspection and drills are completed.

Training

Once the ship is delivered, BC Ferries will train the crew prior to deployment of the candidate used vessel. A program will be developed in advance of vessel deployment to ensure the appropriate crew training is provided. These costs are included in the Project budget.

Conclusion

BC Ferries respectfully requests the Commissioner's approval for a total capital expenditure for the proposed Mid-Coast Ferry Service Project, inclusive of IDC, of up to $<> million, operating expenditures of up to $<> million, and route start-up operating expenditures of $<> million, for total Project expenditures of up to $<> million. In view of the terms of the December 2016 letter agreement between BC Ferries and the Ministry of Transportation and Infrastructure in regard to the mid-coast service, and the subsequent amendment of the Coastal Ferry Services Contract, BC Ferries submits that the total expenditures for the Project are reasonably required, and will enable BC Ferries to enhance the delivery of safe, quality, reliable and efficient ferry service to the mid-coast region.

Appendix A: Route 10s and *Nimpkish* History

The *Nimpkish* was built in 1973 by B.C. Marine Shipbuilders Ltd. in Vancouver, B.C. In 1985, the *Nimpkish* was transferred to BC Ferries from the Ministry of Transportation and Highways.

The *Nimpkish* is the shortest ferry in the BC Ferries fleet, at just over 30 meters and can carry 12 AEQs and up to 100 passengers and crew. Despite her size, the *Nimpkish* is one of the most well-travelled vessels, providing service on a variety of routes since 1973. Originally, the *Nimpkish* provided service on the Port McNeill-Sointula-Alert Bay route, but was soon replaced by the larger *Tenaka*. The *Nimpkish* has also provided service on the Quadra Island-Cortes Island crossing and the Gabriola Island-Nanaimo route.

In 2000, the *Nimpkish* had grown too small to operate as a regular vessel on any BC Ferries route and spent the majority of its time providing relief where necessary.

In 2009, after the retirement of the *Queen of Prince Rupert*, the *Nimpkish* was placed on Route 10s to connect the mid-coast communities of Shearwater, Ocean Falls and Bella Coola to McLoughlin Bay where BC Ferries' northern route vessels stop en-route between Port Hardy and Prince Rupert.

Current Operating Characteristics

The current operating characteristics and the on-board amenities of the *Nimpkish* are summarized below.

	Nimpkish
Maximum Length:	33.5 metres
Maximum Displacement:	371 tonnes
Car Capacity:	12 AEQ
Passenger Capacity (maximum):	100 (including crew)
Crew size:	6
Maximum Speed:	10.0 knots
Horsepower:	680
Amenities:	Passenger Lounge, self-serve food station

Capacity Utilization

The average vehicle capacity utilization for Route 10s, based on fiscal 2016 traffic volumes and a 12 AEQ vessel capacity, is set out below.

Terminal (Dep)	Season	Sun	Mon	Tues	Wed	Thu	Fri	Sat
McLoughlin Bay	Fall/Winter	73.3%						8.9%
	Spring	29.2%						
	Summer*		96.9%	95.8%	98.6%	112.5%		
Bella Coola	Fall/Winter						42.0%	34.7%
	Spring					37.5%	31.3%	75.0%
	Summer*	119.4%	93.5%					93.5%

** only service on days connecting to Route 10 is shown*

Vessel Reliability

The table below shows the recent history of the vessel's mechanical incidents which have resulted in sailing delays or cancellations.

***Nimpkish*: History of Recorded Mechanical Incidents**							
	# of All Mechanical Incidents	# of Mechanical Incidents that Impacted Service	# of Sailings	# of Delays	% Delays (per sailing leg)	# of Cancellations	% Cancellations (per sailing leg)
F2009	-	-	42	-	-	-	-
F2010	2	-	152	-	-	-	-
F2011	-	-	175	-	-	-	-
F2012	-	-	234	-	-	-	-
F2013	1	-	223	-	-	-	-
F2014	7	1	231	2	0.87%	-	-
F2015	4	-	527	-	-	-	-
F2016	3	3	496	7	1.41%	-	-
Average	3	2	260	5	1.73%	-	-

Maintenance and Capital Costs

The table following summarizes historic and forecast refit and maintenance expenditures and capital projects for the *Nimpkish* for the period fiscal 2005 - 2020.

Nimpkish

Maintenance and Capital Costs	Actual												Forecast			
($ millions)	(Fiscal)												(Fiscal)			
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nimpkish																
Refit	0.4	0.4		1		1.1	0.8		1.1			2.0			2.2	
(including Major Overhaul & Inspections)																
Vessel Maintenance	0.1	0.06	0.1	0.1	0.08	0.03	0.08	0.08	0.04	0.2	0.3	0.2	0.3	0.6	0.2	0.3
Projects																
Generator Replacement				0.2												
Fire Doors							0.2									
Life-Saving Equipment Upgrades									0.2							
New Telegraph									0.03							
	0.5	0.46	0.1	1.3	0.08	1.13	1.08	0.08	1.37	0.2	0.3	2.2	0.3	0.6	2.4	0.3

Appendix B: Overview of Mid-Coast Terminals

Port Hardy (Bear Cove)

- Ramp and pontoon replaced in 2008 with a Northern standard berth.
- BC Ferries has ownership of the upland and water lot through the lease with BC Transportation Financing Authority ("BCTFA").
- BC Ferries has uplands facilities including a holding compound and waiting area.

Bella Coola

- Constructed in the 1990s by BC Ferries.
- BC Ferries owns the ramp and pontoon.
- BC Ferries operates under a licence with the Bella Coola Harbour Authority for access to the water lot.
- The uplands in general are provincially owned.
- BC Ferries has no holding compound.

Shearwater

- Constructed in the 1990s by BC Ferries.
- BC Ferries owns the ramp, pontoon (barge) and floating lead.
- BC Ferries operates under a licence of occupation with the Province for ferry docking purposes.
- BC Ferries has an agreement with Shearwater Marine to have BC Ferries' dock secured to its upland lot.
- BC Ferries has no holding compound.

Ocean Falls

- Older style berth, originally constructed by the Province and now owned by the Ocean Falls Improvement District ("OFID").
- BC Ferries operates under a licence of occupation with OFID which in turn has a lease from the Province.
- BC Ferries has no holding compound.

Bella Bella (McLoughlin Bay)

- Constructed in the 1990s by BC Ferries and upgraded in 2008.
- BC Ferries has ownership of upland and water lot through the BCTFA lease.
- BC Ferries has uplands facilities including a holding compound and waiting area.

Appendix C: Customer Feedback

The attached report provides an overview of feedback from customers specific to Route 10s and the *Nimpkish* for the period fiscal 2010 - 2016.

Overview of Customer Feedback

Fiscal	Total Comments	Category: North Coast	Route/Vessel Specific: Discovery Coast & Nimpkish
2010	6,014	405	22
2011	9,260	225	29
2012	8,351	182	36
2013	7,653	141	22
2014	8,273	192	23
2015	7,319	184	28
2016	7,371	193	22

Route 10s and *Nimpkish*

Category	Details
Accessibility On Board	• Difficult access for passengers with disabilities or mobility issues
Availability	• Local customers not pleased with summer availability due to the size of the *Nimpkish* • Travel agencies disappointed with the lack of vehicle space on the *Nimpkish*
Frequency of Sailings	• Customer not pleased with the frequency of sailings between Shearwater and Bella Bella.
Vessel Substitution & New Ships	• Customers not happy with the passenger amenities and accessibility on the *Nimpkish* • Passenger accommodation not adequate for the sailing time
Route/Service Offering	• Customer not pleased with no direct service from Port Hardy to Bella Coola

Appendix D: Index of BC Ferries' Responses to Section 55 Guidelines

Project Description

a) 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.	*See sections 2 and 3.*
b) 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?	*See sections 3.24.4 and Supplemental Information.*
c) Is there a regulatory driver for the proposed capital expenditure?	*See section 3.2.*
d) 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.	*See Supplemental Information.*
e) Compare the annual maintenance costs of the existing capital asset with those expected for the replacement and explain any significant variances.	*See Supplemental Information.*
f) Have there been service disruptions due to inadequacy of the existing capital asset?	*See Appendix A.*
g) If age of the existing capital asset is a factor, what is the estimate of future costs of continuing its use?	*See section 4.4.*
h) Have there been complaints from the public, or other stakeholders about the existing capital asset?	*See Appendix C.*
i) Provide an estimate of the total capital costs associated with the proposed investment?	*See section 4.3.*
j) How was the cost estimate derived? Entirely with BC Ferries' staff or was there an external review?	*Internal to BC Ferries.*
k) 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?	*See section 5.1.2.*

l) 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.	*See Supplemental Information.*
m) 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.	*See section 4.*
n) Does the proposal include significant features that are innovative or untried?	*Current vessel and terminal standards and regulations will be adhered to for the Project. No untried features are planned.*
o) Is there an allowance in the estimate for inflation from the date of acceptance of a proposal to the completion date (escalation clause)?	*See section 4.2.*
p) Are financing costs included in the cost estimate between first payment to the supplier and the in-service date?	*Yes.*
q) 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.	*See Supplemental Information.*
r) Does BC Ferries intend to capitalize any of its own internal costs with respect to the capital expenditure?	*Yes, in accordance with BC Ferries' financial policies and International Financial Reporting Standards.*
s) Identify any parts of the capital expenditure that are to be provided by BC Ferries or its subsidiaries.	*Project management responsibilities will rest with BC Ferries.*
t) 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?	*Custom tariffs will not apply to the importation of a used or newly constructed vessel.*
u) In the case of vessels, will BC Ferries require the contracting shipyard to bear the design and construction risk?	*Not applicable for Option 1.* *Yes for Option 2.*

Timing and In-service Date

a)	For new or replacement vessels what is the expected in-service or deployment date and how was it derived?	*See section 5.1.4.*
b)	Were potential builders, for example shipyards, contacted to determine if the proposed date is reasonable?	*See section 5.4.2.*
c)	What are the consequences of a delay in the in-service or deployment date?	*See section 5.3.*

Does the Proposed Capital Expenditure Demonstrate Good Judgment, Based on Wisdom, Experience and Good Sense?

i)	Why is the proposed capital expenditure required now, and what are the consequences of any delay?	*See sections 2. 3.2 and 5.3.*
ii)	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 asset being replaced and the need to ensure ongoing continuity of service on Routes 10s and to meet the service level requirements for the new Route 28.*
iii)	What sources of expertise and experience have been relied upon in deciding to proceed with this capital expenditure?	*Lloyd's Register Canada was engaged by BC Ferries to provide a condition assessment of the Nimpkish.*
iv)	Provide detail on completed and/or planned consultations, in particular with the provincial government or other stakeholders.	*See section 2.1.*
v)	In the case of new vessels, has BC Ferries considered any alternatives to building and owning the vessels?	*Yes. The Project involves the proposed acquisition of a used vessel.*
vi)	Will a new or replacement vessel require any modifications to any terminals? If so, at what additional cost?	*See sections 3.4 and Supplemental Information.*
vii)	What are the procurement cost risks and how will they be mitigated?	*See section 5.4.2.*

viii) What are the consequences or the alternatives if the application is rejected?	*There are no obvious alternatives to the two options presented in this Application. If both of the options are rejected, BC Ferries may not be able to serve Routes 10s and 28, which would place the Company in default under the Coastal Ferry Services Contract.*

Wise Use of Resources

i) Can an existing vessel be reassigned instead?	*Option 2 involves a two-year life extension of the Queen of Nanaimo and the temporary reassignment of the vessel to provide the Route 28 service.*
ii) For shorter routes, were non-vessel options considered, such as a fixed link?	*Yes, but there are no other obvious non-vessel options. A fixed link option would be cost prohibitive.*
iii) Were non-vehicle vessels (e.g. passenger only ferries, barges, other) or a mix of vessel types considered?	*Yes, but projected requirements indicate that roll-on/roll-off passenger ferries will be required for the foreseeable future.*
iv) Has a used vessel option been considered?	*Yes. The Project involves the proposed acquisition of a used vessel.*
v) How does the vessel align with the concept of standardization of the fleet?	*See section 3.3.2.*
vi) Would investments in technology, such as an expanded reservation system, better IT systems or a yield management program allow for a smaller sized vessel?	*Investments in these technologies are currently in progress; however they will not offer an opportunity to reduce the size of the vessel. Using the same vessel during both peak and off-peak periods requires the vessel to be sized for peak demand.*

Showing Due Consideration for the Future

i)	How does the proposed new vessel contribute to overall fleet flexibility?	*See section 3.3.2.*
ii)	What new technologies or innovations will be incorporated, and why are they considered necessary?	*Current vessel and terminal standards and regulations will be adhered to for the Project. No new technologies of untried features are planned.*
iii)	Will there be provision for a conversion to an alternative to marine diesel engines, such as LNG?	*See section 3.3.1.*
iv)	Is dual fuel capability planned and if so provide the rationale?	*See section 3.3.1.*
v)	Will the new or replacement vessel be appropriate if the ratio of vehicle to foot passenger traffic changes in future?	*See section 3.3.1.*
vi)	Is vessel capacity sufficient to meet current and projected future demand?	*See section 3.3.1.*
vii)	What is the estimated impact of the proposed capital expenditure on future price caps assuming no change in non-passenger related revenues?	*See section 4.7.*

Not Excessive

i)	What passenger amenities will be provided, and why are they considered appropriate for the intended use of this vessel?	*See section 2.1.*
ii)	Do any of the proposed passenger amenities require crewing levels to be higher than what is required by Transport Canada regulations?	*No.*
iii)	Is the vessel the right size and how has the capacity requirement been determined?	*See section 2.1.*
iv)	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?	*See section 3.3.1.*

v) 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?	*See section 3.3.1.*
vi) What would have to be sacrificed to reduce total costs by 10%, and by 20%?	*See section 4.8.*
vii) Does vessel design or expected operating speed have any impact on labour costs?	*See section 3.3.1 and 5.4.3.*
viii) Are engines sized for efficient operations, fuel consumption and ability to recover schedule?	*Yes. See section 3.3.1.*

Demonstrating Good Value at a Fair, Moderate Price

i) For new vessels what alternatives were considered? Provide the rationale (cost or otherwise) for why the alternatives were not accepted.	*N.A.*
ii) Has the business case been built on a full life cycle costing basis?	*Yes, see section 4.*
iii) How fuel efficient will the new vessels(s) be?	*To be determined.*
iv) Will the new or replacement vessel have any impact on efficient use of labour?	*See section 3.3.1 and 5.4.3.*
v) Are the operating costs reasonable?	*See Supplemental Information.*
vi) How do the operating costs compare with the vessel being replaced?	*See Supplemental Information.*
vii) Is there any expected impact on revenue?	*See Supplemental Information.*
viii) 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)

i)	Is the proposed capital expenditure provided for in a board approved capital plan?	*Yes.*
ii)	Is the total cost different in any respect from what was approved in the capital plan?	*No.*
iii)	Is the total cost different in any respect from what was indicated in the BC Ferries' last submission to the Commissioner for price cap setting purposes?	*Yes. The PT4 capital plan included terminal work (minor life extension projects) contemplating a like-for-like Nimpkish replacement and status quo service on Route 10s. The proposed expenditure is a significant increase from that plan to allow a safe and efficient ship-to-shore interface for the candidate used vessel and to reflect the proposed new Route 28 service.*
iv)	Will the facility accommodate passenger-only ferries, water taxis and/or barge operations?	*The facilities will be modified to accommodate the candidate used vessel, which is a roll on/roll off vessel.*
v)	Will the project contribute to flexibility and interoperability within the fleet?	*See section 3.3.2.*
vi)	Will there be any improvements to ferry marshalling?	*No. This is not part of the Phase 1 scope.*
vii)	Will there be any improvements to loading, unloading and turnarounds?	*In Phase 1, improvements are contemplated only at Ocean Falls where a new ramp is proposed that allows greater flexibility with loading and unloading traffic due to improved geometry.*
viii)	Will BC Ferries be sub-contracting or entering into partnerships with other entities to provide services at the terminal (e.g. parking, catering, retail)?	*To be determined.*
ix)	Will there be any effect on local traffic patterns, and if so, how will they be mitigated?	*To be determined.*
x)	How are the needs of commercial traffic being considered and accommodated?	*For each mid-coast berth, the interface between the various types of vehicles, including commercial, and the candidate used vessel is currently under review.*

Coastal Ferry Services Contract

i)	Is the proposed capital expenditure consistent with the current Coastal Ferry Services Contract?	*See section 2.1.*

Long Term Vision for Coastal Ferry Services in British Columbia

i)	How does the proposed expenditure support the government approved long term vision for the future of coastal ferry services?	*The Project responds directly to a request by the Province to provide the mid-coast service.*