
British Columbia Ferry Services Inc.

Application to the
British Columbia Ferries Commissioner

Pursuant to
Section 55 (2) of the *Coastal Ferry Act*

For the
New Major Vessels Project

December 13, 2024



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

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Section 1 Introduction and Application Overview

1.1 Introduction

British Columbia Ferry Services Inc. ("BC Ferries" or the "Company") hereby applies for approval of the British Columbia Ferries Commissioner (the "Commissioner") for the New Major Vessels Project ("NMV Project") in accordance with Section 55(2) of the *Coastal Ferry Act* (the "Act").

The NMV Project is a once-in-a-generation undertaking. It involves investing \$ < >, inclusive of capital and operating funds and interest during construction ("IDC"),¹ in the procurement of five new major vessels ("NMVs"). The new vessels are planned to enter service starting in 2029 at approximately six-month intervals and, as they are built, will be incorporated into the major routes fleet that connects the Lower Mainland with mid and southern Vancouver Island and with Langdale. As these new vessels are introduced, BC Ferries will retire four of its oldest vessels that are smaller and have reached end of life.

BC Ferries is an essential public service that connects customers and communities up and down the coast, and through the major routes, is an essential component of the supply chain between the lower mainland and Vancouver Island and the Sunshine Coast. Investing in BC Ferries' fleet on the major routes is essential for meeting the needs of customers and ensuring the longevity of ferry services across the system. The major routes, and the vessels that serve them, are truly the "backbone" of BC Ferries system. They not only serve the majority of customers, but also financially support the entire system – Route 1 (Swartz Bay to Tsawwassen) is the only route in the ferry system that is consistently profitable.

Six vessels in the fleet that form this "backbone" are decades old (built in the 1960s, 1970s and 1980s) and, despite investments to extend their lives, are nearing their end of service lives.² Four of those vessels³ are in urgent need of replacement because further prolonging their service lives with capital refits is not an option. Service levels on the major routes have not materially increased since the opening of Route 30 (Tsawwassen to Duke Point) in 1990 and the

¹ As discussed in Section 6, it includes \$ < > of interest during construction and a managed budget of \$ < >, but excludes any third party contributions.

² *Queen of New Westminster* ("NW") (V-Class, built 1964); *Queen of Cowichan* ("COW") (C-Class, built 1976); *Queen of Coquitlam* ("COQ") (C-Class, built 1976); *Queen of Alberni* ("ALB") (C-Class, built 1976); *Queen of Surrey* ("SUR") (C-Class, built 1981); and, *Queen of Oak Bay* ("OAK") (C-Class, built 1981).

³ NW, COW, COQ and ALB.

introduction of the Spirit Class vessels in 1993-1994; however, traffic demand has increased significantly since then and the major routes are now consistently operating at full capacity during peak periods.⁴ A significant investment is necessary just to maintain the current level of BC Ferries' operations. It is clear, however, that simply maintaining the existing operations will be insufficient going forward from the perspectives of meeting increasing demand from expected population growth, the overall financial health of the ferry system, and positioning the system to withstand and recover from unplanned disruptions.

Customers strongly stated during the Charting the Course public engagement initiative that they want a ferry service that is reliable. BC Ferries believes the public interest means having capacity, resiliency and reliability to support people's livelihoods, the climate and the economies and the tourism industries of the communities its serves. The NMV Project will address a growing customer service issue on the major routes, in that they are already effectively operating at full capacity during the peak season. During July and August 2024, the south island and mid-island routes⁵ averaged 91 percent utilization. 60 percent of all sailings during that period were leaving full and customers in vehicles had to wait for the next sailing, and 80 percent of sailings were at greater than 85 percent capacity. Waiting time at terminals is consistently ranked as one of the lowest rated components of customer satisfaction.⁶ Moreover, the population of the areas that the Company serves is growing, meaning that wait times and delays will only increase over time.

The major routes (especially Route 1) have regularly provided a financial contribution to the non-major routes, thereby limiting upward pressure on their fares. With the four oldest major vessels ready to be retired, the looming potential for service issues on the major routes, if these necessary investments are not made, will adversely impact ferry users on every route. At the same time, limiting vessel capacity on the major routes restricts access across the ferry system, due to the integrated dependency of the minor and Northern Routes. In essence, any unmet demand on the major routes inhibits growth across the system and subsequently limits revenue growth. BC Ferries is already losing revenue in this way today, and the impact of foregoing growth will become much more acute as demand increases with population growth. As the cost of operating the non-major routes increases over time, without the benefit of overall ferry

⁴ The Coastal Class vessels were introduced in 2007 but did not provide a step change increase in capacity. They increased capacity over the V-Class vessels by 35 to 55 AEQs, depending on the base vessel used.

⁵ The 'south island corridor' is Route 1. The 'mid-island corridor' consists of Routes 2 and 30. The Sunshine Coast is served by Route 3.

⁶ BC Ferries, *Customer Satisfaction Tracking: All Waves - 2023*, pp. 6, A-3 and A-11.

system growth, the non-major routes will be exposed to higher financial self-reliance or further government support. An investment in capacity, reliability and safety on the major routes is an investment in all routes. The NMV Project will enable BC Ferries to service demand, capture revenue and continue to support the other routes.

The NMV Project also delivers critical resiliency. With these routes currently operating at the limits of their capabilities and without an additional (twelfth) vessel in BC Ferries' major vessel fleet (the "additional" or "twelfth" vessel), they remain very exposed to unplanned mechanical incidents. Such disruptions become increasingly likely as the existing fleet ages. A service disruption on the major routes, in addition to the obvious customer service impacts, will result in a significant loss of revenue. Even small fluctuations in traffic carrying capability on the Major Routes can have significant financial implications for BC Ferries. A protracted disruption, which can typically occur due to mechanical causes, will pose a significant financial threat to the ferry system as a whole. An additional vessel capable of profitably serving latent demand in the peak season will also add year-round resiliency. That is, being able to access that vessel on short notice will mitigate BC Ferries' significant customer service and financial risk exposure to unplanned mechanical or other incidents.

The NMV Project as presented will deliver a step-change in system resiliency and overall vessel capacity. BC Ferries is sensitive to fare affordability considerations and understands that the NMV Project investment is significant. However, the long lead times to acquire or retrofit large vessels, and the inability to extend the lives of four of the vessels any further, means that BC Ferries must initiate the NMV Project now. BC Ferries has employed a number of strategies to implement the NMV Project cost-effectively, including phasing the project to focus on the highest priority vessels, using refits to delay replacement of other vessels and a robust procurement approach. The NMV Project also incorporates considerable flexibility to adjust future phases in the event that circumstances, such as future demand, unfold differently than anticipated.

In 2023, the Province provided an important one-time \$500 million contribution, ultimately buying down the price cap from a required 9.2 percent annual increase to a 3.2 percent annual increase. It was understood that while the one-time funding would support affordability throughout Performance Term Six,⁷ a structural funding gap remained, and a subsequent funding solution would be required. Since then, a number of challenges are placing increasing strain on the financial conditions of the ferry system, including: higher costs to address end-of-life terminal and berth infrastructure, new requirements to address at-risk terminal

⁷ Each performance term ("PT") spans a period of four fiscal years; e.g., PT6 is April 1, 2024 to March 31, 2028; PT7 = Fiscal 2029 to Fiscal 2032, PT8 = Fiscal 2033 to Fiscal 2036, etc.

infrastructure that were identified after the current rate caps were finalized, and a higher than expected increase in operating costs related to maintenance requirements and unexpected vessel repairs, along with necessary investments to stabilize the workforce and minimize related service cancellations.

At the same time, fleet renewal is required in order to continue to support the evolving needs of communities and provide reliable service. The NMV Project is the cornerstone of fleet renewal which will provide service on major routes for decades to come. BC Ferries and the Province have both acknowledged these challenges will require collaboration going forward to ensure fares remain as affordable as possible.

The Company has understood the need to reinvest in the major vessels fleet for some time, and its long-term capital planning has reflected the need for a major vessel replacement project. BC Ferries arrived at the proposed scope of the NMV Project after considering various options for addressing a pressing need to reinvest in the backbone of the ferry system. The options included different numbers of new vessels and different phasing. BC Ferries' analysis, as discussed in this filing, shows that the preferred alternative is the superior option. That is, the proposed NMV Project is reasonably required and in the public interest, having regard to the needs of ferry users, taxpayers and the financial sustainability of BC Ferries. BC Ferries respectfully requests that the Commissioner approve the project as proposed.

1.2 Application Overview

This section provides a high-level overview of the layout of the Application. The Commissioner has provided BC Ferries with a set of submission questions to help determine whether the proposed capital expenditure meets the requirements for approval of a major capital expenditure under Section 55 of the Act.⁸ BC Ferries has addressed all of those considerations throughout this filing. Appendix A presents a cross-reference between those submission requirements, and where they are addressed in this Application.

The sections of the Application are as follows:

Section 2: Applicable Regulatory Framework

This section provides a high-level summary of the regulatory framework applicable to this Application. The discussion in this section is organized around the following:

⁸ British Columbia Ferry Commission, *Guidelines for British Columbia Ferry Services Inc. for Applications under Section 55 of the Coastal Ferry Act*, July 19, 2023.

- **The NMV Project is a Major Capital Expenditure under the Act (Section 2.2):** The NMV Project is a “major capital expenditure” under Section 55(2) of the Act. BC Ferries has satisfied the legal requirements for major capital expenditure approval for the reasons set out in the remainder of the Application.

Section 3: Project Background and Overview

This section provides an overview of the NMV Project and how it fits within BC Ferries’ operations more generally. This section is organized around the following points:

- **Five New Major Ferries to Replace Four Smaller End-of-Life Vessels (Section 3.2):** The NMV Project involves building five new modern and efficient major ferries and retiring four smaller ones that are at the end of their service lives. The NMVs are planned to enter service starting in 2029 at approximately six-month intervals and will be incorporated into the major routes as they are built. The arrival of the five NMVs will let BC Ferries retire its four oldest major vessels (built in the 1960s and 1970s) while introducing an additional vessel that increases the major vessel fleet from 11 to 12 vessels.
- **Associated Capital Projects Are Essential for the New Ships to Enter Service (Section 3.3):** Upgrades to berths and terminal facilities are essential for the new ships to enter service. Life extensions to two other vessels are necessary to allow BC Ferries to delay their replacement and limit the initial project phase to five vessels.
- **NMV Project Budget Estimate (Section 3.4):** The NMV Project total budget estimate is \$< >, inclusive of capital and operating funds and interest during construction (“IDC”).
- **NMV Project Dovetails with Strategic Planning (Section 3.5):** BC Ferries develops and updates guiding documents that set the company’s path into the future. These plans set goals and priorities, and dictate future corporate actions, which then flow throughout the organization when making decisions. The guiding documents of particular relevance to the NMV Project are the “Strategic Plan” and associated terminal and fleet “Master Plans”, the “Long-Term Underwater Noise Management Plan” and the “Clean Futures Plan”. The NMV Project dovetails with these plans, and represents a key means by which BC Ferries will deliver upon the goals contained within them.
- **Charting the Course – A Coastal Ferry System for the Future (Section 3.6):** The “Charting the Course” initiative (“CTC”) is being led by the BC Ferry Services Board and the BC Ferry Authority to confirm the longer-term vision for the coastal ferry system in British Columbia, to define the “public interest” and identify what is needed to keep

people, goods and services in coastal communities connected today and well into the future. The CTC findings have provided key input and guidance for planning decisions for the NMV Project. Based on this broad engagement, BC Ferries asserts that the public interest means having the necessary capacity and resiliency to support people's livelihoods, coastal economies and local tourism industries, with a responsible plan to respond to forecasted population growth.

- **NMV Project Is Consistent with BC Ferries' Long-term Capital Plan and is Approved by the Board (Section 3.7)**
- **Project Chronology (Section 3.8.):** The NMV Project, as proposed, is the culmination of many years of work. The work was interrupted by the COVID-19 pandemic and was restarted thereafter, but has faced inflationary shipbuilding costs.

Section 4: Project Need and Benefits

This section explains why the NMV Project is reasonably required. The NMV Project is important to replace end-of-life vessels, to meet increasing demand from expected population growth, to solidify the foundation of the integrated ferry system, to secure the revenue generated from the major routes and to position the system to withstand and recover from unplanned disruptions. It will also deliver other benefits.

The discussion in Section 4 is organized around the following supporting points:

- **Importance of the Major Routes (Section 4.2):** Maintaining reliable service on the Major Routes is important to the many customers who depend on the service for business and personal reasons. The major routes, and the vessels that serve them, are the "backbone" of BC Ferries system. They not only serve the majority of customers directly, but also generate the greatest share of the operating revenues in the ferry system.
- **End-of-Life Vessels Must Be Replaced (Section 4.3):** There is no "zero cost" option for BC Ferries. Six vessels used on the major routes are decades old and nearing their end of service life. Four of those vessels are in urgent need of replacement because further prolonging their service lives is not an option. As these vessels age, deteriorating reliability is anticipated and they will need to be retired. The escalating probability of prolonged service interruptions will not only affect customers, but also represent significant losses of revenue.
- **Adding Capacity Is Necessary to Meet Growing Demand and Avoid Deterioration of Customer Service (Section 4.4):** There has been no significant change to capacity or service levels on the major routes for almost 30 years. During

that time, the demand for ferry services on these routes has increased substantially. The major routes system is now operating near capacity in July and at capacity in August. In recent years, revenue management and increased reservation allocations have helped to shape some demand away from busiest sailings, leading to a higher capacity utilization and lower sailing waits than in previous years. However, with average capacity utilization at above 90 percent and many sailings at 100 percent capacity, only very limited future gains can be achieved by further shaping demand. At the same time, the evidence shows there is unserved, latent demand in peak periods. During summer 2024, this was demonstrated not only by running at an average 96 percent capacity utilization in August on Route 1, but also by numerous occasions when all reservable space for sailings sold out three or more days in advance.

- **Capturing More Tariff Revenue on the Major Routes Is Essential for the System’s Long-Term Sustainability (Section 4.5):** Although NMV Project vessels will sail on the major routes, the Project has significant benefits for customers on every ferry route. With the major routes currently operating at extreme capacity utilization in the peak season, growth itself becomes constrained across the ferry system. Without the benefit of overall growth, the non-major routes will be exposed to higher financial self-reliance or increased government support as their operating costs continue to escalate despite efforts to contain them. BC Ferries is reaching an inflection point where, without additional capacity on the major routes, a chokehold will be placed on the system. Adding a twelfth vessel to the fleet that can serve the passenger and goods demand expected from population growth, along with its revenue, will ensure a strong backbone for the system as a whole.
- **BC Ferries has Already Maximized the Benefits of Demand Management Strategies (Section 4.6):** For several years, BC Ferries has been using demand management strategies on the major routes to shift peak loads to sailings where there is surplus capacity. These strategies have been very effective, to the point where there is now very little surplus capacity on any sailings during the peak season. BC Ferries would be unable to accommodate further material demand growth with these strategies during peak season. A capacity increase is necessary to avoid the service and financial challenges previously described.
- **Customers Benefit From a More Resilient System (Section 4.7):** A twelfth vessel will enable a step change in resiliency on the major routes, and goes beyond the obvious customer service implications for customers who rely on the major routes. Not only will the twelfth vessel serve demand in the peak season and be available year-round on short notice to avoid or limit the impact of service disruptions, it is needed to

accommodate expected population and traffic growth in the coming years and to support the integrated ferry system.

- **Twelfth Major Vessel Will Have a Significant Impact on the Provincial Economy (Section 4.8):** An economic impact assessment shows that the twelfth NMV would have a significant positive impact on the provincial economy.
- **Consequences of Delaying or Not Completing the Project (Section 4.9):** This section details the consequences of delaying or not completing the project including significant impacts on fleet resilience, the ability to meet customer expectations for reliable transportation and accommodating anticipated growth in demand due to population and economic development.
- **NMV Project Delivers Significant Environmental Benefits (Section 4.10):** The NMV Project is a key initiative of BC Ferries' decarbonization strategy. It is pivotal in ensuring that BC Ferries can meet future greenhouse gas ("GHG") emission reduction targets and support the provincial and federal governments' progress toward their GHG reduction goals for the marine transportation sector.
- **Other Operational Benefits (Section 4.11):** The NMV Project provides numerous other benefits, including those obtained through standardization and a risk- and condition-based maintenance regime. Customers will benefit from integration with other transportation modes, as well as from efficient vehicle loading and discharge, and improved amenities.

Section 5: Alternatives Analysis

This section describes the structured alternatives analysis that BC Ferries undertook, and why the Company has concluded that the proposed NMV Project is the preferred alternative for meeting the project need. The section is organized around the following supporting points:

- **BC Ferries Used a Structured Alternative Evaluation Process (Section 5.2):** BC Ferries set aside Option 0 – Status Quo as non-viable, since it would present challenges with vessel reliability and maintainability, with corresponding risks to service provision. Two fundamental decision points arose: (1) whether to retire all six legacy vessels (ALB, COQ, COW, OAK, SUR and NW) or to extend the operational lives of SUR and OAK; and (2) whether to acquire a twelfth vessel now or in a future build.
- **BC Ferries Decided to Build Five Vessels and Life Extend Two Others (Section 5.3):** Using the two decision points, BC Ferries selected Option 2 – Build 5 (Preferred), which builds five NMVs now and life extends the SUR and OAK.

- **The Non-Financial Implications of Each Option were Considered (Section 5.4):** BC Ferries considered the non-financial implications with respect to each of the four options considered, including a traffic comparison.
- **BC Ferries Undertook a Financial Analysis of the Options (Section 5.5):** BC Ferries considered the financial implications of the project costs and ongoing revenues and expenses with respect to each of the four options. Isolated price cap implications and net present values were measured and compared between the options.
- **Option 2 Delivers the Best Overall Value (Section 5.6):** Based on a financial review, Option 2 – Build 5 is a reasonable selection in terms of upfront capital cost and required price caps over the next two performance terms, and is the preferred option based on the overall value it provides for ferry users.

Section 6: NMV Project Financial Considerations

This section explains why the NMV Project budget estimate is reasonable, by providing a more detailed look at the analysis for the recommended option. It is organized around the following supporting points:

- **The NMV Project has a Comprehensive Budget (Section 6.2)**
- **The Financial Analysis Includes Required Lifecycle Investments (Section 6.3)**
- **Operating Expenses are Consistent with a Larger Vessel Size and Operations and Maintenance of an Additional Vessel (Section 6.4)**
- **Ongoing Refit and Maintenance Costs have been Conservatively Estimated (Section 6.5)**
- **Basis of Estimate: Budget Informed by Third Party Experts and Past Experience (Section 6.6)**
- **BC Ferries Performed Comprehensive Risk Evaluation, Developed Strategies to Manage the Risks and Included Appropriate Contingencies (Section 6.7)**
- **BC Ferries Used Sensitivity Analysis to Test Financial Inputs (Section 6.8)**
- **BC Ferries Continues to Seek Funding Opportunities for the NMVs (Section 6.9)**

Section 7: New Major Vessels

This section describes the proposed NMVs, which will be an entirely new standardized class for BC Ferries. It is organized around the following supporting points:

- **A New Class of Vessels to Serve British Columbians (Section 7.2):** The five NMVs will represent an entirely new standardized class for BC Ferries, which will eventually replace all the C-, V- and Spirit Class vessels.
- **NMVs a Result of Design Development (Section 7.3):** An external naval architecture firm supported the NMV Project team in the conduct of a concept design study and the development of a recommended NMV basic design.
- **NMV Basic Design Focuses on Customer and Operational Needs (Section 7.4):** The NMVs' basic design focuses on customer experience, standardization, interoperability, maintainability, reduced environmental impacts and flexibility to adapt to changing travel and technology trends. It will form the basis for the final detailed design and subsequent construction.
- **Deploying Vessels Based on Operational Needs (Section 7.5):** The entire fleet, including the NMVs, will be deployed to best support the overall major route service needs.

Section 8: Affordability and Prudence

This section discusses how BC Ferries has considered the implications of the NMV Project from the standpoint of customer affordability and prudence. The section is organized around the following supporting points:

- **Investing in the Twelfth Vessel Now Will Enable BC Ferries to Meet Growing Demand While Still Providing Future Off-Ramps if Needed (Section 8.2):** A significant investment is unavoidable. The majority of the proposed NMV Project costs are attributable to the need to replace the four C- and V-Class vessels that have exceeded their useful service and economical life. An additional vessel, beyond those being replaced, is also required to meet growing demand while providing resiliency. While recognizing the importance of capital investment to address the identified needs, BC Ferries has taken an approach which ensures that it can reduce the major vessel fleet to 11 in the future, if needed.
- **Project Phasing Moderates Price Cap Impacts (Section 8.3):** With demonstrated price escalation in the shipbuilding markets, this investment is expected to increase in cost the more it is delayed. Splitting the vessel replacement project into two phases, and deferring replacing two C-Class ships, optimizes BC Ferries' investment and moderates price cap and customer affordability impacts.

- **Measures to Achieve the Lowest Price (Section 8.4):** BC Ferries has taken numerous measures to obtain the lowest price for the customers in financing and procurement.
- **Reprioritizing Capital Plan and Exploring External Funding to Reduce Cost Pressure (Section 8.5):** BC Ferries has reviewed its Capital Plan for opportunities to reduce cost pressure. BC Ferries has removed lower priority capital projects and reduced or delayed others where appropriate and safe to do so. BC Ferries is also continuing to explore opportunities for external funding or additional revenues, including potential investments from other partners.

Section 9: Project Governance, Procurement and Implementation

This section addresses NMV Project governance, procurement and implementation. It is organized around the following supporting points:

- **BC Ferries Is Following Expert Recommendations on Organization, Governance and Controls (Section 9.2):** BC Ferries is putting in place an organizational and governance structure along with appropriate controls based on recommendations of a third party expert. These recommendations incorporate industry best practices.
- **Adopting a Procurement Model Best Suited to the Project (Section 9.3):** BC Ferries retained a world-leading shipbroker to help identify, select and enter into a design-build-deliver contract arrangement with a selected shipyard. It will acquire each new vessel under a separate contract with a single shipyard selected from a pool of pre-qualified proponents, and the contracts will include milestones and off-ramps. Timing for the procurement process is aligned with this Section 55 application.
- **Project Milestone Dates and Delivery (Section 9.4):** BC Ferries has carefully planned how the NMV Project will be delivered. Provided that BC Ferries is in a position to sign the NMV contracts in early 2025, BC Ferries has high confidence that the in-service dates for the NMV can be achieved. The current procurement timeline includes reasonable allowances for design phase and vessel construction and delivery. In the event that timelines must change, BC Ferries has the flexibility to adjust in-service dates with knowledge of the shipyard capabilities in order to achieve a balance of schedule, cost and risk considerations.

Section 10: Public, Stakeholder and First Nations Engagement

This section describes BC Ferries' efforts over several years to gather feedback and insights related to the NMV Project. These opportunities include engaging employees, customers and communities in-person and online. Engagement efforts give customers and communities a voice

in the decisions that affect them most, while enabling BC Ferries to continually evaluate the services it provides to ensure it is offering a reliable and affordable experience that aligns with the needs of travellers. This section reviews engagement with the following:

- **Customers and Communities (Section 10.2)**
- **Commercial Customers and Interest Holders (Section 10.3)**
- **First Nations (Section 10.4)**
- **Provincial Government (Section 10.5)**
- **Employees (Section 10.6)**
- **BC Ferry & Marine Workers' Union ("BCFMWU") (Section 10.7)**

This section also reviews:

- **Alignment of NMVs with Feedback (Section 10.8)**

Section 11: Coastal Ferry Services Contract and Other Obligations

This section details how the NMV Project is consistent with the Coastal Ferry Services Contract ("CFSC"), the vision for coastal ferry services and other obligations. It is organized around the following supporting points:

- **The NMV Project Will Ensure Compliance with the CFSC (Section 11.2):** The NMV Project is consistent with the Coastal Ferry Services Contract, and will have a positive impact on BC Ferries' ability to deliver all services required under the contract, as well as to meet other obligations.
- **The NMV Project is Consistent with the *Coastal Ferry Act* (Section 11.3):** The NMV Project is consistent with the *Coastal Ferry Act*, including helping to meet provincial GHG emissions targets.
- **The NMV Project will Support the Anticipated Vision for Coastal Ferry Services (Section 11.4):** The NMV Project is aligned with the CTC initiative, which articulates the vision and public interest goals for coastal ferry services based on broad public, stakeholder and First Nation engagement.

Section 12: Conclusion – NMV Project is in the Public Interest

The extensive evaluation that BC Ferries presents in this filing supports approval of the NMV Project as a "major project expenditure" under Section 55(2) of the Act. There is a pressing need for replacing end of life vessels with larger, modern vessels that can maintain service on

the major routes, profitably meet growing demand, and add much-needed resiliency against likely but unpredictable mechanical disruptions. The NMV Project will meet the expectations of customers and interest holders alike, avoiding the worsening waits, delays, reliability challenges and capacity vulnerabilities that exist today, and appropriately balancing them with prudent and responsible affordability considerations.

The NMV Project, and in particular the preferred option, is reasonably required and in the broad public interest – including as described by coastal residents, major tourism, economic and other organizations in the province – having regard to the needs ferry users, taxpayers and the financial sustainability of BC Ferries.

Section 2 Applicable Regulatory Framework

2.1 Introduction

This section provides a high-level summary of the regulatory framework pertinent to this Application.

2.2 The NMV Project is a Major Capital Expenditure under the Coastal Ferry Act

Summary: The NMV Project is a "major capital expenditure" under the Act. BC Ferries has satisfied the legal requirements for approval of the Application the reasons set out in the subsequent sections of the filing.

Section 55 (2) of the Act requires BC Ferries to obtain the approval of the Commissioner before incurring a "major capital expenditure". Under Section 55 (5), a major capital expenditure is one that:

"...meets the criteria (a) established by the Commissioner from time to time, and (b) most recently provided by the Commissioner to the ferry operator".

By Order 23-02A, dated August 20, 2024,⁹ the Commissioner determined that for the purposes of Section 55 (5):

"1. Any capital expenditure for any new vessel or mid-life upgrade to a vessel ("Vessel Expenditure") is a major capital expenditure if the expenditure exceeds \$50 million inclusive of vessel related component programs and interest during construction;

...

5. In the case where a single project ("Project") planned by a ferry operator includes capital expenditures of a type referenced in more than one of paragraphs (1) to (4) above, the entire capital expenditure for the Project will be a major capital expenditure if any of the Vessel Expenditure, Terminal Expenditure, IT Expenditure or Other Expenditure exceeds the applicable threshold;

⁹ British Columbia Ferry Commission, Order 23-02A: *In the Matter of Section 55 and Section 67 of the Coastal Ferry Act, and Establishment of the Criteria for a Major Capital Expenditure*, August 20, 2024.

6. When estimating the amount of a planned capital expenditure for purposes of this Order, a ferry operator may exclude the amount of any third party contributions;

...”

As the NMV Project’s budget exceeds the capital thresholds as defined by Order 23-02A, it constitutes a major capital expenditure. BC Ferries has satisfied the legal requirements for major capital expenditure approval for the reasons set out in the remainder of this Application.

Section 55 identifies factors that the Commissioner must consider in assessing the Application:

55 ... (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.

Further, the *Coastal Ferry Act* requires the Commissioner to regulate BC Ferries in the public interest, accounting for specific considerations:

38 (1) *Without limiting any other power of the commissioner under this Act, the commissioner must, after considering public feedback obtained under this Act, regulate each ferry operator in relation to the core ferry services that are to be provided by that ferry operator and the tariffs, including, without limitation, reservation fees, that may be charged for those core ferry services, and must undertake that regulation in the public interest and in accordance with the following principles:*

(a) the primary role of the commissioner is to balance, in the manner the commissioner considers appropriate,

(i) the interests of ferry users,

(ii) the interests of taxpayers, and

(iii) the financial sustainability of ferry operators;

(a.1) ferry operators are to be encouraged to meet provincial greenhouse gas emission targets in their operations and when developing capital plans;

...

BC Ferries submits these factors have been addressed – and satisfied – in this filing.

Section 3 Project Background and Overview

3.1 Introduction

This section provides an overview of the NMV Project and how it fits within BC Ferries' operations more generally.

3.2 Five New Major Ferries to Replace Four Smaller End-of-Life Vessels

Summary: The NMV Project involves building five new modern and efficient major ferries and retiring four smaller ones that are at the end of their service lives. Five NMVs are planned to enter service starting in 2029 at approximately six-month intervals and will be incorporated into the major routes as they are built. BC Ferries will retire its four oldest major vessels (built in the 1960s and 1970s), resulting in an additional vessel that increases the major vessel fleet from 11 to 12 vessels.

3.2.1 BC Ferries' Major Vessel Fleet

BC Ferries' 'major vessels' operate on the three major routes connecting the Lower Mainland with mid and southern Vancouver Island, and on the single major route connecting Horseshoe Bay with Langdale (see Figure 1):

- Route 1: Tsawwassen / Swartz Bay ("Route 1");
- Route 2: Horseshoe Bay / Nanaimo (Departure Bay) ("Route 2");
- Route 3: Horseshoe Bay / Langdale ("Route 3"); and,
- Route 30: Tsawwassen / Nanaimo (Duke Point) ("Route 30").



Figure 1: BC Ferries' Major Routes

These routes are currently served by 11 major vessels, six of which are near or past their planned end-of-service lives:

- *Queen of New Westminster* ("NW") (V-Class, built 1964);
- *Queen of Cowichan* ("COW") (C-Class, built 1976);
- *Queen of Coquitlam* ("COQ") (C-Class, built 1976);
- *Queen of Alberni* ("ALB") (C-Class, built 1976);
- *Queen of Surrey* ("SUR") (C-Class, built 1981); and,
- *Queen of Oak Bay* ("OAK") (C-Class, built 1981).¹⁰

The arrival of the five NMVs will let BC Ferries retire its four oldest major vessels (COW, COQ, ALB and NW) while life extending two others (SUR and OAK) and introducing an additional vessel that increases the major vessel fleet from 11 to 12 vessels. The importance of adding vessel capacity to the major routes, through the twelfth vessel, will be discussed further in Section 4.

3.2.2 New Major Vessel Class

The NMV represents an entirely new standardized class of major vessel, incorporating certain features of both the Coastal Class (double-ended design) and the Spirit Class (similar vehicle and passenger / crew capacity) vessels, while significantly improving upon both designs. The NMVs' length and weight will be compatible with BC Ferries' standardized major berths, and will meet the following requirements:

- Diesel-battery hybrid power plants, ready for future all-electric operation pending on-shore infrastructure and additional batteries;
- Compatible with 100 percent biodiesel ("B100"), and flexible with other diesel forms and blends;
- 360 automobile equivalents ("AEQs")¹¹ vehicle capacity (2,200 lane metres);
- 2,100 passenger and crew capacity;

¹⁰ See Appendix B for the history of all six V- and C-Class vessels.

¹¹ An AEQ is BC Ferries' standard unit of measure for an approximate car length, and comprises an area 6.1 metres long by 2.6 metres wide. AEQs are calculated using a conversion factor for each vehicle type. For example, a passenger vehicle is one AEQ, while a bus is three AEQs. Vessel AEQ capacities may vary from those stated in the Coastal Ferry Services Contract due a change in the standard measure from 5.34 metres to 6.1 metres.

- Double-ended, roll-on / roll-off passenger vessels, with bridges at each end to facilitate operational needs including rapid vessel turn-around at terminals; and,
- Operable on all major routes.

Figure 2 illustrates the NMVs' anticipated basic appearance.



Figure 2: NMV Basic Design Appearance

The NMV design incorporates the services and details that customers have said are important to them. The most fundamental of these are adequate vessel capacity and reliability, but also improved onboard amenities, such as quality food service outlets, pet lounges and play spaces.

The NMVs are planned to enter service starting in 2029 at approximately six-month intervals, and will be incorporated into the major routes as they are built. The fifth NMV will enter service in Spring, 2031. Specific route assignments are yet to be finalized. Once the five NMVs are in service, and the four old vessels have been retired, a possible scenario for peak season route assignments could be as follows:

- Route 1: Three NMVs and two Spirit Class vessels;¹²
- Route 2: Two Coastal Class vessels;¹³
- Route 30: Two NMVs and one Coastal Class vessel; and,
- Route 3: Two C-Class vessels.¹⁴

Section 7 provides further details about the proposed NMVs.

¹² *Spirit of British Columbia* ("SBC") and *Spirit of Vancouver Island* ("SVI").

¹³ The three Coastal Class vessels are *Coastal Celebration* ("CEL"), *Coastal Inspiration* ("INS") and *Coastal Renaissance* ("REN").

¹⁴ SUR and OAK.

3.3 Associated Capital Projects Are Essential for the New Ships to Enter Service

Summary: Upgrades to berths and terminal facilities are essential for the new ships to enter service. Life extensions to two other vessels are necessary to allow BC Ferries to delay their replacement and limit the initial project phase to five vessels.

3.3.1 Essential Upgrades to Vessels, Berths and Terminals

The NMV Project depends on the completion of the following other capital projects, each of which is essential for the new ships to enter service. These projects are not part of the NMV Project's scope:

- **Life Extension Project:** SUR and OAK each require five-year life-extension work so they can continue operating. The life extension maintenance work will focus on critical systems upgrades, including replacing or upgrading propulsion, steering and electrical systems that are no longer supported by the original manufacturers;
- **New Incremental Berth Project:** A new lay-by berth at Tsawwassen terminal (Berth 2A) to support the BC Ferries fleet, including the introduction of NMVs and their transition activities, and ongoing lay-ups and refits for the fleet. The new lay-by berth will have main car deck access only;¹⁵ and,
- **Various Terminal Infrastructure Upgrades:** Upgrades necessary to ensure NMV compatibility at the appropriate terminals:
 - At Departure Bay terminal, replacing the wingwalls and three line dolphins and catwalks on Berth 3;
 - At Horseshoe Bay terminal, replacing Berth 2 and Berth 3; and
 - At Langdale Terminal, replacing Berth 1.¹⁶

BC Ferries will manage these associated projects by adopting an appropriate governance structure and activities that oversee all of the projects in tandem and ensure successful implementation of the full scope of activities. See Section 9 for a discussion of governance.

¹⁵ The planning and design for this berth is in its early stages, and the project will likely be the subject of a separate application to the Commissioner for approval of a major capital expenditure under section 55 of the Act.

¹⁶ While these various terminal infrastructure projects will be needed for NMVs to enter service, they are also required based on age and condition of the assets, and would be undertaken regardless of the NMV project. As a result, they are not considered in the NMV Project's financial analysis.

3.3.2 Other Related Projects

The following projects have some relevance to the NMV Project in that they share potential interfaces or have mutual benefits. However, they are not essential to introduce the NMVs into service:

- **Upgrades to Berth 1 at Horseshoe Bay** to support full operation of NMV vessels;
- **Upgrades at the Fleet Maintenance Unit (“FMU”)** to expand the basins and to replace marine infrastructure. These upgrades will allow multiple major vessels to dock concurrently, and will allow the FMU to better support the changing fleet;
- **The Major Terminal Efficiency Program**, which will help ease terminal congestion and bridge on-shore efficiencies with the on-board efficiencies related to NMV deployment; and,
- **Disposal of the four retired legacy vessels (ALB, COQ, COW and NW)** in an environmentally and socially responsible manner. BC Ferries intends to have disposal contracts in place before removing the vessels from service, and will have a plan to allocate adequate berth space to remove stores and to de-brand the vessels. The Company is not considering selling them for further use.

In addition to the above:

- **NMV Phase 2 Project:** Two more NMVs will need to be built to replace SUR and OAK in 2036 / 2037. The future NMV Phase 2 Project is essential to complete the full major vessel renewal process, and is included in BC Ferries’ Capital Plan; and,
- **Major Terminal Electrification Project:** Major upgrades will be needed at the Swartz Bay, Tsawwassen, Departure Bay, Duke Point, Horseshoe Bay and Langdale terminals to enable the NMVs to transition to all-electric operation. Planning for this project is in its infancy, and it is not yet included in BC Ferries’ Capital Plan.

3.4 NMV Project Budget Estimate

Summary: The NMV Project total budget estimate is \$< >, inclusive of capital and operating funds and IDC.

The total NMV Project budget estimate is \$< >, inclusive of capital and operating funds and IDC. Table 1 summarizes the total NMV Project budget:

Table 1: NMV Project Budget Estimate (Millions)¹

NMV Project Budget Estimate	
Project Capital Costs	\$ < >
Project Operating Costs	\$ < >
Subtotal: Managed Budget	\$ < >
IDC	\$ < >
Total Budget with IDC	\$ < >

¹ Values include taxes.

Section 6 provides a detailed look at financial considerations for the NMV Project.

3.5 NMV Project Dovetails with Strategic Planning

Summary: BC Ferries develops and updates guiding documents that set the company's path into the future. These plans set goals and priorities, and dictate future corporate actions, which then flow throughout the organization when making decisions. The guiding documents of particular relevance to the NMV Project are the "Strategic Plan" and associated terminal and fleet "Master Plans", the "Long-Term Underwater Noise Management Plan" and the "Clean Futures Plan". The NMV Project dovetails with these plans, and represents a key means by which BC Ferries will deliver upon the goals contained within them.

3.5.1 Strategic Plan and Master Plans

The Strategic Plan articulates BC Ferries' corporate vision, mission and values, and establishes overarching goals reflected in the planning for the NMVs:

1. *Operating Safely, Reliably and Efficiently;*
2. *Supporting BC Ferries' employees;*
3. *Engaging Customers and Communities;*
4. *Reducing the Impact on the Environment; and,*
5. *Investing Sustainably, with a focus on delivering a safe, reliable and efficient service that supports fare affordability, now and into the future.*

BC Ferries has developed fleet and terminal master plans that align with the Strategic Plan and translate its high-level goals into specific policies and design directives that guide capital investments related to asset replacements. Together, the terminal and fleet master plans

provide high-level direction for planning decisions, procedures, standards and actions for the NMVs.

3.5.2 Fleet Master Plan

The Fleet Master Plan is applicable to the Company's vessels and guides its long-term vessel planning activities. This plan provides mandatory direction for decisions relating to vessel design, modifications, deployments and retirements. The Fleet Master Plan translates corporate strategic direction into a variety of goals that focus on:

- Standardizing the fleet to provide resilience, interoperability, and support safe, reliable and efficient service delivery;
- Improving operational and crew staffing efficiencies;
- Reducing environmental impacts, GHG emissions and underwater noise; and,
- Supporting fare affordability by designing vessels for long lives with the lowest practical capital, operating and lifecycle costs.

The Fleet Master Plan is important to the NMV Project because it:

- *Defines the NMVs' fundamental design requirements and specifications;*
- *Provides timeframes for new vessels to be delivered and in-service before older vessels must be retired;*
- *Identifies the NMVs as key conduits to improving environmental performance through improved efficiency and future electrical conversion; and,*
- *Identifies the NMV Project as a key means to increase fleet capacity, reliability and flexibility.*

3.5.3 Terminal Network Master Plan

The Terminal Network Master Plan guides the Company's long-term terminal planning activities by providing direction for terminal design, modifications and replacements. The plan's key goals and policies that are particularly relevant to the NMV Project include:

- Establishing a terminal network of only five berth types to support a resilient, interoperable and standardized ferry system;
- Supporting safe and easy customer movement both to and through the terminals, including all modes of travel and customer accessibility needs; and,
- Supporting the transition to a cleaner fleet as alternative fuels and electrification become available.

The Terminal Network Master Plan is important to the NMV Project because it:

- *Dictates the physical layout of the vessels with respect to berth interfaces;*
- *Prepares terminals for alternative fuels and electrification; and,*
- *Anticipates new berths for vessel storage and maintenance purposes.*

3.5.4 Clean Futures Plan

The Clean Futures Plan outlines BC Ferries' commitment to reduce GHG emissions by at least 27 percent below 2008 levels by 2030, in line with the Province's 2030 target for the transportation sector. The Company plans to reduce GHG emissions through the following five action areas:

- Using renewable and alternate fuels, such as renewable natural gas, renewable diesel and biodiesel;
- Vessel electrification, once adequate electric shore power is available;
- Implementing operational efficiencies to reduce energy consumption, such as optimizing route planning and maintaining efficient travel speeds;
- Adopting advanced technologies to reduce energy consumption, such as hull coatings and high-efficiency propulsion methods; and,
- Modernizing the fleet, as exemplified by the NMV Project.

BC Ferries expects that more than half of the projected GHG reductions will come from the introduction of new vessel designs, and approximately 30 percent of projected GHG reductions may come from adopting lower carbon-intensity energy.

The Clean Futures Plan is important to the NMV Project because it:

- *Establishes the GHG emission reduction target to 2030;*
- *Highlights the need to support customers choosing alternative forms of traditional vehicle transportation; and,*
- *Identifies the NMV Project as the primary way of meeting longer term targets.*

3.5.5 Long-Term Underwater Noise Management Plan

BC Ferries' Long-Term Underwater Noise Management Plan establishes a roadmap for reducing ship-generated underwater noise. Underwater noise affects marine mammals that use sound to communicate, navigate and fish, such as the Southern Resident Killer Whales. The NMVs will be designed for reduced underwater noise and are a core part of the noise reduction strategy.

The Underwater Noise Management Plan is important to the NMV Project because it:

- *Establishes strategic and specific targets for underwater noise for the new vessels.*

3.6 Charting the Course – A Coastal Ferry System for the Future

Summary: The "Charting the Course" initiative ("CTC") is being led by BC Ferries and the B.C. Ferry Authority to confirm the longer-term vision for the coastal ferry system in British Columbia, to define the "public interest" and identify what is needed to keep people, goods and services in coastal communities connected today and well into the future. The CTC findings have provided key input and guidance for planning decisions for the NMV Project. Based on this broad engagement, BC Ferries asserts that the public interest means having the necessary capacity and resiliency to support people's livelihoods, coastal economies and local tourism industries, with a responsible plan to respond to forecasted population growth.

3.6.1 2023 CTC Engagement – What BC Ferries has Learned

BC Ferries is collaborating with the B.C. Ferry Authority on the CTC, with input from the Province. Scheduled for release in 2025, the CTC will articulate a long-term strategy (to 2050) and implementation priorities through to 2035.

The CTC initiative undertook comprehensive public engagement in the fall of 2023 and spring of 2024 to consider the vision and to gather feedback on proposed goals and objectives for the ferry system.¹⁷ Specific activities included engaging the public through a survey, holding interest-group workshops, and hosting one-on-one meetings with Indigenous communities, transit agencies and provincial ministries to gather feedback on five proposed goals:

- Reliable and Available;
- Affordable and Efficient;
- Safe and Comfortable;
- Convenient and Integrated; and,
- Environmentally Sensitive and Resilient.

During the first phase of engagement, nearly 10,000 people filled out the survey in addition to workshops and one-on-one meetings with interest holders and Indigenous communities and organizations. Figure 3 shows the level of public support for the five goals:

¹⁷ The *Charting the Course Engagement and Update Report, March 2024* is available at <https://www.bcferreriesprojects.ca/bc-ferreries-charting-the-course>.

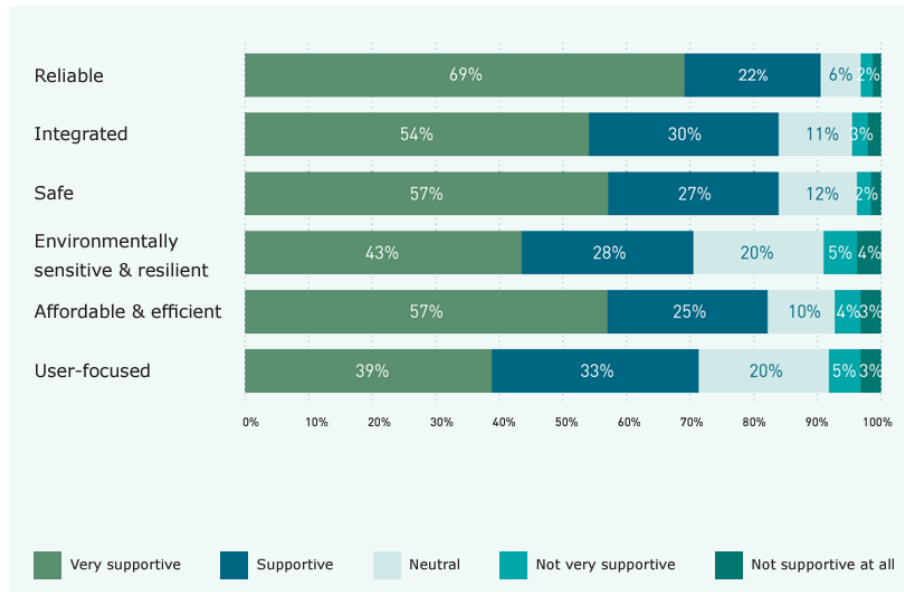


Figure 3: Comparative Levels of Public Support Across Goals

The public’s support (“very supportive” and “supportive”) is consolidated and summarized as follows:

Table 2: Support for Public Interest Goals

Reliable	Integrated	Safe	Environmental	Affordable & Efficient	User-Focused
91%	84%	84%	71%	82%	72%

Respondents were also given the opportunity to identify which goals and objectives were most important to them, as reflected below:

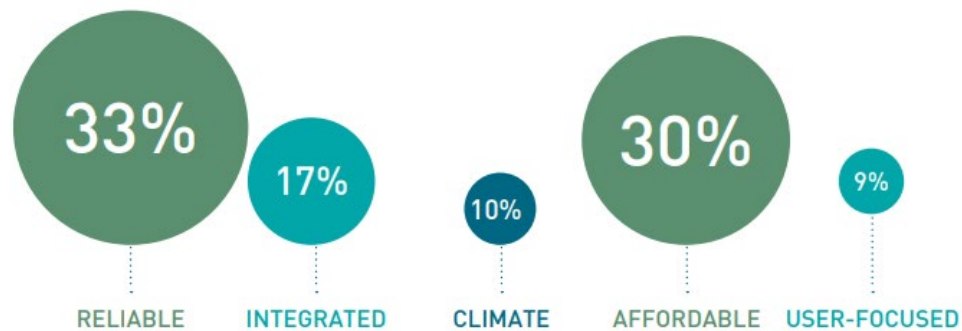


Figure 4: Goals and Objectives as Selected as Most Important to Respondents

The public's priorities were clear – 80 percent of respondents listed one of reliability (33 percent), affordability (30 percent) or better integration with transit and active transportation (17 percent) as their top priority.

3.6.2 Alignment of NMVs with Public Interest Priorities

BC Ferries clearly heard through the CTC initiative that public priorities include reliability, affordability and integration. The strong support for the goals and objectives received during the CTC engagement process provides a strong basis for the public's interest in the future of coastal ferries and can be used as a foundation to guide service delivery and future investments.

Sections 21.01 (1) and 38 (1) of the Act set the public interest as a key priority for the B.C. Ferry Authority and the Commissioner, which must be considered in support of overseeing the strategic direction of BC Ferries and in regulating the Company, respectively. As shown by the CTC initiative, BC Ferries believes that the public interest means having the necessary capacity and resiliency to support people's livelihoods, coastal economies and local tourism industries, with a responsible plan to respond to forecasted population growth. In considering how the NMVs support the public interest, the Company respectfully suggests a wide array of factors must be considered, including:

- *Safety* for customers and employees, which underpins all operations and planning at BC Ferries, including the NMVs;
- *Reliability*, which encompasses service availability, efficiency and punctuality, and is influenced by various factors including vessel capacity, resiliency and mechanical dependability and which enables:
 - *Friends, families and communities* to connect, to participate in community events and to engage in cultural and recreational activities;
 - *First Nations* members to travel through their traditional lands and waters;
 - *Workers and business people* to get to their jobs and appointments;
 - *Commercial transport, shippers and others* to move their goods efficiently;
 - *Patients* to make it to their medical appointments; and,
 - *Tourism, recreation and hospitality industries* to thrive;
- *Service levels*, which need to be set to an appropriate level to accommodate traffic demand and population growth, and which are directly influenced by vessel reliability, capacity and availability;
- *Support for a strong economy*, which is facilitated by a reliable ferry service with sufficient capacity to enable a strong and efficient supply chain to local communities;

- *Environmental sustainability*, which includes emissions reductions and responsible environmental stewardship;
- *Integration* of ferry services into the wider transportation network, including transit and 'active' transport (like bicycling);
- *Minor routes sustainability*, which is supported by strong and growing revenue on the major routes; and,
- *Affordability*, which includes responsibly managing and containing costs on the NMV Project and in operations, and balancing the costs borne by users through price caps and taxpayers through government contributions against the necessary investments to maintain the other public interest goals.

Even though not yet completed, the CTC initiative has been important to the NMV Project because it:

- Articulates the public interest goals of the coastal ferry system, including for the NMVs; and,
- Incorporates new forecasting tools developed as part of the CTC, which models expected latent demand, captures regional travel patterns, and incorporates post-COVID data, all of which help to clarify potential travel volumes under various capacity scenarios.

Beyond what was learned by the CTC engagement, economic, tourism, supply chain and other major stakeholders in the province have also confirmed that the NMV proposal aligns with the broader public interest from their perspective. The BC Trucking Association says that "it is not unreasonable to state that cancellations and significant delays cost the commercial transport sector well over \$100 million per year....":

"If only four ships are approved, BC Ferries' capacity growth will fall behind population projections and economic growth, meaning delays, waits and the risk of breakdowns will be worse than they are today. The millions of dollars of costs caused by delays every year will be passed on to consumers; the economic impact for business will not be mitigated." ¹⁸

The British Columbia Hotel Association has taken the position that:

"A new fleet of five vessels will have a hugely positive impact on British Columbia's hospitality industry. It will directly benefit our sector by increasing tourism capacity,

¹⁸ BC Trucking Association letter to Nicolas Jimenez, November 4, 2024.

improving accessibility to remote destinations, and enhancing overall visitor experience. This will lead to job creation and economic growth in communities across the province. Additionally, a more reliable and efficient ferry service will strengthen our supply chain, ensuring that our hotels and restaurants have consistent access to the goods and services they need to operate successfully.”¹⁹

Similarly, Destination BC believes:

“The tourism industry in BC relies on dependable, resilient infrastructure to thrive...”

...

This proposal reflects the public interest, offering BC Ferries the infrastructure to support livelihoods, strengthen coastal economies, and sustain our province’s tourism industry for generations to come. Moreover, BC Ferries’ approach, aligned with cleaner and quieter technologies, will contribute to a more sustainable future for our region – a demonstrated priority for the tourism industry.”²⁰

The feedback from all stakeholders can be viewed at Appendix L.

3.7 The NMV Project is Consistent with BC Ferries’ Long-term Capital Plan and is Approved by the Board

BC Ferries’ management supports and prioritizes the NMV Project as an important strategic initiative within the overall array of capital projects. The most recent 12-year capital plan was presented to the BC Ferries Board of Directors in June 2024, and included a total managed budget placeholder of < > for the NMV Project’s preferred option, Option 2 – Build 5 (Preferred).

On September 4, 2024, the BC Ferries Board of Directors approved the NMV Project with a total managed budget of < > and \$< > interest during construction. These budgeted amounts reflect one-time forecast project expenditures. < >

As part of the BC Ferries Board of Directors’ approval, management was further authorized to:

- Submit this Section 55 application;
- < >; and,

¹⁹ British Columbia Hotel Association letter to Nicolas Jimenez, November 4, 2024.

²⁰ Destination BC letter to Nicolas Jimenez, November 12, 2024. In a separate letter to Eva Hage, November 8, 2024 Destination Greater Victoria similarly states that additional capacity is vital to meet population growth and an anticipated increase in tourism.

- Proceed with the NMV Project upon receiving the Commissioner’s approval of this application, or after satisfying any conditions precedent that the Commissioner imposes in relation to the application.

3.8 Project Chronology

Summary: The NMV Project, as proposed, is the culmination of many years of work. The work was interrupted by the COVID-19 pandemic and was restarted thereafter, but has faced inflationary shipbuilding costs.

In 2017, BC Ferries began identifying and evaluating opportunities for improvements to major routes network resiliency and flexibility. These efforts were deferred with the onset of the COVID-19 pandemic and instead, BC Ferries extended the lives of the oldest four of the six oldest major routes vessels (COW, COQ, ALB and NW) by five years each. See Appendix B for the history of all six V- and C-Class vessels.

BC Ferries relaunched the NMV Project in 2021. The Company created a “Design Attributes Document”, and awarded a design agent services contract to a naval architecture firm for the conceptual design study and basic design development of the NMV. The conceptual design study evaluated numerous NMV features and options, and recommended a preferred configuration. BC Ferries then began the basic design phase with the naval architecture firm based on the conceptual design recommendations, which resulted in a diesel-battery hybrid, all-electric ready NMV technical package for shipyards to provide proposals.

< > This amount received Board approval on September 4, 2024, and subsequently BC Ferries issued a design-build-deliver request for proposal (“RFP”) to shipyards, which closes on January 17, 2025.

Section 4 Project Need and Benefits

4.1 Introduction

This section explains why the NMV Project is reasonably required. The NMV Project is important to replace end-of-life vessels, to meet increasing demand from expected population growth, to solidify the foundation of the integrated ferry system, to secure the revenue generated from the major routes and to position the system to withstand and recover from unplanned disruptions. It will also deliver other benefits.

4.2 Importance of the Major Routes

Summary: Maintaining reliable service on the Major Routes is important to the many customers who depend on the service for business and personal reasons. The major routes, and the vessels that serve them, are the "backbone" of BC Ferries system. They not only serve the majority of customers directly, but also generate the greatest share of the operating revenues in the ferry system.

4.2.1 Majority of Customers Depend on Vessels Serving the Major Routes

BC Ferries is an essential public service, supporting livelihoods and supply chains by enabling personal trips, business travel, tourism and commerce every day up and down the province's coast. With a growing provincial population and an expanding coastal economy, the Company is transporting more passengers, vehicles and cargo than ever, and traffic continues to grow annually. Over the past fiscal year, BC Ferries continued to support tourism and local economies, carrying an estimated \$8 billion in cargo.²¹

The mainstay of the coastal ferry system is the major routes. The Company continues to carry record numbers of passengers and vehicles, particularly on routes between the lower mainland and Vancouver Island – and traffic and the demands on the ferry system continues to grow. In Fiscal 2024,²² BC Ferries provided 13,069.5 round trips on the major routes, carrying 14.3 million passengers and 6.4 million AEQs, representing approximately 59 percent of all AEQs and 63 percent all customers that BC Ferries carried during the year. This represents an increase from the 13.6 million passengers and 6.36 million AEQs carried on the major routes in Fiscal 2023. In recent years, around 60 percent of all vehicle and passenger traffic has passed

²¹ BC Ferries, *Performance and Sustainability Report, Fiscal Year 2023-2024*, page 19.

²² Fiscal years at BC Ferries are from April 1 to March 31.

through the major routes. Table 3 provides traffic comparisons between the major routes and the other routes in the coastal ferry system:

Table 3: AEQ and Passenger Traffic Comparisons Major versus Other Routes, Fiscal 2021 to Fiscal 2024 (millions)

	Fiscal 2024	Fiscal 2023	Fiscal 2022	Fiscal 2021
Major Routes: AEQs Carried / % Overall AEQs	6.40 / 59%	6.36 / 60%	5.64 / 58%	4.39 / 56%
All Other Routes: AEQs Carried / % Overall AEQs	4.47 / 41%	4.30 / 40%	4.10 / 42%	3.47 / 44%
Major Routes: Passengers Carried / % Overall Passengers	14.25 / 63%	13.62 / 63%	10.63 / 59%	7.20 / 55%
All Other Routes: Passengers Carried / % Overall Passengers	8.36 / 37%	7.94 / 37%	7.25 / 41%	5.88 / 45%

Data Source: Annual Operations Reports

4.2.2 Major Routes Generate the Greatest Share of the Operating Revenues in the Ferry System

The coastal ferry system is funded through a combination of fares and government contributions. As discussed further in Section 4.5, BC Ferries must ensure a resilient major routes system to drive strong revenues for the benefit of the whole coastal ferry system. Table 4 shows that in Fiscal 2024, the major routes generated 83 percent of total system revenues while carrying 59 percent of AEQ traffic and 63 percent of passenger traffic:

Table 4: Revenue Comparisons Major versus Other Routes Fiscal 2021 to Fiscal 2024 (\$ millions)

	Fiscal 2024	Fiscal 2023	Fiscal 2022	Fiscal 2021
Operating Revenues (Major Routes) / % Overall System Revenue ¹	\$683.8 / 83%	\$639.3 / 83%	\$522.7 / 82%	\$373.3 / 82%
Operating Revenues (All Other Routes)* / % Overall System Revenue*	\$136.5 / 17%	\$126.8 / 17%	\$111.7 / 18%	\$83.1 / 18%

¹ Excluding the unregulated routes. Data Source: Annual Route Statements

4.3 End-of-Life Vessels Must Be Replaced

Summary: There is no "zero cost" option for BC Ferries. Six vessels used on the major routes are decades old and nearing their end of service life. Four of those vessels are in urgent need of replacement because further prolonging their service lives is not an option. As these vessels age, deteriorating reliability is anticipated and they will need to be retired. The escalating probability of prolonged service interruptions will not only affect customers, but also represent significant losses of revenue.

Six of the 11 vessels BC Ferries operates on the major routes are nearing or past their planned end-of-service life. Those vessels were built between 1964 and 1981 and are the NW, COW, COQ, ALB, SUR and OAK.

Five of these are C-Class vessels (ALB, COQ, COW, OAK and SUR) and will have been in operation for between 48 and 53 years, while the remaining V-Class vessel (NW) will have been operating for 65 years when the first NMV is projected to enter service in 2029. BC Ferries supports vessel longevity through an ongoing maintenance, repair and refit program, and by life-extension work as required. However, as ships age, their maintenance must be increased to support their continued reliability, resulting in greater challenges in sustaining service. Additionally, the older technology on the legacy vessels makes it increasingly difficult to meet evolving corporate standards as well as national and international regulations for safety, operations, maintenance and environmental compliance.

Despite their age, all of these vessels are still providing primary service on their assigned routes and each is an essential asset that provides year-round service on the major routes. The four oldest (NW, COW, COQ and ALB) have already undergone recent five-year life-extension work to delay their planned retirement until the NMVs can be brought into service. Although the life of these four vessels could theoretically be extended further, it would not be economical, viable or prudent to do so as the service reliability, cost and revenue loss risks associated with these vessels continue to increase as they age. This assessment was validated by third party review.²³ Specifically, the aging condition of the legacy vessels results in increased technical risks due to:

- Steel thickness reduction and wastage;
- Metal fatigue;
- General wear and degradation of propulsion, electrical and auxiliary machinery;

²³ "Review of NMV DBC and EMDD Proposals for BCFS".

- Need for overhaul and / or equipment replacement due to failure or obsolescence;
- Customer service upgrade requirements; and,
- Availability of critical spares.

Figure 5 shows how the results of vessel aging and declining C- and V-Class vessel availability can be seen in their 'technical availability'. This measures the percentage of scheduled sailings published to customers that were *not* cancelled due to a technical issue, and reveals that vessel availability is beginning to decline:

Vessel Technical Availability		Legend						
		< 99.55%	> 99.55%	> 99.67%	>99.8%	100%		
Fiscal Year 2018-2024		C/V Class Avg.		Major Fleet Average		Fleet Target		
Class	Vessel Name	2018	2019	2020	2021	2022	2023	2024
C Class	Queen of Alberni	100.00%	100.00%	99.66%	95.83%	99.30%	97.81%	99.54%
	Queen of Coquitlam	99.18%	100.00%	98.79%	100.00%	99.60%	99.01%	99.96%
	Queen of Cowichan	100.00%	99.93%	99.63%	100.00%	99.63%	99.86%	99.57%
	Queen of Oak Bay	99.52%	100.00%	100.00%	99.80%	99.80%	99.63%	99.96%
	Queen of Surrey	99.90%	100.00%	99.91%	99.98%	100.00%	98.86%	99.85%
V Class	Queen of New Westminster	99.77%	98.90%	99.48%	99.85%	95.76%	99.23%	97.91%

Figure 5: Vessel Technical Availability, Fiscal Years 2018 to 2024

The availability of the vessels depends on maintaining reliability and the ease of returning a vessel to service, both of which become harder as the vessels age due to obsolescence issues and an increased number of significant incidents threatening vessel technical availability, as shown in Figure 6 and 7. In particular, the vessels' propulsion and auxiliary systems are experiencing more technical issues (orange and yellow rows), and these systems account for over 80 percent of all sailings cancelled due to a technical incident:

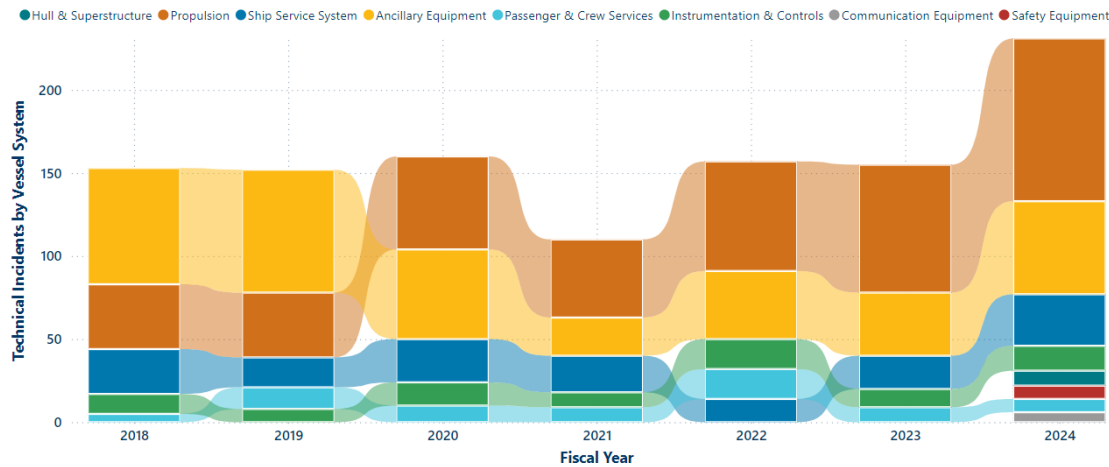


Figure 6: Technical Incidents and cancelled sailings by Vessel System, Fiscal Years 2018 to 2024

	2018	2019	2020	2021	2022	2023	2024
Hull & Superstructure						4	
Propulsion	32	8	20	22	87	68	45
Ship Service System						14	3
Ancillary Equipment			2			4	
Passenger & Crew Services							
Instrumentation & Controls	5				2	2	
Communication Equipment							
Safety Equipment						8	

Figure 7: Cancelled Sailings caused by Technical Incidents by Vessel System, Fiscal Years 2018 to 2024

Essentially, the legacy vessels present a growing out-of-service risk due to failure of aging steel structure and equipment. BC Ferries cannot fully stop the continued effects of age and everyday wear and tear degrades the reliability of these vessels, leaving no reasonable way to mitigate these risks with the four oldest legacy vessels, other than through their retirement and replacement.

These increased age-based technical risks threaten reliability and may result in reduced vessel availability. The Company’s remaining vessels do not have the capacity to make up for the shortfall, and only a few additional vessels currently in fleet are available as substitutes – and only during non-peak season – although they are smaller and not particularly suitable to major route service (e.g., Salish Class vessels). The consequence of some potential failures could be significant, leading to costly service outages or irreparable equipment failure, with a reduced major vessel fleet and considerable pressure on the major routes. Service outages result in:

- Erosion of service provision and unfulfilled customer demand, sometimes for months at a time;²⁴
- Dissatisfied and inconvenienced customers, resulting from cancelled sailings and reservations, longer line-ups and fewer travel options;
- Delays in the delivery of goods and disruptions to the supply chain and local businesses, with costs that are passed on to consumers. The BC Trucking Association estimates that one cancelled sailing with 20 commercial vehicles could cost just the motor carriers \$20,000 and the commercial sector over \$100,000, and that cancellations and significant delays could cost the commercial transport sector well over \$100 million per year;²⁵
- Lost tariff and ancillary revenue from customers who are not able to travel, including from foregone opportunities to add capacity on routes to cater to additional demand throughout the year (e.g., during summer months, on busy weekends and in response to specific events);
- Costly repairs with minimal long-term return on vessels nearing their end of lives; and,
- Reputational damage to the Company that erodes government, customer, community and employee trust.

The lack of spare vessels, combined with the heavy utilization of the current fleet (see next section), makes service recovery difficult if an unplanned disruption occurs. This was most recently and dramatically demonstrated in September 2024 when the NW was abruptly removed from service following a mechanical failure, resulting in dozens of cancelled sailings over at least a six-month period.

The two slightly younger C-Class vessels SUR and OAK, both built in 1981, could reasonably have their lives extended by five years, before also reaching an age where further extensions

²⁴ For example: 1. Due to mechanical issues, the NW is currently out of service for an estimated six months. The first month alone without the NW resulted in a reduction in 4 percent AEQ capacity (52 fewer sailings), a decline in traffic demand by an estimated 1.5 percent of AEQs and 1.5 percent passengers, and a 96 percent increase in the amount of customers waiting for their sailing on Route 1; and, 2. In 2023, the *Coastal Renaissance* was removed from service for seven months due to a mechanical issue. Without this vessel, Routes 2 and 3 in September 2023 saw ~81 fewer sailings, ~7 percent reduction in capacity, and a 6 percent reduction in AEQs in comparison to September 2024.

²⁵ BC Trucking Association letter to Nicolas Jimenez, November 4, 2024.

are not prudent from either a mechanical or a financial perspective. This life-extension maintenance will help to ensure that the vessels can continue operating reliably.

4.4 Adding Capacity Is Necessary to Meet Growing Demand and Avoid Deterioration of Customer Service

Summary: There has been no significant change to capacity or service levels on the major routes for almost 30 years. During that time, the demand for ferry services on these routes has increased substantially. The major routes system is now operating near capacity in July and at capacity in August. In recent years, revenue management and increased reservation allocations have helped to shape some demand away from busiest sailings, leading to a higher capacity utilization and lower sailing waits than in previous years. However, with average capacity utilization at above 90 percent and many sailings at 100 percent capacity, only very limited future gains can be achieved by further shaping demand. At the same time, the evidence shows there is unserved, latent demand in peak periods. During summer 2024, this was demonstrated not only by running at an average 96 percent capacity utilization in August on Route 1, but also by numerous occasions when all reservable space for sailings sold out three or more days in advance.

4.4.1 Customers Have Reasonable Service Expectations

BC Ferries assesses a number of key metrics to inform route-specific needs and to determine service enhancements, asset deployment and asset replacement decisions: capacity utilization, on-time performance, fleet reliability, overloaded sailings (passengers and vehicles) and growth projections. The Company also reviews customer feedback and service considerations.

Of particular interest, BC Ferries uses capacity utilization to identify routes where demand exceeds practical capacity, either at present or with future growth.²⁶ As utilization levels increase, the transportation system becomes less reliable and more sensitive to service disturbances, which may inhibit the willingness of discretionary customers to use it.

BC Ferries' experience indicates routes with a high proportion of discretionary travel become stressed when utilization consistently or frequently exceeds the practical capacity of 85 percent. When the system is stressed, customers must modify travel plans, which may mean they choose to travel by another means, travel on another day or not travel at all. When daily available capacity is constrained, more customers are unable to travel on their preferred travel dates and

²⁶ Capacity utilization is the number of AEQs carried as a percentage of vessel AEQ capacity provided. 'Practical capacity' is the most realistic utilization of vessel capacity based on normal operations, understanding there are customer and service impacts associated with reaching 'theoretical capacity', which is 100 percent capacity utilization.

times, and opportunities to shape demand using revenue management become limited. BC Ferries might also lose revenue altogether if customers choose not to travel.

Engagement through the CTC initiative indicates customers generally accept reasonable wait times for discretionary travel without an advance booking. Even so, four of the top five “Opportunities for Improvement” noted in the 2023 Customer Satisfaction Tracking Survey included: 1. ability to get onto desired sailing; 2. ability to connect with other sailings; 3. ferry running on time; and, 4. terminal wait time. All of these areas are negatively impacted when the system is stressed. The Company uses a combination of reservation space and demand management (moving pre-booked customers to less busy times of the day) as key approaches to meeting these service expectations while maximizing capacity utilization on every sailing.

4.4.2 Major Routes Already Operate at Capacity During the Peak Season With Associated Customer Service Impacts

The peak travel season for BC Ferries on major routes begins in late June and runs through until Labour Day. The Company’s 11 major vessels are fully utilized throughout the peak season without any backup available in the event of an unplanned outage.

Meanwhile, BC Ferries has only very limited options to add vessel capacity to address growing demand when it is using fixed assets, because capacity is fundamentally limited by the size and number of available vessels. This has not significantly changed during the peak season on the major routes since 2008, although traffic volumes have increased by 10 percent across the south and mid-island corridors during that period. Major routes peak season ferry traffic in recent years, especially this past peak summer season on Route 1, has been extremely strong and has consistently set new records.

An impact of this growth is that the customer demand for reservations is greater than BC Ferries has the capacity to provide. The Company currently allocates ~78 percent reservable space across Routes 1, 2 and 30 during the peak season, and is turning away customers who cannot make it onto sailings. Figure 8 illustrates how, in recent years, the capacity utilization of the existing major vessels in the south and mid-island corridors during the peak season has increased above the practical capacity to almost full usage.

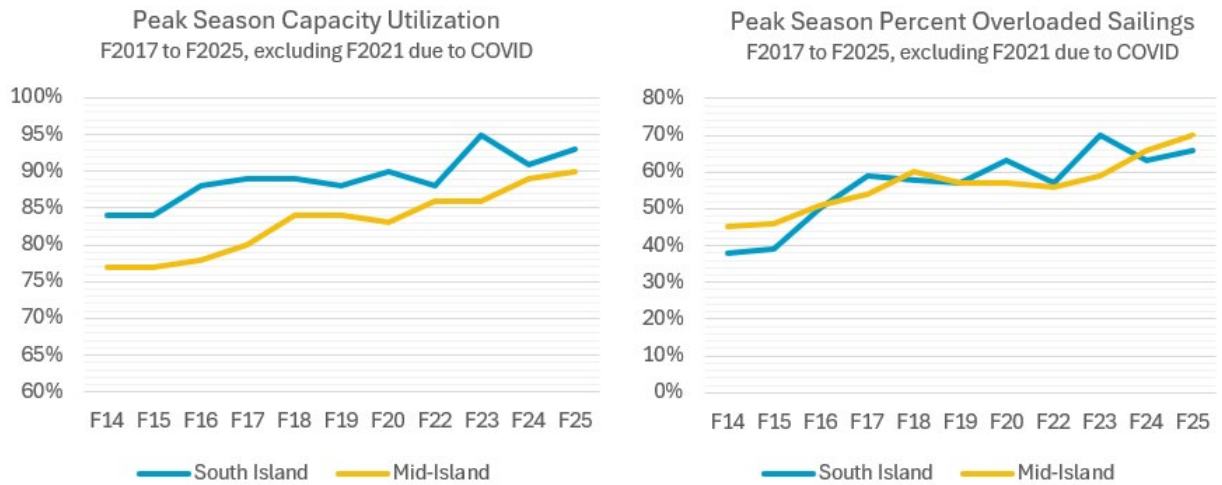


Figure 8: Historical Peak Season Capacity Utilization and Overload Performance, South and Mid-Island Corridors

As discussed further in Section 4.6, BC Ferries uses revenue management and dynamic pricing to maximize the use of available vessel capacity. On Routes 1, 2 and 30 during July and August, the Company is now reaching an average of over 90 percent capacity utilization, which is a 5 percent increase from the 85 percent average utilization achieved prior to introduction of revenue management tools.

Dynamic pricing and revenue management is also enabling more traffic in shoulder and off peak seasons. The growth in these periods has increased pressure on supplementary vessels and crews to be available to deliver service for longer portions of the year. Further, increasing the use of the supplementary vessels in the shoulder and in the off peak periods around statutory weekends and December break compresses the timeframe in which relief vessels are available to support the annual maintenance and refit periods for the 11 major vessels, as well as the less frequent but longer duration capital projects. These projects, refits and maintenance periods are crucial to ensuring vessel reliability and safety across the year.

Meanwhile, beyond the need for additional capacity, BC Ferries is seeing growing customer service expectations that can only be addressed with an increase in the number of major vessels. With the introduction of a twelfth vessel, the Company could explore possible new service options. For example, at present two C-Class vessels serve Route 3 during the peak season, but the second vessel is not available at other times because it must substitute for other vessels undergoing maintenance and refit. With the twelfth vessel, the Company could consider expanding the two-ship service on Route 3 outside the peak season to address shoulder season demand growth. In another example, the twelfth vessel would also reduce the pressure, noted above, on the supplementary vessels in the shoulder and off-peak seasons by supporting refit

relief so that BC Ferries would have the resiliency to meet travel demand as well as accommodate its annual vessel maintenance periods. Notably, if this additional vessel is not added through the current NMV Project, the earliest it would be added to the fleet would be at least 10 years from now during the next phase of major vessel construction.

4.4.3 Demand is Expected to Significantly Exceed Existing Capacity

Based on current and forecasted population and traffic growth, BC Ferries expects traffic demand will continue to grow. The Province provides the following population projections:

Table 5: BC Population Statistics estimated growth by regional district between 2023 and 2035¹

Regional district	2035 projection versus 2023 estimate
Metro Vancouver	24%
Capital	18%
Nanaimo	18%
Sunshine Coast	13%

¹ BC Stats: Population Estimates & Projections for British Columbia

Considering population growth and other economic factors, BC Ferries is expecting AEQ growth of approximately 15 percent along the major routes over the next 10 years, followed thereafter by a similar trajectory. With this strong forecasted traffic growth, as shown by Figures 9 and 10, some small gains are anticipated with continued refinement of pricing and demand management tactics; however, the current major vessel capacity will continue to fall increasingly short of serving customers. Demand already exceeds capacity in the peak periods and this situation is expected to spill over throughout the year without additional capacity:

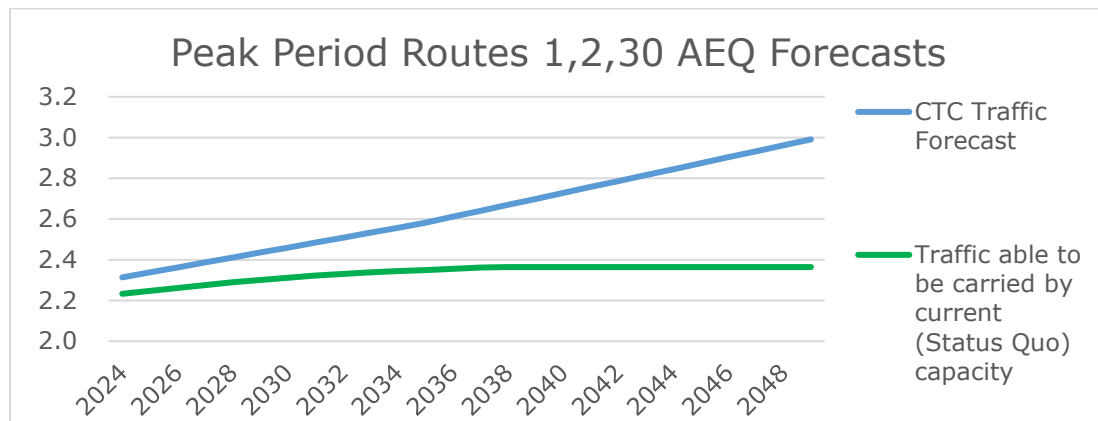


Figure 9: Peak Period AEQ Forecasts for Routes 1, 2 and 30 (millions)

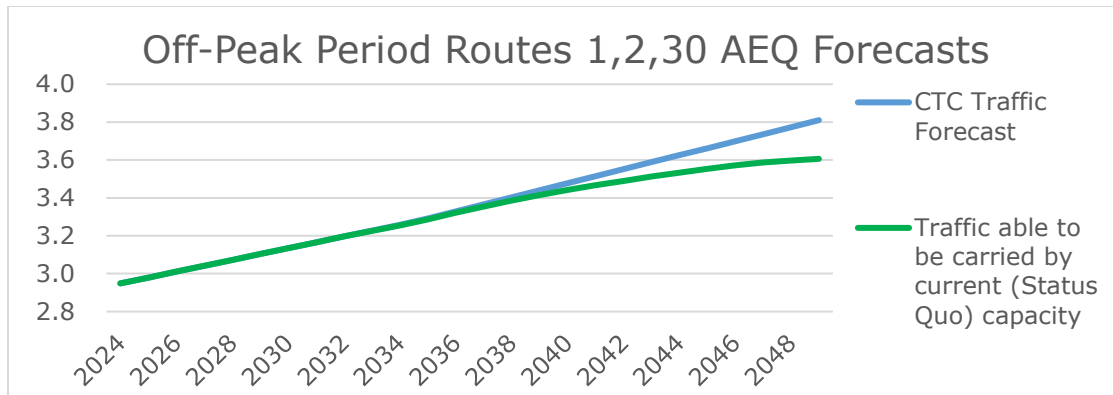


Figure 10: Off-Peak Period AEQ Forecasts for Routes 1, 2 and 30 (millions)

In addition to traffic forecasts driven by provincial population projections, BC Ferries has conducted customer research that identifies latent traffic demand of 10-30 percent. In this research, latent demand was defined as the number of incremental trips that would occur if customers could travel at their desired travel time. It is likely that customers are already choosing not to travel with BC Ferries due to capacity challenges, and without investment, it is expected the amount of customer trips not fulfilled to increase significantly by 2050.

In fact, without proceeding with the NMV Project, the Company anticipates not being able to meet the peak season demand on its major routes within the next decade. Table 6 presents the CTC forecasts, inclusive of growth projections for all vehicle and passenger types:

Table 6: CTC Forecasts for AEQ Growth from Fiscal 2023¹

Route	Service Area	Growth to Fiscal 2035	Growth to Fiscal 2050
1	South Island	16%	35%
2-30	Mid-Island	16%	36%
3	Sunshine Coast	14%	34%
	Simple Average	15%	35%

¹ As of November 6, 2024. Growth includes latent demand and population driven growth

The NMVs will be larger and consequently, BC Ferries expects with *four* new vessels the capacity utilization at existing traffic levels to drop to a lower level. However, the Company anticipates that latent demand will quickly fill this additional capacity. A *fifth* NMV (i.e., the twelfth major vessel) not only supports resiliency during peak, but represents a *step function in capacity* during all times of the day during the peak season:

Table 7: Increases in Major Vessel capacity with NMVs versus July / August 2024 Capacity

Corridor	2035 capacity increase with four new vessels versus July / August 2024	2035 capacity increase with five new vessels versus July / August 2024
South Island (Route 1)	12%	40%
Mid-Island (Routes 2 / 30)	17%	17%
Sunshine Coast (Route 3)	0%	0%

Without the twelfth vessel, BC Ferries will fall behind the capacity increases needed to keep pace with population growth over the next decade and beyond. This would result in wait times and overloads that are worse than today, with larger numbers of customers being turned away each day, and with impacts to commercial travel that would adversely challenge the supply chains relied upon by communities. These factors negatively impact the public interest and would not satisfy the top priority of our customers: service reliability and the confidence that BC Ferries will get them where they need to be in a timely fashion, unfettered by mechanical breakdowns or lack of system resiliency.

The need for the additional vessel is supported by previous experience, which suggests that the overall volume of customers travelling on a highly utilized route will grow when the Company increases capacity and improves customers' ability to travel when they want. For example, shortly after increasing capacity by 19 percent following the introduction of two-ship service on Route 19 (Nanaimo Harbour to Gabriola Island) in Fiscal 2023, the Company saw:

- A 14 percent increase in AEQs carried;
- An 18 percent year-round improvement in On Time Performance ("OTP");
- A 32 percent improvement in OTP between 2021 and 2022 during July and August; and
- A 9 percent reduction in overloaded sailings year over year.

Similarly:

- When a Salish Class vessel was first introduced on Route 9 (Tsawwassen to Southern Gulf Islands), the route experienced a 13 percent increase in traffic demand with the additional 15 percent of vehicle capacity provided by the scaling of service to meet the seasonal and day of week demand;

And:

- Within the approximately eight months following the introduction of the *Quinsam* on Route 6 (Crofton to Vesuvius), there was a 0.2 percent increase in AEQs carried but the additional vehicle capacity improved customers' ability to travel on preferred sailing by reducing overloaded sailings by 9 percent.²⁷

As detailed in Section 5.5.3, the Company estimates that in Fiscal 2034 the twelfth vessel operating during the peak season on Route 1 will carry ~11 percent more AEQs in July and August (~69 thousand AEQs) than the options without the twelfth vessel, with room for further traffic growth before any additional increases in operating costs would be needed.

4.4.4 Demand Growth Translates Directly into Increased Overloads and Wait Times

As discussed above, the south and mid-island corridors are heavily utilized in the peak season. Without a substantial change to the capacity provided, further growth on these corridors is expected to negatively impact both drive-up customers (i.e., those without reservations) who will experience increasing overloads, and all travellers through an increase in delayed sailings.

Figure 11 compares sample weeks on Route 1 from the 2014 and 2024 peak seasons. In the decade between these two sample weeks, capacity was increased marginally on the route to maximize the use of the vessels available. At the same time, the 2024 sample shows that the growth in demand has completely filled a number of days, limiting the available space to mid-week and Saturday evenings. This growth also resulted in a decrease in on-time performance from 89 percent in 2014 to 68 percent in 2024, while increasing the sailing waits and weekly capacity utilization from 87 percent in 2014 to 96 percent in 2024:

²⁷ These examples are indicative only. A number of factors drive demand and they vary by route, including season of service, time of day of service, frequency of service, size of vessels, etc.

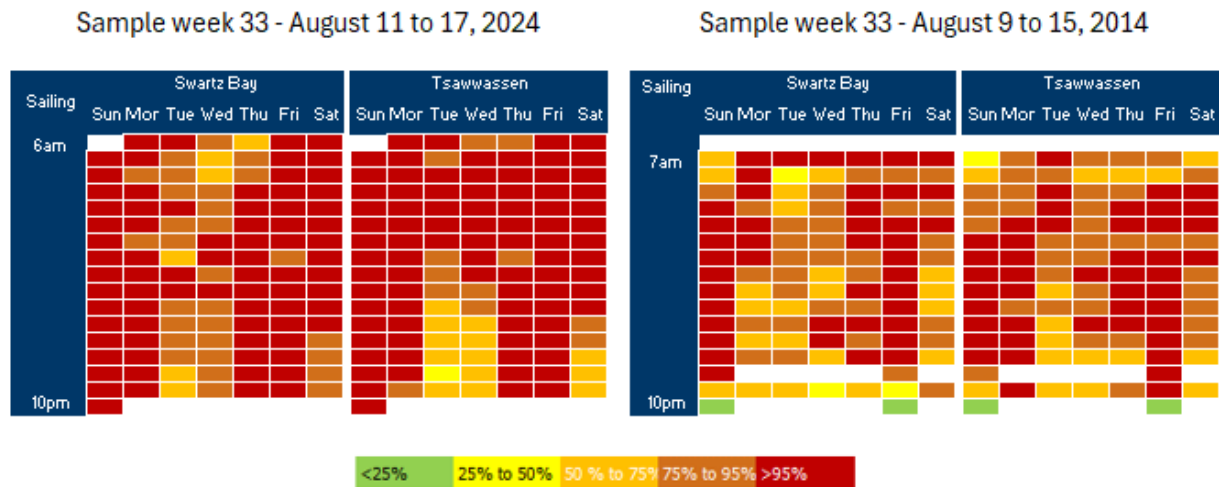


Figure 11: Route 1 Comparison of Sample Weeks, 2014 Versus 2024

This high demand can result in having to accommodate the conflicting needs of the travelling public and the commercial transportation sector. BC Ferries plays an integral role in the efficient movement of commercial goods and services to and from Vancouver Island and surrounding island communities. As demand grows, there will be an increase in ‘competition’ between discretionary and commercial travel across the major routes, especially during capacity-constrained, highly utilized periods. As noted below in Section 4.7, prolonged delays in the movement of commercial traffic and the transportation of essential goods negatively impacts consumers through delays and added costs.

4.5 Capturing More Tariff Revenue on the Major Routes is Essential for the System’s Long-Term Sustainability

Summary: Although NMV Project vessels will sail on the major routes, the Project has significant benefits for customers on every ferry route. With the major routes currently operating at extreme capacity utilization in the peak season, growth itself becomes constrained across the ferry system. Without the benefit of overall growth, the non-major routes will be exposed to higher financial self-reliance or increased government support as their operating costs continue to escalate despite efforts to contain them. BC Ferries is reaching an inflection point where, without additional capacity on the major routes, a chokehold will be placed on the system. Adding a twelfth vessel to the fleet that can serve the passenger and goods demand expected from population growth, along with its revenue, will ensure a strong backbone for the system as a whole.

The major routes have consistently provided a financial contribution to the non-major routes, thereby limiting upward pressure on their fares and government subsidies. As the cost of

operating these routes increases over time, without the benefit of overall growth, they will be exposed to higher financial self-reliance or increased government subsidization.

The replacement of the C-and V-Class vessels cannot be avoided. BC Ferries must replace the aging legacy vessels with the NMVs, in support of system resiliency and so that it has the capacity to address growing traffic needs. At the same time, BC Ferries' investment in the new vessels inevitably will result in higher costs that will not be fully offset by the revenue they generate. In this situation, the more the Company can use NMVs to capture demand and grow revenue – especially on Route 1 during peak periods – the better for the long term overall health of the system.

To not replace the vessels or introduce the additional capacity on the major routes, especially through the fifth NMV, places a capacity chokehold on both the major routes and non-major routes, stagnating traffic volumes and revenue. It is recognized that the investment necessary to provide safe, reliable and sufficient service will have traffic grow over time, resulting in a period of time where revenues will lag behind the cost increase. This is unavoidable without accepting that there will be a growth limitation placed across the ferry system and communities serviced.

An operationally healthy, viable and fully functioning major routes system is therefore fundamental to supporting all the routes served by BC Ferries. An investment in capacity, reliability and safety on the major routes is an investment in all routes.

4.6 BC Ferries Has Already Maximized the Benefits of Demand Management Strategies

Summary: For several years, BC Ferries has been using demand management strategies on the major routes to shift peak loads to sailings where there is surplus capacity. These strategies have been very effective, to the point where there is now very little surplus capacity on any sailings during the peak season. BC Ferries would be unable to accommodate further material demand growth with these strategies during peak season. A capacity increase is necessary to avoid the service and financial challenges previously described.

BC Ferries has taken a number of approaches to maximize the use of remaining vessel capacity across the south and mid-island corridors, by implementing several pricing and demand management initiatives, redeploying vessels and implementing service changes. Some examples include:

- Since the introduction of revenue management in Fiscal 2021, progressively increasing reservation allocations and capacity utilization, as more customers are booking in advance (with fewer arriving without reservations) and more are taking advantage of Saver discounts to travel at less popular times (enabling those who are time-sensitive

to travel at busier times). When compared to the years prior introduction of revenue management, the Company has carried on average 5 percent more vehicles (increasing from 85 to over 90 percent) while 25 percent fewer customers experienced sailing waits; and average reservable space has increased from 58 percent in Fiscal 2018 to 77 percent in Fiscal 2025 year to date (“YTD”). As a result, advance bookings have grown from 32 percent in Fiscal 2018 to 75 percent in Fiscal 2025 YTD;

- Improving available information about current sailing conditions, so that customers can find more information about terminal and sailing status before arriving at a terminal;
- Redeploying the REN and the ALB during the peak season, increasing overall vessel capacity by approximately three percent;
- Implementing 6 a.m. sailings on the south island corridor to help move commercial vehicles from other busy morning sailings;
- Expanding the service day on Routes 2 and 3 to better align sailing schedules to support increases in reservable space; and,
- Conducting late night commercial service trials in September 2021 to shift demand from daytime sailings. As a result, BC Ferries gained market and operational insights that will shape the feasibility of a potential future late-night service.²⁸

At this point, BC Ferries has almost fully realized its ability to maximize the use of current vessels during peak periods through revenue management, prepaid travel and other strategies. While alternative demand strategies on the major routes have helped to enhance travel certainty and to ensure the full use of underutilized sailings, these strategies cannot resolve the underlying key issues, such as high capacity utilization during peak periods, lack of supplemental capacity when needed and lack of available vessel redundancy following mechanical outages.

²⁸ While there was commercial support for a consistent year-round late-night service on Route 30 and interest in having similar late-night sailings on Route 1, the trial identified some operational challenges in providing consistent and reliable late-night service in addition to regular service. First, there is the basic issue associated with the size of the existing major vessel fleet. In peak season all major vessels are operating, with the time between the last evening sailing and morning departure being either too short to complete an additional round trip, or required for maintenance and fueling activities. Next, outside the peak season, BC Ferries’ secondary vessels are providing seasonal service, supporting refits and providing contingency for unplanned outages. Finally, other factors come into play, such as late-night berth availability, the availability of crew to support the late-night service and the overall design of the major routes vessels: the higher crew complements and multiple passenger decks do not efficiently serve low passenger volumes with only main deck loads.

In summary, BC Ferries must now increase both the size of its major vessels and their overall number on the major routes to keep pace with current demand, long-term forecasted growth and the public's service expectations.

4.7 Customers Benefit From a More Resilient System

Summary: A twelfth vessel will enable a step change in resiliency on the major routes, and goes beyond the obvious customer service implications for customers who rely on the major routes. Not only will the twelfth vessel serve demand in the peak season and be available year-round on short notice to avoid or limit the impact of service disruptions, it is needed to accommodate expected population and traffic growth in the coming years and to support the integrated ferry system.

4.7.1 Customers Expect Resiliency including Vessel Reliability and Necessary Capacity

People who travel with BC Ferries value reliability and resilience in their ferry service. Customers expect that BC Ferries' vessels will be mechanically reliable, that the vessels will have sufficient capacity and that supplemental vessels will be available during vessel outages. Building new vessels and enhancing system resiliency are key to BC Ferries' service delivery strategy, ensuring it can serve the public interest by meeting future demand and maintaining high service standards.

These issues also affect overall customer livelihoods, as costs incurred through the supply chain – including through both insufficient reliability and capacity – are passed to the consumer. The BC Trucking Association notes:

*"It is critical to understand that every dollar in those costs is passed on to consumers. The trucking industry provides services and must recover their costs to stay in operation. If it costs more, they must bill more. There is only one person who pays those costs – the end consumer."*²⁹

The NMV Project helps to address these issues by further enhancing overall system resilience by introducing ships that have been specifically designed for reliability and maintainability. This deliberate design approach is intended to ensure that the new ships will be less likely to suffer equipment failures that will take them out of service, and that ships can be more easily repaired in the event that failures do occur.

²⁹ BC Trucking Association letter to Nicolas Jimenez, November 4, 2024. Emphasis in the original document.

In addition, the NMV Project introduces five new large vessels while retiring four smaller older vessels. This increases overall capacity so that the major routes can more easily recover from missed sailings and address future demand, and critically adds an extra new vessel into the fleet to replace vessels that are removed from service for planned or unplanned reasons. Replacing four legacy vessels with four larger NMVs will add an approximate incremental 1,400 AEQ-crossings per day for the primary vessel service (based on four vessels); the twelfth vessel is expected to add between 720 and 2,880 AEQ and 4,000 to 16,000 passenger crossings per day within the south island corridor during peak season.

While newer vessels should offer greater reliability and their increased capacity will somewhat improve resiliency per se, an additional vessel will enable a *step change* in resiliency on the major routes. The coastal ferry system – and the customers, communities and supply chains major vessels serve – now *needs* the additional vessel, and this need will only magnify with expected population and traffic growth in the coming years.

Deploying this additional capacity on the south island during the peak season is expected to address latent demand and generate additional revenue. These five new vessels are needed to keep pace with projected population growth, reduce wait times and delays currently experienced by customers, and ensure the system can continue to operate effectively in the event of a mechanical incident. The twelfth vessel also makes it possible for the Company to consider additional deployment and service opportunities outside of the peak season, for example it could enable the redeployment of a relief vessel to expand service into the shoulder and off peak to support the growing population of the Sunshine Coast if required / desired in the future.

The NMVs, unlike the legacy vessels, have been specifically designed to operate on any of BC Ferries existing major routes. This factor, combined with the standardized, interoperable and identical design, will allow the Company to more easily move vessels to other routes when and if required, without extensive re-training for crews.

4.7.2 A Twelfth Vessel is Essential for Relief During Extended Capital Upgrade Outages

Procuring the additional vessel during the first phase of the project provides much needed resiliency until the second phase of the replacement project is completed in 2037. With travel demand growing outside the peak season, additional pressure is being placed on the supplementary vessels to support longer operating seasons, shrinking the time window for those vessels to support the refit season for all major vessels. As an additional vessel available for relief, the twelfth vessel will allow the Company to shorten the refit window to between October and May (currently it is between September and June).

This pressure grows significantly when infrequent but extensive multi-month capital upgrade projects, such as mid-life upgrades (“MLU”), require removing a vessel from service for several months. For example, when the two Spirit Class vessels were separately removed from service for nine months for MLUs between 2017 and 2019, there was no system resilience to support these extraordinary out of service periods. The impacts to the system included the shortening of refit windows on other major vessels with associated challenges for maintenance teams, the reduction of supplementary service to align with vessel availability and the deployment of a C-Class vessel to Route 30, which significantly reduced commercial capacity and impacted supply chains.

While these major projects do not happen annually, they do have considerable impact when they occur. In the case of the NMVs, the twelfth vessel will play an important role in supporting both the Spirit Class three quarter life upgrades (Fiscal 2033 to Fiscal 2034) and the Coastal Class mid-life Upgrades (Fiscal 2037 to Fiscal 2039), reducing the strain that these multi-month extensive projects would put on the remaining major vessels between accommodating refits and meeting growing customer demand. Having fully interoperable NMVs in operation and having the additional NMV will be key to be able to provide a seamless experience for customers during the Coastal MLUs.

4.8 Twelfth Major Vessel Will Have a Significant Impact on the Provincial Economy

Summary: an economic impact assessment shows that the twelfth NMV would have a significant positive impact on the provincial economy.

BC Ferries is an essential public service that plays a fundamental role in ensuring strong supply chains while continuing to support local economies and tourism industries. The Company commissioned an economic impact assessment of incremental services provided by BC Ferries’ NMV Project, and in particular the incremental passengers and vehicles that would be handled by BC Ferries in 2035.³⁰ Amongst other benefits, the assessment determined (with monetary impacts based on 2024 dollars) that by 2035:

³⁰ “Incremental Impact of BC Ferries’ New Vessel Program”. In the study, incremental traffic includes the capacity supported by the additional NMV and the incremental capacity of the NMVs relative to the capacity of the existing vessels that will be replaced.

- Including direct, indirect and induced employment impacts,³¹ the total incremental impact of the NMV Project would result in 785 jobs, earning \$64 million in wages and generating nearly \$100 million in GDP;
- Incremental tourism driven by the NMV Project is estimated to facilitate the travel of 130,000 additional visitors, spending over \$45 million in the provincial economy and supporting 565 jobs (including direct, indirect and induced); and
- Based on industry average truck lengths, the estimated value of cargo carried on the incremental truck volume is approximately \$244 million.

Similarly, observations about the positive impact of the twelfth vessel have been provided by interest holders. In the tourism sector, for example, the British Columbia Hotel Association noted:

"The fifth [new major] vessel in particular, is vital for BC Ferries' future planning. It will ensure reliable service during peak times, inevitable breakdowns, and periods for scheduled maintenance."³²

The BC Trucking Association has also pointed out, in support of five NMVs:

"There is no greater priority for our members than certainty and reliability. When goods are delayed for any reason, the impacts are sharp and acute. Groceries do not make it to shelves and consumers notice. Lubricants do not make it to industrial applications and equipment shuts down. The delivery of large equipment is delayed, meaning that people do not go to work and projects get delayed. These are real, immediate consequences that our members work diligently every day moving goods and equipment around North America. When moving to and from Vancouver Island, BC Ferries is a critical link in the supply chain."³³

³¹ "Direct impacts" associated with activities directly related to the operation and execution of incremental sailings by BC Ferries due to the implementation of the New Major Vessels program. The direct employment base comprises staff on the vessels, at the terminals and those working elsewhere to support the incremental operations. "Indirect impacts" come from industries that supply, support or are wholly dependent on activities at BC Ferries' incremental operations. "Induced impacts" are created by the spending of wages, salaries, and profits earned through direct and indirect economic activities.

³² British Columbia Hotel Association letter to Nicolas Jimenez, November 4, 2024.

³³ BC Trucking Association letter to Nicolas Jimenez, November 4, 2024.

The Association of British Columbia Marine Industries likewise said:

*"BC Ferries is an essential part of the supply chain between Vancouver Island and the lower mainland and, without building these five new ships, expects to reach full capacity on its major routes within the next decade, resulting in delays in goods and commutes for people living in these coastal communities."*³⁴

The economic impact assessment can be found at Appendix K, while letters of support from these and other interest holders may be found at Appendix L.

4.9 Consequences of Delaying or Not Completing the Project

Summary: This section details the consequences of delaying or not completing the project include significant impacts on fleet resilience, the ability to meet customer expectations for reliable transportation and accommodating anticipated growth in demand due to population and economic development.

BC Ferries has carefully considered numerous factors in concluding it must build five NMVs and life-extend the COW and SUR. The consequences of delaying or not completing the NMV Project, inclusive of the twelfth vessel, include:

- Declining ability to accommodate vehicle and passenger traffic on BC Ferries' major routes, especially given increases in projected future demand;
- Worsening wait times, delays, overloads and risks of mechanical breakdown – and lack of resiliency when breakdowns occur – for customers, impacting travel, supply chain and local economies and tourism industries;
- Ongoing inflexibility when deploying vessels, especially without a twelfth vessel in the fleet;
- Inability to accommodate anticipated growth in demand due to population and economic development, and a lost opportunity to generate revenue from the major routes that will help to support the rest of the system;
- Incremental affordability pressures for customers, due to anticipated increasing costs of shipbuilding and resulting impact on fares compared with an investment today;

³⁴ Association of British Columbia Marine Industries letter to Nicolas Jimenez, October 21, 2024.

- Diminishing resilience due to lack of backup vessels to substitute for other vessels when they are taken out of service, especially due to breakdowns, causing service disruptions;
- Ongoing aging of vessels that are past their expected service lives with steadily increasing maintenance costs, failure risks and service disruptions;
- Postponing BC Ferries' standardization efforts, and the cost and efficiency benefits that come from standardization;
- Deferring de-carbonization efforts through electrification, such that GHG reductions on major routes will not occur until the late 2030s, or depend solely on renewable or bio-fuels;
- Significantly delaying BC Ferries' overall fleet renewal program, since the NMVs would not be introduced until the late 2030s. Any delay to the NMV Project would create a vessel replacement backlog, as other vessels also need replacement in the upcoming years; and,
- Underlying all these items, increasing risks in meeting customers' and the public's expectations in terms of reliable transportation and service delivery, and BC Ferries' ability to operate in the public interest and as an affordable and essential public service.

4.10 NMV Project Delivers Significant Environmental Benefits

Summary: the NMV Project is a key initiative of BC Ferries' decarbonization strategy. It is pivotal in ensuring that BC Ferries can meet future greenhouse gas ("GHG") emission reduction targets and support the provincial and federal governments' progress toward their GHG reduction goals for the marine transportation sector.

The NMV Project aligns with BC Ferries' Clean Futures Plan and is fundamental to meeting federal and provincial climate change mitigation and adaptation goals for the transportation sector. The NMVs will:

- Implement a diesel battery hybrid, all electric ready power plant, which uses the batteries for peak loads (called "peak shaving" and "load leveling"), thereby reducing the size of the diesel engines and enabling them to operate at their most efficient, constant speed;

- Allow for the use of B100, which generally reduces both tank-to-wake GHG emissions and well-to-wake GHG emissions³⁵ by approximately 90 percent compared to fossil-fuel-based diesel in support of the Province's CleanBC goals and GHG emission reduction targets;
- Support future all-electric operation once shore-based electrical infrastructure and additional on-board batteries have been installed;
- Use an advanced, highly efficient hull design; and
- Use four highly efficient azimuth propulsors to propel and manoeuvre the ship.

The environmental benefits of the NMVs are not limited to reduced GHG emissions. The new vessels will be designed to emit lower levels of underwater radiated noise and reduce acoustic disturbances, which are key threats to at-risk whale populations, especially the Southern Resident Killer Whales.

The NMVs' environmental benefits are further discussed in Appendix D.

4.11 NMV Project Provides Other Benefits

Summary: the NMV Project provides numerous other benefits, including those obtained through standardization and a risk- and condition-based maintenance regime. Customers will benefit from integration with other transportation modes, as well as from efficient vehicle loading and discharge, and improved amenities.

4.11.1 Standardization

BC Ferries' long-term goals include standardizing its vessel and terminal assets as much as possible. At the most basic level, this involves establishing a fleet of only six vessel classes, and a minimum number of models within each class, each interoperable with the other. A terminal network of only five berth types will support the vessels. Each of the vessels and terminals will share common designs, layouts, equipment, operating characteristics, documentation and maintenance to the maximum practical extent possible.

Standardization is a key component of the Fleet Master Plan and important for meeting the CTC goals. This is because it is central to achieving organizational efficiency and improving

³⁵ "Tank-to-Wake", also called "Tank-to Propeller", refers to the GHG emissions from the ship's fuel tank to the exhaust, also known as downstream emissions. "Well-to-Wake" emissions encompasses the GHG emissions from the entire lifecycle of the fuel from the production to the end-use by a ship; it results from the combination of a "Well-to-Tank" part, also known as upstream emissions and a "Tank-to-Wake" part.

resiliency through commonality of design, systems, processes and assets. Commonality increases spare part / inventory efficiency; reduces logistical, operational, training and maintenance costs (thereby supporting customer affordability); and drives interoperability. Interoperability supports operational reliability, resilience and flexibility, and creates a common look, feel, flow and customer experience.

The NMV Project fully embraces standardization, and many of its fundamental design parameters (such as its length, displacement, draft, deck arrangement, etc.) are driven by standard requirements. All five NMVs will be identical, and therefore completely interoperable. Once in service, the vessels will be deployable on any of the major routes without having to adjust or modify any existing infrastructure, or re-train crew beyond route familiarization. This ability to cost-effectively redeploy vessels across the major routes supports BC Ferries' vessel strategy and is vital to ensuring service consistency.

4.11.2 Maintenance

A twelfth vessel will support overall fleet maintenance planning, since it will allow BC Ferries to reduce pressure on its planned maintenance periods occurring in the shoulder and off peak seasons by providing additional capacity to deploy relief vessels while vessels are removed from service for docking periods and other maintenance.

The NMV maintenance regimen will be risk- or condition-based. Maintenance planning will begin during detailed design, which will involve incorporating industry-acknowledged reliability principles into machinery design; identifying critical equipment; conducting failure management analysis; reviewing equipment performance history; reviewing original equipment manufacturer recommendations; and evaluating spare part implications. This is the first time that BC Ferries will apply such a risk-based process, which is expected to result in vessels that are substantially more reliable and resilient. See Appendix J for further details.

4.11.3 Transportation Integration

As illustrated by the CTC engagement, the public supports integrated modes of travel and improving the travel experience for those not using personal vehicles. A key goal of the CTC vision is shifting customer travel to bus, car share or other active transportation modes, as it creates opportunities to accommodate additional growth and aligns with efficient vessel vehicle carrying capacity. The passenger capacity of the new vessels will be 30 to 40 percent greater than the retiring major vessels. This additional capacity will support higher passenger volumes using 'park and ride' services and travelling by transit. The NMV design will also include

improved amenities for loading and storing bicycles, with 20 bike stalls contemplated on the main car deck, to support growth in active transportation.³⁶

4.11.4 Customers

The NMV Project incorporated a customer-first decision process that considers how customers will be affected now and in the future. It will address the growth trends and latent demand quantified by the CTC initiative. Customers who were surveyed during the CTC initiative indicated that reliability and affordability were top priorities. The Company expects that the NMV Project's impact on customers will be overwhelmingly positive for numerous reasons, including because it will:

- Deliver better service by introducing new, reliable vessels that will provide additional passenger, vehicle and commercial capacity;
- Meet expressed customer public interest priorities of reliability (as above), affordability (by minimizing upward pressures on fares) and integration (through better space and infrastructure for non-vehicle travellers);
- Provide vehicle decks designed for faster loading and discharge due to wider access openings, higher deckhead (ceiling) heights and fewer obstructions. The vehicle decks are also intended to be open to the outside environment, which will improve air quality and may even allow passengers to remain in their cars during vessel transit; and,
- Add vessel amenities requested by customers, such as open vehicle decks, a pet lounge on the passenger deck, better-equipped play areas for children, a larger retail shop, more seating in the main restaurant and a larger, more contemporary coffee bar.

Further customer and commercial benefits of the NMVs can be found in Section 7 and Appendix C.

³⁶ Mode shift (changing the mode by which people travel) will take time to achieve. A meaningful mode shift by ferry users will require considerable improvements in transit travel time and connectivity. This would need significant infrastructure investments by the Province, transit agencies, etc.

Section 5 Alternatives Analysis

5.1 Introduction

This section describes the structured alternatives analysis that BC Ferries undertook, and why the Company has concluded that the proposed NMV Project is the preferred alternative for meeting the project need.

5.2 BC Ferries Used a Structured Alternative Evaluation Process

Summary: BC Ferries set aside Option 0 – Status Quo as non-viable, since it would present challenges with vessel reliability and maintainability, with corresponding risks to service provision and public expectations. BC Ferries then assessed four viable alternatives that differ with regard to two decision points: (1) whether to retire all six legacy vessels (ALB, COQ, COW, OAK, SUR and NW) now or to extend the operational lives of SUR and OAK and replace them in a future phase; and (2) whether to acquire a twelfth vessel immediately or in a future phase.

5.2.1 Option 0: Status Quo

The status quo option involves extending the life of the five existing legacy C-Class vessels (ALB, COQ, COW, OAK and SUR) beyond their 48-53 years of service life and the V-Class vessel (NW) beyond its 65 years of service life. In this scenario, BC Ferries would not procure any vessels now, would acquire NMVs on a delayed timeline and would continue to operate the legacy vessels on their current routes.

The challenges with the legacy C- and V-Class vessels currently operating on the major routes, and the need to replace them, are reviewed at Section 4.3. Continuing to use these vessels would present increasing issues with respect to reliability and maintainability, with corresponding risks to service provision and the public's service expectations. BC Ferries aims to remove older vessels from service before they become unsupportable, while the opportunity for non-emergency replacement exists. In addition, this solution does not address other pressing needs for BC Ferries as an essential public service, including supporting expected increased demand due to population growth, fleet resilience and integration, and environmental considerations.

Option 0 – Status Quo is not considered viable, reasonable or prudent. This option is not consistent with BC Ferries' 12-year capital plan, the Fleet Master Plan or the public's service expectations.

5.2.2 Fundamental Project Decisions

While BC Ferries needs to retire C- and V-Class vessels and introduce NMVs, the question of when to retire the old ones – and how many NMVs are needed – required careful consideration. Two fundamental decisions arose:

1. Whether to retire all six legacy vessels now, or to extend the planned service lives of the SUR and OAK and replace them in a future phase; and,
2. Whether to add a twelfth vessel to the major vessel fleet now or as part of a future phase.

The possible outcomes from these decisions resulted in the four potential options for consideration, as discussed further below:

5.2.3 Decision 1: Retirement / Life Extension

Extending the life of SUR and OAK to keep them in service for five additional years reduces the number of new vessels needed immediately.

Financial implications, including affordability, weigh heavily in this decision, as extending the life of the two vessels reduces the nearer-term capital outlay associated with additional NMVs. The projected net present value (“NPV”) savings of life extension versus replacement is \$ < >.³⁷ This helps manage the affordability of the NMV Project within the coastal ferry system’s financial framework, thereby avoiding undue upward pressure on fares for customers.

In addition, deferring the construction of the final two NMVs offers several secondary benefits compared to replacing all six legacy vessels now:

- The extended timeline allows BC Ferries to gain valuable experience operating the NMVs, and using a twelfth vessel to enhance service, before committing to the construction of two more NMVs;
- Although it is not the Company’s current intention, the gap between builds introduces the flexibility to modify the NMV design before building the last two vessels, if needed; and,
- The future NMV Phase 2 Project could be reduced in scope to one NMV if a compelling need arises, although this would eliminate the benefits of having a twelfth vessel in the fleet.

On the other hand, keeping the two legacy vessels in operation adds reliability risk, as older vessels tend to break down more often, and can be difficult and expensive to repair due to obsolete technology (see Section 4.3). However, the Company is familiar with the costs and risks associated with short-term life extensions for legacy vessels, having recently completed such work for ALB, COQ, COW and NW. As with those previous life extensions, BC Ferries is willing to accept the reliability risks, considers them manageable, and believes they do not justify the investment

³⁷ The 53-year NPV difference between Option 1 (Build 7) and Option 2 (Build 5 – Preferred) can be found in Table 16.

in – or the related fare pressures that would result from – the immediate replacement of SUR and OAK.

Further, retaining SUR and OAK in operation does not add per-vessel capacity that would occur if they were replaced with NMVs at this time. This can be managed over the five-year life extension period through careful planning and vessel assignments.

In balance, the benefit of reduced short-term capital costs outweighs the potential risks of lower reliability and capacity considerations. These cost savings help manage the affordability of the NMV Project within the coastal ferry system’s financial framework, and reduces costs for customers.

Thus, the prudent and responsible choice for both the Company and its customers is to extend the life of SUR and OAK by five years. The NMV replacements for SUR and OAK will be deferred until Fiscal 2036 (six years after the first NMV enters service), and will be constructed as part of a separate project.

5.2.4 Decision 2: Additional Major Vessel

Adding a twelfth vessel to the Fleet will provide capacity, resiliency and redundancy on major routes to address the business needs described in Section 4. This vessel will provide options to improve the effectiveness of major vessel deployments across the mid-island and Sunshine Coast corridors, with respect to service provision, traffic demand growth terminal and berth congestion. Specifically, a twelfth vessel will:

- Help BC Ferries prepare for the increasing demand and population growth, by adding between 720 and 2,880 AEQ and 4,000 to 16,000 passenger crossings per day during the peak season within the south island corridor. This capacity increase will improve service and customers’ experiences by reducing wait times, increasing the available capacity across the day, and increasing the sailing opportunities available during the busiest times of year. It will also mean that delays, overloads and the impact of mechanical breakdowns are much improved in comparison to today;
- Increase supplementary service during peak travel periods, particularly on the south island corridor in the summer months;
- Provide other opportunities for possible additional deployment and service options outside the peak season, such as enabling the redeployment of a relief vessel to expand service into the shoulder and off peak seasons on given routes if needed;
- Enable the capture of additional tariff revenue on the major routes, in support of the long-term health of the coastal ferry system;

- Support vessel relief for major vessels undergoing annual refit between October and May. The NMVs will also improve the interoperability of the major vessel fleet, allowing seamless transitions between vessels leaving and entering service;
- Provide the resiliency needed to undertake the infrequent but extensive multi-month capital upgrade projects such as the Coastal Class Mid-Life Upgrades (Fiscal 2037 to Fiscal 2039). These projects put additional pressure on the ability of supplementary vessels to provide service in shoulders as well as support the annual refit plan. Having a fully interoperable twelfth major vessel will be key to providing a seamless experience for customers during what would otherwise be a very disruptive period (see Section 4.7.2 for further discussion);
- Help maintain regular service due to unplanned maintenance issues or service outages; and,
- Help offset the risks associated with extending the life of SUR and OAK by serving as a ready substitute for unplanned service disruptions.

5.2.5 Twelfth Vessel is Required Now

Simply maintaining the existing scale of operations will be insufficient to respond to increasing demand, to support the overall financial health of the ferry system and to withstand and recover from unplanned disruptions. Given this, the need to acquire a twelfth vessel is primarily a question of “when”, and not “if”. While four newer vessels offer greater reliability and their increased capacity will help to improve resiliency, only the fifth vessel will enable the required step change in resiliency on the major routes. As described in Section 4, this need will only magnify with expected population and traffic growth in the coming years.

Procuring a twelfth vessel now results in an approximately five-year wait before the vessel can enter service. In contrast, postponing its purchase will likely introduce a wait of over ten years, as any future decision to build a twelfth vessel would be tied to a later NMV procurement, such as when replacing SUR and OAK. With this delay, the traffic and service challenges described above will continue to grow, and costs for the vessel will continue to rise, with associated impacts on customer fares. As noted above, the Company’s decision to add a twelfth vessel at this point can be revisited during NMV Phase 2 Project, depending on population growth, traffic and capacity needs, and other considerations.

Thus, the prudent and responsible choice is to add a twelfth vessel to the major vessel fleet now.

5.3 BC Ferries Decided to Build Five Vessels and Life Extend Two Others

Summary: Using the two decision points, BC Ferries selected Option 2 – Build 5 (Preferred), which builds five NMVs now and life extends the SUR and OAK.

Based on the two decision points as well as timing for the twelfth vessel, the options available to BC Ferries are:

- **Option 1 – Build 7:** Build seven NMVs and retire the six legacy vessels. This adds a twelfth vessel to the major vessel fleet in Fiscal 2030 as part of this NMV project;
- **Option 2 – Build 5 (Preferred):** Build five NMVs, retire four legacy vessels (ALB, COQ, COW and NW), and life-extend two legacy vessels (SUR and OAK). This adds a twelfth vessel to the major vessel fleet in Fiscal 2030 as part of this NMV project; SUR and OAK would be replaced by 2037 as part of the Phase 2 NMV Project;
- **Option 3 – Build 6:** Build six NMVs and retire the six legacy vessels. BC Ferries would add another vessel for the major vessel fleet by 2037, as part of the Phase 2 NMV Project, bringing the total to 12 vessels; and,
- **Option 4 – Build 4:** Build four NMVs and retire four legacy vessels (ALB, COQ, COW and NW), and life-extend two legacy vessels (SUR and OAK). The Company would add three vessels to the major vessel fleet by 2037 as part of the Phase 2 NMV Project, bringing the total to 12 vessels.

Table 8 summarizes these four options:

• **Table 8: Summary of Options (by Number of Vessels)**

	New Builds	Life-Extend Legacy Vessels	Retire Legacy Vessels	Additional (Twelfth) Major Vessel	Net Number of Major Vessels at End of NMV Project¹
Option 1 – Build 7	7	0	6	1	12
Option 2 – Build 5	5	2	4	1	12
Option 3 – Build 6	6	0	6	0	11²
Option 4 – Build 4	4	2	4	0	11²

¹ Including the existing Spirit Class vessels (two) and Coastal Class vessels (three)

² Twelfth major vessel to be added to the fleet in Phase 2 of the NMV Project

BC Ferries has concluded that the second option is appropriate (referred to throughout this document as “Option 2 – Build 5 (Preferred)”). By building only five NMVs now and life extending the SUR and OAK, this is the least expensive option that achieves the necessary objective of putting a twelfth vessel in service by approximately Fiscal 2030. This option best meets the public interest (by aligning with CTC’s long-term vision and forecasts) and customer expectations, strikes a cost / benefit balance to address both current and future business needs, manages risks responsibly, and is consistent with the Company’s strategic guidance documents.

BC Ferries engaged two external organizations to confirm its overall decision rationale and supporting documentation. One of these organizations has deep knowledge of large infrastructure project procurement, and the other has experience in large, complex marine projects and international ship management. Both organizations confirmed that the preferred option has a sound rationale, is sufficiently documented to support BC Ferries’ analysis, and is the most appropriate course of action.³⁸

The options analysis is discussed in more detail below.

5.4 The Non-Financial Implications of Each Option were Considered

Summary: BC Ferries considered the non-financial implications with respect to each of the four options considered, including a traffic comparison.

5.4.1 Traffic Comparison

The forecast from the CTC initiative indicates that vehicle traffic on the major routes will grow approximately 15 percent over the next 10 years, with growth thereafter on the same trajectory. As discussed above, a portion of the growth outside the peak season can be accommodated through pricing and demand management strategies, but for growth of this magnitude an incremental vessel will be needed to increase major routes’ peak season vehicle capacity.

Figure 12 outlines the modelled capacity utilization across a future year (Fiscal 2035), by procurement option and travel corridor:

³⁸ “Review of NMV DBC and EMDD Proposals for BCFS” and “BC Ferries NMV Detailed Business Case Peer Review: Peer Review Report”.

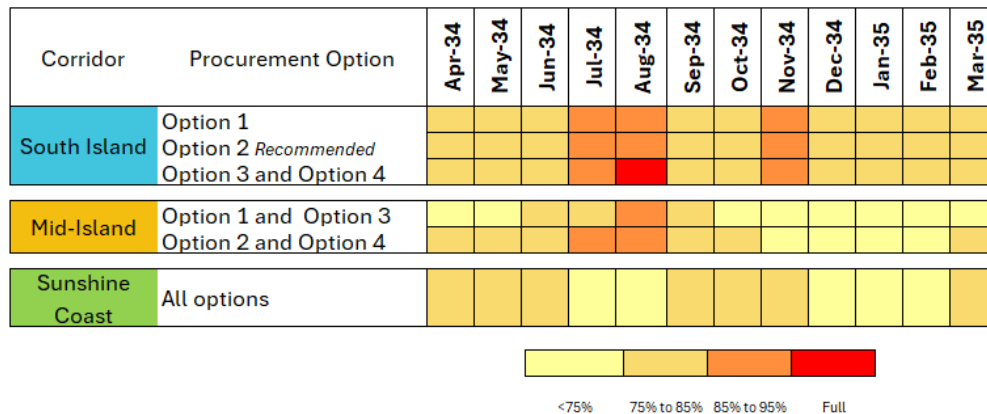


Figure 12: Fiscal 2035 Modelled Monthly Capacity Utilization Across Travel Corridors by Procurement Option

The greatest change in service provision comes from the incremental vessel supporting peak season service on the south island corridor, either in Option 1 – Build 7 or the recommended Option 2 – Build 5 (Preferred). In Figure 12 above, the Build 7 and Build 5 scenarios closely align the level of service provided with the twelfth vessel on Route 1 with the projected demand. Both Options 1 and 2 can accommodate more demand than shown in Figure 12 by increasing the service offering of the twelfth vessel if demand is higher than projected. The model also shows:

- For the two options without the incremental vessel operating on the south island corridor, the route is expected to have reached peak season capacity by Fiscal 2035, with demand being turned away; and,
- For the mid-island corridor, the capacity utilization changes based on the timing of the retirement of the six C-Class vessels. While the twelfth vessel provides the Company flexibility to look at service enhancements that could occur outside of the peak season on the Sunshine Coast, the analysis keeps the service level consistent across all procurement options.

5.4.2 Other Non-Financial Implications Considered

Project Execution

Project execution is a consistent consideration between the four options. The successful implementation of all the options would depend on FMU availability (for NMV warranty and post-delivery work), berth availability for NMV transition activities and trained crew availability.

Safety

Safety is also consistent between the four options. The NMV design incorporates critical safety requirements from the regulatory and internal perspective for employees and the public.

Additionally, standardization of the fleet improves safety with consistency of systems and crew familiarity with the vessels.

Labour

Similarly, labour considerations such as training and skills development to suit the NMVs will be generally comparable between the four options. Each option will increase crew demand, both because the NMVs require more crew than some of the previous vessels, and because the twelfth vessel (if applicable, depending on the option) will need considerably more crew. See Appendix F for additional vessel crew details.

Operations

All options will unavoidably impact operations during the transition period associated with introducing the NMVs:

Option 1 – Build 7:

- All major routes will experience improved capacity. However, the increased frequency of peak season service on Routes 1 and 30 out of Tsawwassen will require additional attention and support to ensure success. This work will include a review of ferry schedules to determine best timing for additional sailings in relation to the other sailings from Tsawwassen, as well as terminal planning to support the management of associated reserved and non-reserved traffic at the terminals on the half hour on Route 1; and,
- A Route 3 two-ship supplemental service option, if adopted, would require new schedules that align with the other routes departing from Horseshoe Bay.

Option 2 – Build 5 (Preferred):

- All major routes will experience improved capacity, although the delayed delivery of the sixth and seventh NMVs will impact the available capacity. However, the increased frequency of peak season service on Routes 1 and 30 out of Tsawwassen will require additional attention and support, similar to Option 1 – Build 7, to ensure success; and,
- Any supplemental service option outside of the Peak season on Route 3, if pursued, would require new schedules that align with the other routes departing from Horseshoe Bay.

Option 3 – Build 6:

- All major routes will experience improved capacity, but vessel deployments will be similar to current circumstances.

Option 4 – Build 4:

- Routes 1 and 30 will experience improved capacity.

Customer Service

Option 1 – Build 7:

- Customer service and satisfaction would improve due to added capacity on the major routes, increased service frequency on Route 1 during the peak season, and, if adopted, additional opportunities for expanding service on Route 3 during the shoulder and off-peak seasons. However, customers would also be affected by upward pressures on fares incurred by building the sixth and seventh vessel now.

Option 2 – Build 5 (Preferred):

- The same customer service benefits as Option 1 – Build 7, although the two old, smaller vessels will remain in service longer, providing less capacity. This Option also ensures capacity keeps pace with projected population growth demands on the major routes, avoiding growing risks with wait times, delays, overloads or breakdowns. This option most responsibly balances affordability as BC Ferries is phasing the purchase of the NMVs.

Option 3 – Build 6:

- This option improves customer service and satisfaction due to added capacity on the major routes, although without an additional major vessel it would be inferior to Option 1 – Build 7. The absence of the seventh vessel will likely have a significant adverse impact on system capacity and therefore on customer service. Customers would be affected by upward pressures on fares incurred by building the sixth vessel now.

Option 4 – Build 4:

- This option will improve customer service and satisfaction due to some added capacity on Routes 1 and 30 but ultimately will fall behind the demands of projected population growth shortly after they are introduced, resulting in the risk of longer waits, delays and overloads; and,
- Overall, this option's customer service benefits are inferior to the others because it introduces the fewest new large vessels, and does not add another vessel. The lack of an additional major vessel will cause significant adverse impacts on overall major route capacity, and therefore on customer service and satisfaction, which will worsen as time progresses.

Environmental

Option 1 – Build 7:

- Operating seven NMVs on Routes 1, 2 and 30 using a diesel battery hybrid, all electric ready power plant, while replacing all six legacy vessels, will reduce GHG emissions and criteria air contaminants. The NMVs will also reduce underwater radiated noise in comparison to the legacy vessels. See Appendices D and E for further information and comparisons between legacy vessels and NMVs.

Option 2 – Build 5 (Preferred):

- Operating five NMVs on Routes 1, 2 and 30 using a diesel battery hybrid, all electric ready power plant will reduce GHG emissions and criteria air contaminants. SUR and OAK will continue to operate as diesel-powered vessels only, and their underwater radiated noise will not be mitigated until their eventual retirement.

Option 3 – Build 6:

- Same as Option 1 – Build 7 (but without the twelfth vessel).

Option 4 – Build 4:

- Same as Option 3 – Build 6, although the environmental impacts associated with SUR and OAK (such as underwater radiated noise and the operation of old diesel engines) will not be mitigated until those vessels are replaced.

5.5 BC Ferries Undertook a Financial Analysis of the Options

Summary: BC Ferries considered the financial implications of the project costs and ongoing revenues and expenses with respect to each of the four options. Isolated price cap implications and net present values were measured and compared between the options.

5.5.1 Approach to the Financial Options Analysis

The financial impact of the NMV project is wider in scope than other recent new-build projects, with projected fleet redeployments affecting all major routes. The analysis required financial modeling across all four major routes for all the options presented, covering:

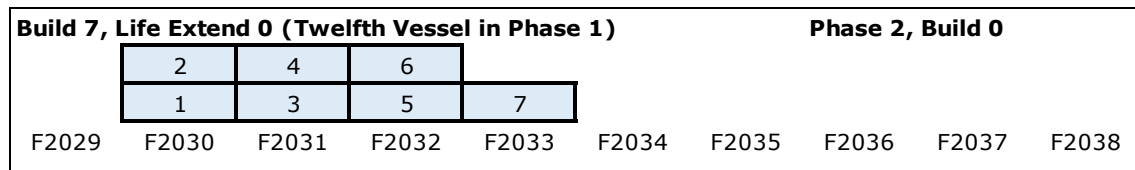
- Capital costs of procuring the ships;
- Capital costs of other related projects necessary to support the NMVs;
- Traffic and revenue potential associated with an increase in capacity; and,

- Expected costs of operating the entire major routes system, including the cost-impact of the redeployed major vessels.

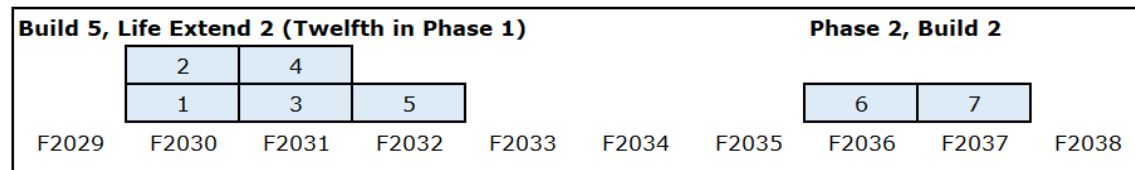
While BC Ferries is of the view that the twelfth vessel is required, another decision point will come in due course with the eventual retirement of the SUR and OAK. As a result, all options in this analysis assumed 12 major vessels either with the first phase (Options 1 and 2) or with the second phase (Options 3 and 4):

Figure 13: NMV Phasing Options

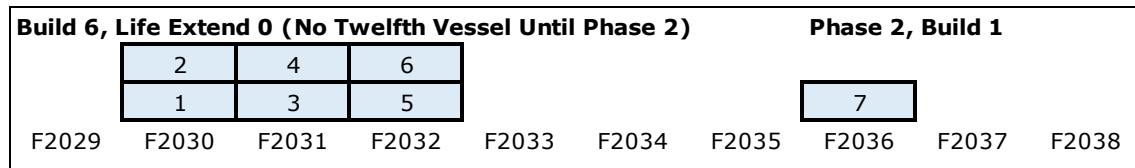
Option 1 – Build 7



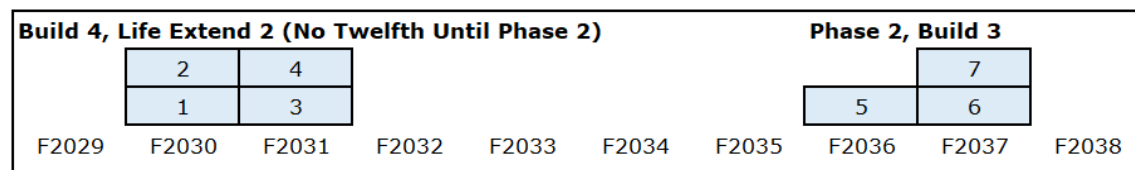
Option 2 – Build 5 (Preferred)



Option 3 – Build 6



Option 4 – Build 4



Option 3 – Build 6 assumes that one more vessel will be purchased, with operations beginning in Fiscal 2037. Option 4 – Build 4 assumes that three vessels will be purchased to enter service to replace the retiring SUR and OAK in Fiscal 2037.

The approaches for comparing options include a standard NPV analysis, and a review of the isolated price cap implications. These are complementary to each other and provide a more complete picture of the financial effects of the options than NPV analysis alone.

- The NPV analysis uses discounted cash flows of the initial investment and ongoing operating implications to compare the options on an equal footing measured in present day dollars. The analysis holds price caps constant across the options, which isolates the impact of traffic growth instead of showing a combined impact of varying price caps and traffic growth together; and,
- The price cap comparison focuses on the isolated impact on fares from each option. All other factors held constant, it illustrates how much each option would need to increase system wide tariff revenues (percent fare increases over total Fiscal 2024 tariff revenue) to cover the capital investment and forecasted net operating implications through Fiscal 2040.

The remainder of this section outlines key financial assumptions for the four presented options, and then provides results of the Company’s NPV and price cap analysis.

5.5.2 Comparison of Direct and Indirect Project Costs

With a time gap between the first and second phase in three of the four presented options, BC Ferries assumed additional inflation would make equivalent scope more expensive if completed in Phase 2. The only expense assumed to be lower in Phase 2 is the project operating costs, which is attributed to the lower feasibility expense associated with already having a completed vessel design. Table 9 compares the projected costs in the two phases:

Table 9: Phase 1 and Phase 2 Project Cost Assumptions (\$ Millions)

< >

Using the common assumptions from the table above, the overall costs to implement the four options are outlined in Table 10 below. Option 2 – Build 5 (Preferred) is the second least expensive in terms of the cost to implement the required Phase 1 scope (including both vessel acquisition costs and related projects,) being behind only Option 4 – Build 4:

Table 10: Direct Project Costs and Related Implementation Costs (\$ Millions)

< >

5.5.3 Projected Ongoing Revenue and Expense Implications

The four options presented have differing projections for revenue, expense and resulting operating profit implications. The high-level assumptions are outlined below, with a representative year of Fiscal 2034 chosen to illustrate the profitability differences at a point when the initial investments associated with Phase 1 are in service across all the options. A more detailed view of the component parts of the projected revenue and expense differences is available in Appendix F.

Revenues

The traffic in all the options is based on the identical forecast developed as part of the CTC initiative. With an identical traffic forecast used across all options, the traffic and revenue differences are the result of layering on capacity constraints based on fleet deployment and ship size. Option 1 – Build 7, which benefits from the most favourable capacity, shows the most incremental revenue over the baseline, with Option 2 – Build 5 (Preferred) coming in a close second.

The key constraint on BC Ferries’ ability to carry more traffic on the major routes is vehicle capacity on the vessels. Table 11 displays the increase in vehicle traffic that each option allows over the status quo fleet, in the representative year of Fiscal 2034. All options are forecasted to enable an increase in vehicle traffic in comparison to what the status quo fleet can carry:

Table 11: Options Comparison of Increases in Vehicle Traffic Over the Status Quo (Fiscal 2034 Representative Year)

Fiscal 2034 AEQ Traffic Variance to Status Quo ('000's)	Option 1 – Build 7	Option 2 – Build 5	Option 3 – Build 6	Option 4 – Build 4
Route 1	133	133	64	64
Mid-Island (Routes 2 and 30)	64	57	64	57
Route 3	8	8	8	8
Total	205	198	136	129

On Route 1, the increased vessel capacity from operating two Spirit Class vessels and two NMVs enables all options to increase by 64,000 AEQs carried over status quo. The additional vessel and associated peak season service provided in the Option 1 – Build 7 and Option 2 - Build 5 (Preferred) enables a further 69,000 AEQs, with incremental Route 1 traffic totaling 133,000 AEQ for both of those options.

The additional AEQ traffic in Fiscal 2034 afforded by the additional vessel suggests a 53 percent capacity utilization across the ~130 thousand AEQ provided by the extra sailings. This leaves the potential for further traffic growth and associated revenue before any additional increases in operating costs would be needed.

On the mid-island corridor, all options benefit by a minimum traffic increase of 57,000 AEQs over the baseline, due to both the increased capacity of two NMVs operating on Route 30 and an assumed increase in the peak and shoulder season round trips. Option 1 – Build 7 and Option 3

– Build 6 include the added benefit of two extra NMVs, which are assumed to be deployed on Route 2.

Route 3 is assumed to see a minor increase in capacity and traffic across all options due to additional shoulder season round trips linked to the introduction of the new vessels.

The growth in vehicle traffic seen across the options will also result in increases in vehicle passenger volumes, as the major routes average slightly more than two passengers per vehicle.

Table 12 shows the forecasted increases in tariff revenue in Fiscal 2034, in 2025 dollars. Consistent with the increases in AEQs, Route 1 sees significant increases in tariff revenues in the two options with the additional vessels (Option 1 – Build 7 and Option 2 – Build 5 (Preferred)) due to the increased peak season service. The two options that do not involve life extensions (Option 1 – Build 7 and Option 3 – Build 6) realize a smaller increase in revenue on the mid-island from the added capacity of NMVs operating on Route 2:

Table 12: Options Comparison of Tariff Revenue Over the Status Quo (Fiscal 2034 Representative Year)

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It is expected that net ancillary revenue will be boosted by a combination of increased passenger spend rates and increased passenger vehicle traffic. With a full slate of food, beverage, and retail options, BC Ferries anticipates that the NMVs will increase average passenger spend rates compared to retiring C- and V-Class vessels. Forecasted per passenger spend rates assume that greater paid entry lounge revenue will boost Route 1 revenue, and that greater retail square footage will increase the revenue of all routes on which the NMVs will operate. Overall, the NMVs are assumed to have similar per passenger spend rates to a Spirit Class on Route 1 and slightly higher spend rates than a Coastal Class on Routes 2 and 30.

Table 13 shows the forecasted net ancillary revenue for Fiscal 2034, a representative year when the first phase of NMVs are in service across all options. On Route 1, all options benefit from increased traffic and spend rates, while Option 1 – Build 7 and Option 2 – Build 5 (Preferred) benefit from the higher passenger traffic linked to the increased peak season service. On the mid-island corridor, all options benefit from increased traffic and spend rates on Route 30, while Option 1 – Build 7 and Option 3 – Build 6 also benefit from adding NMVs on Route 2:

Table 13: Options Comparison of Ancillary Revenue Over the Status Quo (Fiscal 2034 Representative Year)

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Operating Expenses

Operating expenses are based on crew size, estimated fuel consumption, deployment schedule, refit and maintenance expenses, insurance and other miscellaneous costs. In the analysis, the larger NMVs are assumed to require larger crews and more fuel to run than the retiring vessels, and as a result, all options are forecasted to see operating expense increases over the baseline. Option 4 – Build 4 has the lowest forecast operating costs in Fiscal 2034, followed by Option 3 – Build 6. Option 2 – Build 5 (Preferred) narrowly ranks below Option 3 with a total operating expense difference of \$< >:

Table 14: Options Comparison of Operating Expenses Over the Status Quo (Fiscal 2034 Representative Year)¹

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Net Operating Performance

The prior two subsections covered revenue and expense differences across the options. This subsection puts the two pieces together and shows the net operating performance compared to baseline for each of the four options.

All options are forecasted to have an unfavourable net operating impact before applying any external funding or price cap modifications (see table 15 below). Of the four options, Option 4 – Build 4 has the most favourable operating results with a negative net operating impact of \$< >, followed by the Option 2 – Build 5 (the recommended option) at negative \$< >. The higher expenses associated with owning and operating a twelfth major vessel in Option 2 are only partially offset by the forecasted incremental revenue enabled by that vessel.

Table 15: Annual Operating Profit Impact (\$ Millions) (Fiscal 2034 Representative Year)

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5.5.4 Net Present Value Analysis

BC Ferries routinely uses NPV as a standard metric to evaluate capital investment opportunities. NPV uses full lifecycle financial implications (including all upfront costs and ongoing revenues and expenses tied directly to the investment decision), and discounts to their present value using a rate consistent with the costs to fund the investment. BC Ferries uses a standard discount rate of 7 percent, reflecting the Company's cost of borrowing plus an investment risk premium, and sensitivity tests other discount rates.

Table 16 outlines the NPVs of the four relevant options, along with the upfront project costs and NPV ranking:

Table 16: NPV for All NMV Project Options (53 Years) (millions)

	Total Project Cost (Capex plus Opex)	IDC	53 Year – NPV – 7% CC¹	NPV Ranking	53 Year – NPV – 5% CC	NPV Ranking
Option 1 – Build 7	< >	< >	< >	4	< >	4
Option 2 – Build 5 (Preferred)	< >	< >	< >	2	< >	2
Option 3 – Build 6	< >	< >	< >	3	< >	3
Option 4 – Build 4	< >	< >	< >	1	< >	1

¹ “CC” = “capital cost” or discount rate

Although all four options present a negative 53-year NPV, Option 2 – Build 5 (Preferred) best fulfills the requirements detailed in Section 4 (e.g., increased capacity, increased resiliency, GHG reduction goals, public interest and customer feedback, etc.). While a straight comparison of NPVs ranks Option 2 – Build 5 (Preferred) second, it represents the strongest option that delivers the following key advantages discussed in this filing:

- Implementing an additional major vessel now:** Although building an additional vessel now results in a higher initial capital investment, the twelfth vessel adds much-needed resiliency, and addresses stark peak season capacity issues around Fiscal 2035 according to the CTC’s forecasts. These issues preclude choosing Option 3 – Build 6 or Option 4 – Build 4; and,
- Deferring construction of two NMVs by five years:** BC Ferries’ analysis shows that life-extending SUR and OAK and building their replacement NMVs during a later NMV Phase 2 Project delivers a net present value that is \$ < > more favourable than acquiring them as part of the NMV Project, when using a 7 percent discount rate (despite a higher projected absolute cost). Thus, Option 2 – Build 5 (Preferred) is preferable to Option 1 – Build 7.

The NPV analysis includes the following considerations:

- As discussed in Appendix J, BC Ferries sensitivity-tested discount rates other than the standard 7 percent as part of its financial analysis. A lower discount rate negatively impacts the NPV of all four options, but retains their ranking and reduces the NPV differences amongst them. The NPV of Option 2 – Build 5 (Preferred) is \$ < > less

favourable than Option 4 – Build 4 with a 7 percent discount rate, but is only \$< > less favourable with a 5 percent discount rate. On the other side, the NPV of the Option 2 – Build 5 (Preferred) is \$< > favourable compared to Option 1 – Build 7 with a 7 percent discount rate, and only \$< > favourable with a 5 percent discount rate;

- The Company has applied an annual escalation for inflation of 2 percent to all capital and operating costs, which is consistent with the Bank of Canada’s target for inflation management;
- BC Ferries has not included any external funding opportunities within the NPV analysis;
- In the financial model and subsequent analysis, BC Ferries made best efforts to arrive at realistic traffic and revenue assumptions based on traffic estimates developed with the help of third party consultants. Despite using best-practices forecasting methods, there is an amount of uncertainty with respect to the traffic forecast. If actual traffic demand turns out more favourable than the forecast underpinning this application, it would improve the operating performance of the recommended option (and of Option 1 – Build 7) relative to the two options without an additional vessel, as the extra capacity facilitates further revenue growth. On the other hand, lower traffic demand than forecasted would have the opposite effect, tilting the analysis further in favour of the options without an additional vessel. Historically, BC Ferries’ traffic forecasts for new vessel business cases have erred on the conservative side, with the actual traffic performance exceeding the assumptions; and,
- < >

5.5.5 Price cap comparison

The NPV analysis in the previous section focused on the financial impact of the project, given equal fares across the options. In reality, the various options will have differing funding requirements, whereby a combination of traffic and price caps should leave BC Ferries in a relatively equal financial position across the options.

To give an indication of the price cap impact of each option, BC Ferries used the same traffic, operating cost and capital cost assumptions as in the NPV analysis to calculate an annual funding shortfall that would need to be recovered from regulated revenue. Those annual shortfalls are then displayed as a percentage increase in fleet-wide required fares over a Fiscal 2024 base year. This isolates the influence each option would have to each performance term’s overall price cap determination, providing an estimate of required fare increases over the life of the project.

Note that whereas the NPV analysis uses the discounted cash flows to capture the capital cost differences, the drivers in the price cap analysis that distinguish the capital cost impact across the options are the amount and timing of incremental borrowing, and the cost of borrowing.

The results of the price cap comparison analysis are summarized in Table 17 with a focus on PT7 and PT8, the next two terms that will need price cap determinations:

Table 17: Required Regulated Fare Increase over Fiscal 2024 Level Attributable to NMV Options (By Fiscal Year)

Option	PT7-PT8 Average	PT7-PT8 Rank
Option 1 – Build 7	< >	4
Option 2 – Build 5 (Preferred)	< >	2
Option 3 – Build 6	< >	3
Option 4 – Build 4	< >	1

Price cap increases are often stated in terms of compound annual increases within each performance term. The percentages in Table 17 above and Figure 14 below are not compound annual increases, but represent the total regulated revenue increase needed in comparison with a Fiscal 2024 baseline, to cover the annual funding shortfall for the option in the given year.

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Figure 14: Forecasted Lift in Required Regulated Fares Over Fiscal 2024 Level Attributable to NMV Options (by Fiscal Year)

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Figure 15: Forecasted Lift in Required Regulated Fares Over Fiscal 2024 Level Attributable to NMV Options (by Fiscal Year) for Additional Vessel with No Incremental Service

Adding a twelfth vessel to the fleet with no incremental service is forecasted to require regulated revenue that is on average < > percent higher in PT7 and PT8 than not adding the vessel. Using that additional vessel to offer incremental service on Route 1 during peak season is forecasted to provide a net contribution to fares. This net contribution associated with peak season service is forecasted to reduce the regulated revenue requirement to an average of < > percent in PT7 and PT8 (an improvement of < > percent).

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Table 18 illustrates the Fiscal 2034 inputs driving the yearly incremental funding requirement and subsequent tariff percent required against the Fiscal 2024 price cap. < >

Table 18: Incremental Funding Requirement Increase over Fiscal 2024 Level Attributable to NMV Options Reconciliation (Fiscal 2034)

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5.6 Option 2 Delivers the Best Overall Value

Summary: Based on a financial review, Option 2 – Build 5 (Preferred) is a reasonable selection in terms of upfront capital cost and required price caps over the next two performance terms, and is the preferred option based on the overall value it provides for ferry users.

The four viable NMV options assessed in this filing have each been presented in comparison to the status quo operation, which in itself BC Ferries does not deem viable due to the high operational risks associated with running six major vessels beyond their useful lives. With significant recent cost escalation in the shipbuilding market, and the larger size of the NMV vessels as compared to the retiring C- and V-Class vessels, all options will be more expensive than the hypothetical (and non-viable) baseline against which they were measured.

A strict financial comparison of the options with the base CTC traffic forecast favours Option 4 – Build 4, but Option 5 – Build 5 (Preferred) is second in terms of upfront capital cost, ongoing operating profit, NPV, and required price caps over the next two performance terms. Importantly, the recommended option brings other benefits outlined in this section and elsewhere in this application, including greater system resiliency, enhanced peak period capacity and a better overall customer experience on the coastal ferry system’s busiest routes.

In addition, the recommended option allows for traffic and revenue growth beyond what has been assumed in the financial analysis, even at the analyzed level of deployment. As the extra vessel is not assumed to be fully deployed, there is further growth potential beyond the limits modeled.

With a balance between fiscal prudence, potential for even greater revenue upside, and significant non-financial benefits, BC Ferries believes Option 2 – Build 5 (Preferred) delivers the best overall value of the four options presented.

Section 6 NMV Project Financial Considerations

6.1 Introduction

Section 5 introduced BC Ferries' approach to the financial options analysis with only the high-level summarized results presented. This section explains why the NMV Project budget estimate is reasonable, by providing a more detailed look at the analysis for Option 5 – Build 5 (Preferred).

6.2 The NMV Project has a Comprehensive Budget

Table 19 summarizes the total NMV Project budget for Option 2 – Build 5 (Preferred):

Table 19: NMV Project Budget Estimate (Millions)

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Table 20 illustrates the annual NMV Project capital cash flow assuming the recommended option:

Table 20: NMV Project Cash Flow by Fiscal Year

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See Appendix G for further details with respect to the NMV project budget.

6.3 The Financial Analysis Includes Required Lifecycle Investments

Certain required lifecycle investments have been included in the financial analysis for Option 2 – Build 5 (Preferred). After the initial capital investment in the NMVs, further capital expenditures will be required to keep the vessels operational over their lives, as many components inevitably will wear out and will need to be replaced. Further, the following ongoing capital investments have been included:

- **Battery energy storage systems:** The Company will initially install 10 MWh batteries with a useful life of 10 years on each NMV. BC Ferries estimates each 10 MWh battery pack will cost \$< > (Fiscal 2025 dollars), and expects that the incremental capital cost will be offset by savings generated by using electricity instead of diesel; and,
- **Lifecycle capital upgrades:** BC Ferries has assumed quarter, half and three-quarter life capital upgrades for each of the NMVs, consistent with historical asset management practices. The following capital upgrade costs are estimated per vessel:
 - Quarter life upgrade: \$< > in Fiscal 2045 dollars;
 - Half life upgrade: \$< > in Fiscal 2055 dollars; and,
 - Three-quarter life upgrade: \$< > in Fiscal 2065 dollars.

6.4 Operating Expenses are Consistent with a Larger Vessel Size and Operations and Maintenance of an Additional Vessel

Table 21 summarizes the operating cost impacts anticipated in Fiscal 2034, once all five NMVs are in service (values are stated in Fiscal 2025 dollars). BC Ferries predicts that the annual operating costs resulting from the recommended option will exceed the baseline current major route operating costs (per the Fiscal 2025 budget) by approximately \$< > in Fiscal 2034. Approximately \$< > of the increase specifically pertains to operating costs for the twelfth vessel, while the remaining \$< > reflects the increased size and capacity of the NMVs. The CTC initiative anticipates increased net retail revenue from higher passenger spending on the NMV's amenities, and predicts that higher operating costs will be partially but not fully offset by increased traffic revenue. Consequently, the Company expects overall annual operating costs to be higher than they are now:

**Table 21: Annual Operating Costs for Fiscal 2034
(Fiscal 2025 \$ millions)**

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With respect to fuel and urea, the Company's external naval architecture firm provided consumption rates per NMV that take into account the basic design specifications established to date. Assuming full-service deployment with forecasted fuel rates, BC Ferries forecasts that fuel and urea costs will increase by \$< > annually compared to the baseline case (including \$< > for additional vessel operation and \$< > for annual urea). Higher fuel costs are driven by the NMVs' higher energy requirements compared to the smaller C- and V-Class vessels, and the use of a twelfth vessel.

BC Ferries has assumed a combination of 95 percent ultra-low sulphur diesel ("ULSD") and five percent biodiesel ("B5") for fuel for the NPV analysis (see section 7.3.4 for a discussion of vessel energy source). Urea consumption correlates positively with fuel consumption and is a mandated requirement; this is a net new operating cost compared to the baseline case, as selective catalytic reduction treatment was not required for C- and V-Class vessels since they are not required to comply with the IMO NOx Tier III emission standards. BC Ferries estimated the urea consumption rate and price per unit using its historical data on existing vessel urea usage.

< > See the next section for maintenance and refit details, and Appendix J for sensitivity analysis results and further details on annual operating costs.

6.5 Ongoing Refit and Maintenance Costs have been Conservatively Estimated

The NMVs' maintenance plan will be based on the shipyard's condition-based maintenance ("CBM") regimen, which will incorporate industry-acknowledged reliability principles. See Appendix J for further details about condition-based maintenance.

The Company developed the maintenance, refit and major overhauls and inspections ("MOI") costs for the NMVs through consultations with the project team and the fleet engineering and fleet technical divisions. BC Ferries expects these costs to increase compared to the base case (Option 0 – Status Quo) due to the NMVs' increased size and capacity, and the use of the additional major vessel.

Table 22 details BC Ferries' forecasts of these costs for the recommended option versus baseline, and Table 23 shows the assumptions behind those differences, comparing the NMVs and the existing C- and V-Class vessels on an average-per-vessel basis. The Company forecasts that annual average maintenance costs for the NMVs will increase by \$< > per vessel, and annual average MOI and refit costs for the NMVs will increase by \$< > per vessel, when compared to the current average costs of the C- and V-Class vessels. The twelfth vessel will incur average annual maintenance costs of \$< > in Fiscal 2025 dollars and average annual MOI and refit costs of \$< > in Fiscal 2025 dollars:

Table 22: Maintenance and Refit Costs (Fiscal 2025 \$ millions)

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Table 23: C- and V-Class and NMV Class Maintenance, Refit and MOI Comparison (Fiscal 2025 \$ millions)

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6.6 Basis of Estimate: Budget Informed by Third Party Experts and Past Experience

The NMV Project's most significant cost will be the design-build-deliver contracts that BC Ferries will negotiate and award to the selected shipyard. The contract cost estimates were informed by an assessment performed by a shipbroker, internal assessment of benchmark projects, and an additional cost estimate validation by a third-party shipyard consultancy firm.

BC Ferries established non-contract costs through a comprehensive process that drew from past shipbuilding projects (e.g., Salish IV and Island Phase 2 projects), vendor bids and subject matter expert insights and experience.

BC Ferries derived an < > contingency amount using internal methodology, and retained a consultant to review the initial contingency calculation and explore alternative methods, including conducting a Monte Carlo simulation.

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6.7 BC Ferries Performed Comprehensive Risk Evaluation, Developed Strategies to Manage the Risks and Included Appropriate Contingencies

BC Ferries undertook a comprehensive risk evaluation for the NMV Project that aligns with industry best practices. The Company developed a comprehensive project risk register template based on past shipbuilding project experience and guidance from its consultant.

BC Ferries has updated and reviewed the risk register on a quarterly basis throughout the pre-implementation phase of the NMV Project, during enterprise risk assessments and throughout a comprehensive risk workshop held in April, 2024, which included representatives from affected business areas and subject matter experts. During the risk workshop, participants identified potential project and corporate risks, and developed mitigation strategies for each. Their efforts involved assessing the likelihood and severity before and after mitigation, creating mitigation plans, evaluating potential cost and schedule impacts, and outlining contingency plans should the risks materialize.

The Company engaged a consultant to review the NMV Project's risk management process. The consultant adopted a stochastic Monte Carlo simulation model to inform project contingency, which also addressed cost impacts of pre-implementation schedule-driven contingent risks, such as governance delays and a lack of compliant bids.

BC Ferries then used the likelihood, cost and schedule impact for each risk to calculate a project contingency amount that would ensure a < >.

As part of NMV Project implementation, the Company will proactively identify new risks and assess existing risks. It will confirm a detailed schedule with the shipyard following contract award and will closely monitor the schedule for any sign of slippage. During regular scheduled risk reviews, typically performed in conjunction with project status meetings and steering committee or Program Board meetings, the Company will evaluate and update the risk register based on the latest project developments. The project has designated risk owners, responsible for monitoring specific risks and will implement risk mitigation plans when necessary. Project reports will include integrated risk reporting to highlight any significant changes, emerging risks or challenges encountered.

Due to the size, complexity and risks associated with the NMV Project, BC Ferries will implement a new Fleet Renewal Program structure, separate from the existing corporate structure, to properly manage project, program and portfolio requirements. See Section 9 for further details on this governance model.

Key project and schedule risks, and their mitigations, are discussed at Appendix I.

6.8 BC Ferries Used Sensitivity Analysis to Test Financial Inputs

BC Ferries believes that it has used reasonable inputs in the financial analysis, but recognizes that some key assumptions are susceptible to change and / or volatility. The Company conducted sensitivity analyses to demonstrate how changes in assumptions would affect forecasted costs and the NPV. Sensitivity analysis variables included the foreign exchange rate, battery cost, CBM cost, vessel labour cost, fuel cost and discount rate. See Appendix J for details of these sensitivity analyses.

6.9 BC Ferries Continues to Seek Funding Opportunities for the NMVs

6.9.1 External Funding Opportunities

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6.9.2 Internal Funding

By Order 22-01, the Commissioner authorized BC Ferries to create a Carbon Reduction Investment Account ("CRIA"), through which BC Ferries can allocate carbon credit revenues to partially fund infrastructure investments that progress the Company's Clean Futures plan and GHG emissions reduction initiatives.³⁹ The NMV strategy for a diesel battery hybrid, all electric ready operation is projected to reduce carbon emissions and therefore would qualify for consideration of CRIA funding by the Commissioner. As the carbon credit landscape evolves and the balance available to offset infrastructure costs becomes clearer, the NMV Project can submit an application to utilize whatever balance, if any, is available in the CRIA account.

³⁹ British Columbia Ferry Commission, *Order 22-01: In the Matter of Monetization of Carbon Credits to Fund Clean Futures Initiatives Proposed by British Columbia Ferry Services Inc.*, April 21, 2022.

Section 7 New Major Vessels

7.1 Introduction

This section describes the proposed NMVs, which will be an entirely new standardized class for BC Ferries.

7.2 A New Class of Vessels to Serve British Columbians

Summary: The five NMVs will represent an entirely new standardized class for BC Ferries, which will eventually replace all the C-, V- and Spirit Class vessels.

The five NMVs will represent an entirely new standardized class for BC Ferries, incorporating certain features of both the Coastal Class (double-ended design) and the Spirit Class (similar vehicle and passenger / crew capacity), while significantly improving upon both designs. They will be the largest vessels in BC Ferries' fleet, and will represent a step change in efficiency, comfort and environmental sustainability.

The NMV class will eventually replace the Spirit, V- and C- Classes. BC Ferries proposes to build five NMVs now and retire the NW, ALB, COQ and COW as part of the NMV Project, followed by two more NMVs within five years as the NMV Phase 2 Project, replacing the OAK and SUR. The Spirit Class vessels will be replaced in a third phase in the mid 2040s. This phased approach provides the future flexibility needed to adapt the design, if required, to changes in coastal travel patterns.

7.3 NMVs a Result of Design Development

Summary: An external naval architecture firm supported the NMV Project team in the conduct of a concept design study and developed a NMV basic design.

7.3.1 Vessel Configuration

The NMVs will be 172 metres long, double-ended and compatible with BC Ferries' existing terminal infrastructure.

Various variants were considered with respect to placement of the wheelhouse(s), including one positioned at each end, a single one amidships or – the selected configuration – one approximately 30 percent of the vessel length from each end.

7.3.2 Vessel Capacity

The NMVs will be capable of holding at least 360 AEQ and 2,100 passengers, including 34 semi-trailers on the main car deck. The vessel size was determined based on a review of the forecasted sailing demand for each of the routes on which the NMVs could potentially operate.

7.3.3 Vessel Propulsors

The Concept Design Study evaluated different propulsor types (including pods, thrusters, conventional rudders and propellers, Voith Schneider propellers and contra-rotating propellers) and selected four azimuth pulling propulsors based on cost, energy consumption, maneuverability and underwater radiated noise.

7.3.4 Vessel Energy Source / Fuel; Vessels Eventually will be All-Electric

The NMVs are expected to reduce tank-to-wake GHG emissions and well-to-wake GHG emissions by approximately 90 percent compared to fossil-fuel-based diesel in support of the Province's CleanBC goals and GHG emission reduction targets. The only realistic option to achieve 100 percent tank-to-wake GHG emission reductions (i.e., zero vessel exhaust) is all-electric, battery operation with source power from BC Hydro's electrical grid. This option requires dedicated transmission power lines and upgraded terminal infrastructure, which will entail significant investment and time to complete (as a separate future project). Until that infrastructure is in place, the NMVs will need to operate using some form of renewable fuel / energy carrier.

Based on the analysis, BC Ferries selected single-fuel diesel engines as the preferred technology, enabling ULSD and B100 combined with sufficient shipboard battery capacity for immediate hybrid use, and expandable for future full electrification. Note that blends of diesel fuel types are possible: for example, B5 represents a blend of five percent biodiesel with 95 percent ULSD (based on context, this base fuel blend is referred to as ULSD or B5 in this Application).

7.3.5 Vehicle Deck Arrangement

Vehicle deck entrances on the NMVs will be notably higher and wider than BC Ferries' existing major vessels. The NMVs will have unobstructed upper and lower vehicle decks, including clear sightlines and wider openings (i.e., equivalent to the width of three AEQs) at vessel ends to promote more efficient loading and discharge. The upper vehicle deck will have a clear height of 2.9 metres to accommodate non-commercial overheight vehicles, whereas the lower (main) vehicle deck will have a clear height of 4.7 metres to accommodate larger commercial vehicles.

Both upper and lower vehicle decks will be "open" which will result in improved ventilation and air quality. The open decks support the comfort of employees and customers through improved airflow and are consistent with Transport Canada regulations that *may* permit passengers to remain on open vehicle decks during travel, subject to appropriate safety and operational reviews.

7.3.6 Dock Compatibility

The NMVs will be compatible with BC Ferries’ major berth standard and will be able to interface with all existing major berths.

7.4 NMV Basic Design Focuses on Customer and Operational Needs

Summary: The NMVs’ basic design focuses on customer experience, standardization, interoperability, maintainability, reduced environmental impacts and flexibility to adapt to changing travel and technology trends. It will form the basis for the final detailed design and subsequent construction.

The NMVs’ basic design is the result of extensive collaboration with BC Ferries’ naval architecture firm. It includes requirements developed by cross-functional working groups and endorsed by BC Ferries’ Executive Leadership Team, and incorporates feedback from equipment manufacturers, employees, customers and commercial partners.

The design for these vessels focuses on customer experience, standardization, interoperability, maintainability, reduced environmental impacts and flexibility to adapt to changing travel and technology trends. Figure 16 illustrates the basic NMV design, which will form the basis for the final detailed design and subsequent construction:

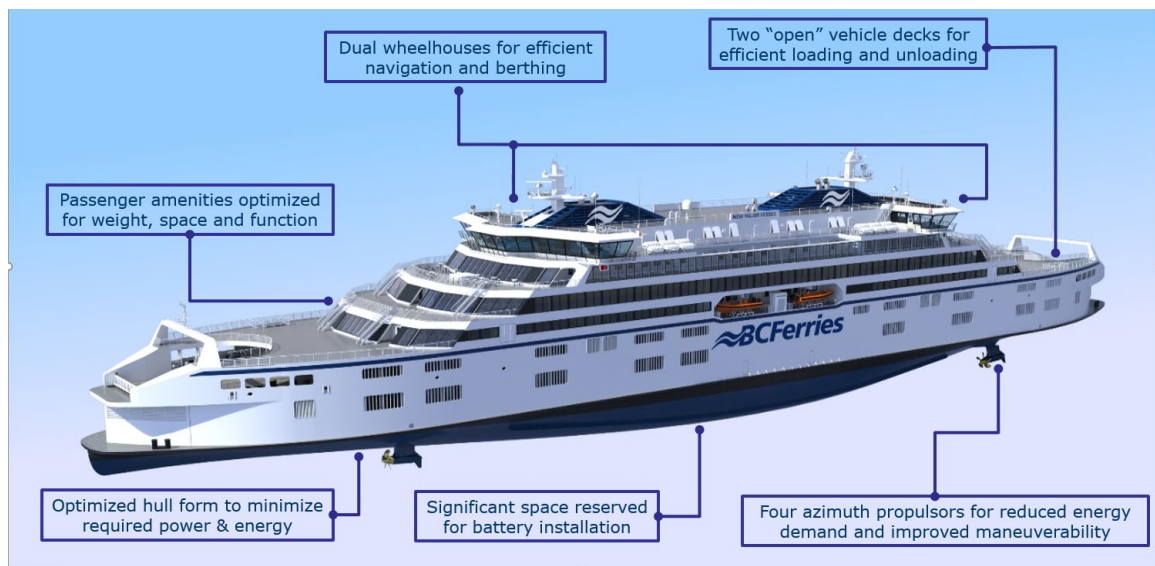


Figure 16: Basic NMV Design

Unlike previous shipbuilding projects, the resulting basic design will provide shipyards with a comprehensive common starting point to develop their proposals for costs, schedules and detailed designs, with the intent of minimizing shipyard risk and lowering overall costs (see Section 9.3.2).

7.4.1 Deck Layouts and Customer Amenities

The Basic Design Study recommended the following general arrangement based on passenger and crew comfort, as illustrated in Figure 17:

- **Deck 5** – Retail shop, coffee bar, children’s play area, pet area and seating lounges;
- **Deck 6** – Restaurant, galley / provisions and seating lounges; and,
- **Deck 7** – Crew area and paid entry lounge.

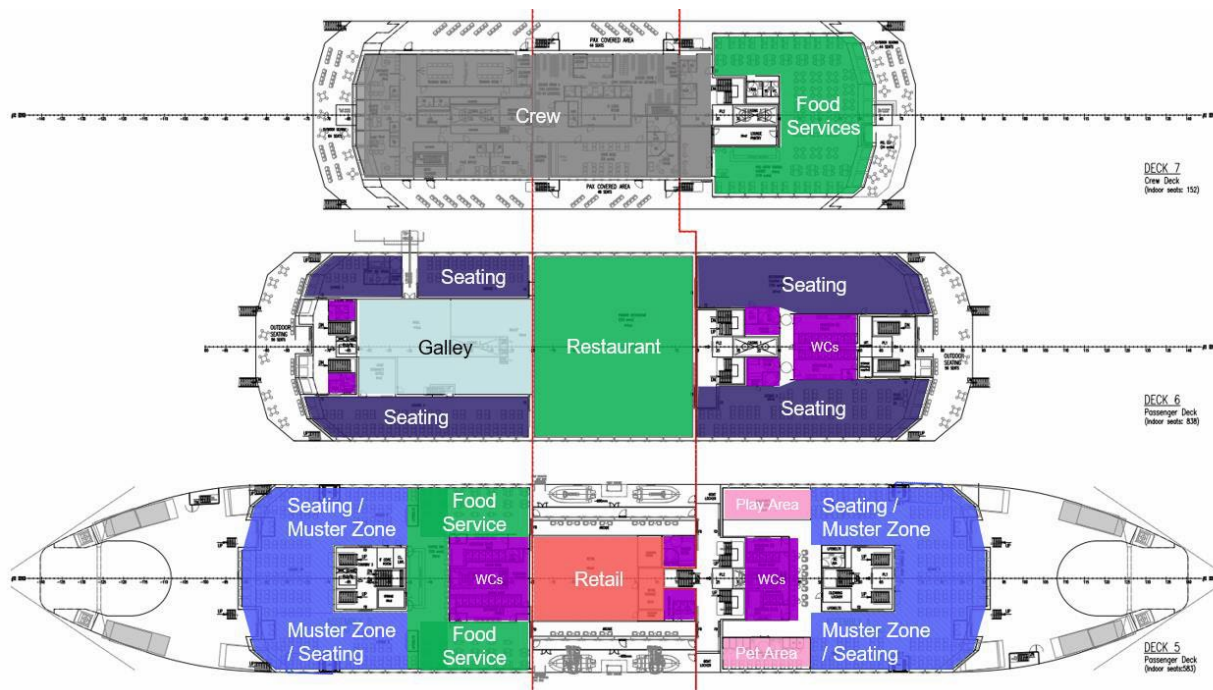


Figure 17: Deck 5, 6 and 7 Layouts

Straight passageways along both sides of the vessel will facilitate passenger movement through the passenger areas. In addition, passenger seating will be located toward the ship’s sides and the ends for maximum external views.

On Deck 5, a children’s play area and a pet area will make travel with children and pets more enjoyable. Building upon recent experience with pets on exterior passenger decks and years of customer feedback of the pet areas located on vehicle decks, the NMV is BC Ferries’ first design where the pet area has been moved from a vehicle to a passenger deck. The design includes both interior and exterior pet amenities, including stainless steel kennels of various sizes, banquette seating in semi-enclosed areas for owners and pets to sit together to reduce pet anxiety, a hand wash sink with hot and cold water, pet relieving areas with artificial turf and a dog drinking fountain. This design also ensures pets have a space free from the noise from the not infrequent car alarms that are set off by the ships’ movement.

Male, female, accessible (according to the *Americans with Disabilities Act* guidelines) and gender-neutral washrooms will be distributed throughout the passenger areas. The inside of each washroom will accommodate a 2.1 metre diameter wheelchair manoeuvring circle, increased from 1.5 metre diameter (or less) on previous vessels.

Three robust, heavy duty, marine-type elevators and three stairways will allow passengers to move from Deck 2 to Deck 6. Two of the elevators will allow crew to access the engineering deck, making it easy to move equipment and personnel. The elevators and stairs will provide sufficient capacity during loading and discharge. An additional stairway, passing from Deck 2 to Deck 5, will be located at each end of the vessel.

BC Ferries engaged two food industry consultants to help develop the galley / provisions area, main restaurant, coffee bar and paid entry lounge.

7.4.2 Vessel Crews

The NMV's crew size and make-up will be based on the vessel's Minimum Safe Manning ("MSM") document issued by Transport Canada, as well as BC Ferries-generated crew profiles that address operational and service requirements. < >

- < >
- < >
- < >

Table 24 summarizes the current and forecasted crew positions by route and vessel class:

Table 24: Current and Forecasted Operating Crew by Route and Vessel Class

< >

Table 25 outlines the anticipated crew positions that would be required for vessels on various major routes during the peak service season:

Table 25: Summary of Crew Additions Compared to Current Vessels

< >

7.4.3 Design Choices Help to Support Operational Resiliency

BC Ferries designed the NMVs to improve overall resiliency – and hence reliability – which helps to ensure service delivery and the financial returns necessary to keep the balance of the ferry system affordable. For example:

- The four propulsors will provide a stepped level of redundancy not typically seen in major vessels, allowing the potential for operations to continue even if a single propulsor failed; and,
- The NMV Project has written requirements and selected notations that will improve vessel reliability by identifying critical components, developing maintenance plans, selecting appropriate quantities of spares, and training BC Ferries employees on the maintenance needs.

7.5 Deploying Vessels Based on Operational Needs

Summary: The entire fleet, including the NMVs, will be deployed to best support the overall major route service needs.

Figure 18 illustrates the high-level timing of the various NMV-related projects, including when the various vessels will enter and leave service, the life extension of SUR and OAK, and the construction of a new berth at Tsawwassen terminal:

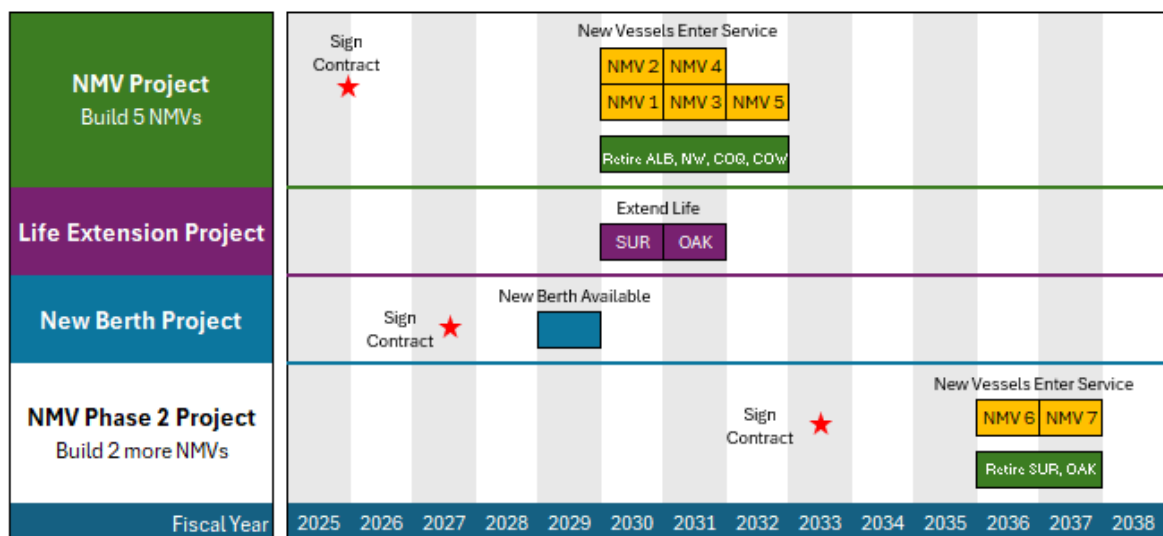











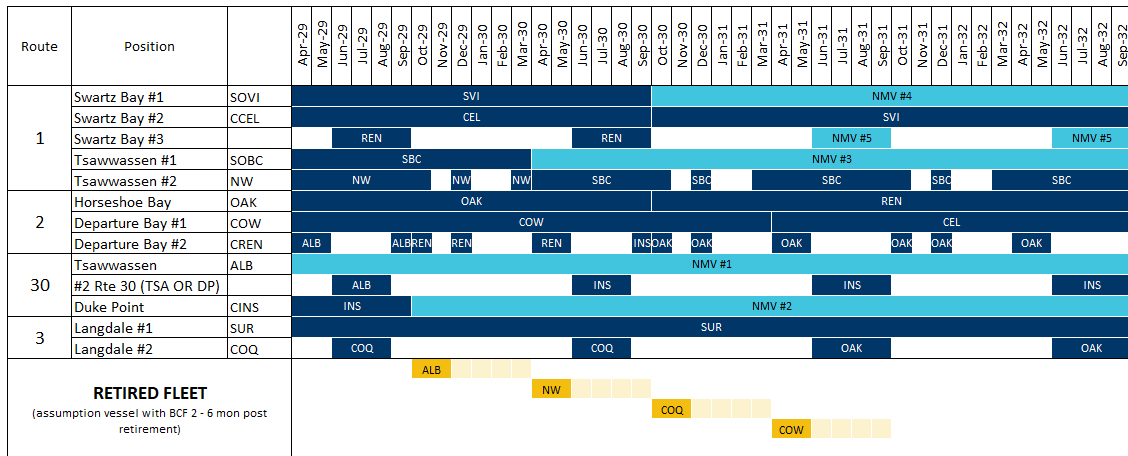
Figure 18: Expected Timing of NMVs and Related Projects, by Fiscal Year

BC Ferries currently expects to deploy the five NMVs on Routes 1 and 30 while redeploying other major vessels on the various other major routes. Routes 1 and 30 are the busiest routes, and are currently constrained by the size and number of available vessels. Table 26 shows a possible deployment scenario for the major vessels during peak season once all the NMVs are in service:

Table 26: Scenario Showing Possible Vessel Deployments on Major Routes Once the Five NMVs are in Service

Home Port	Ship Class	Quantity	Route
Swartz Bay	NMV 	2	<ul style="list-style-type: none"> ① Swartz Bay – Tsawwassen ① Swartz Bay – Tsawwassen
	Spirit 	1	<ul style="list-style-type: none"> ① Swartz Bay – Tsawwassen
Tsawwassen	NMV 	2	<ul style="list-style-type: none"> ① Tsawwassen – Swartz Bay ③① Tsawwassen – Duke Point
	Spirit 	1	<ul style="list-style-type: none"> ① Tsawwassen – Swartz Bay
Duke Point	NMV 	1	<ul style="list-style-type: none"> ③① Duke Point – Tsawwassen
	Coastal 	1	<ul style="list-style-type: none"> ③① Duke Point – Tsawwassen
Departure Bay	Coastal 	1	<ul style="list-style-type: none"> ② Departure Bay – Horseshoe Bay
Horseshoe Bay	Coastal 	1	<ul style="list-style-type: none"> ② Horseshoe Bay – Departure Bay
Langdale	C 	2	<ul style="list-style-type: none"> ③ Langdale – Horseshoe Bay
			<ul style="list-style-type: none"> ③ Langdale – Horseshoe Bay

The NMVs will not necessarily deploy to the same routes and homeports as the legacy vessels they replace; instead, the entire fleet will be deployed to best support the overall major route service needs. Figure 19 shows possible vessel deployments between April 2029 and September 2032 (excluding refit relief redeployments), which spans the introduction of the five NMVs. Twelve vessels will be available once the first NMV has joined the fleet. The process of retiring vessels, removing ships from service, redeploying ships and introducing new ships is a carefully orchestrated sequence to maintain continuous service:



Legacy Vessels
 Retired
 NMV possible deployment

Figure 19: Scenario Showing Possible Vessel Deployments on Major Routes Between April 2029 and September 2032

Section 8 Affordability and Prudence

8.1 Introduction

This section discusses how BC Ferries has considered the implications of the NMV Project from the standpoint of customer affordability and prudence.

8.2 Investing in the Twelfth Vessel Now Will Enable BC Ferries to Meet Growing Demand While Still Providing Future Off-Ramps if Needed

Summary: A significant investment is unavoidable. The majority of the proposed NMV Project costs are attributable to the need to replace the four C- and V-Class vessels that have exceeded their useful service and economical life. An additional vessel, beyond those being replaced, is also required to meet growing demand while providing resiliency. While recognizing the importance of capital investment to address the identified needs, BC Ferries has taken an approach which ensures that it can reduce the major vessel fleet to 11 in the future, if needed.

BC Ferries understands that ferry travel represents a significant cost to its customers, and that the fares it collects from the travelling public must be put to the best and most prudent use. The Company's priority is to enhance service while maintaining fare affordability. The public has clearly indicated, through the CTC initiative, that they want a ferry system that is reliable, available to them when they need to travel, and affordable. As detailed extensively in this filing, the Company must replace the C- and V-Class vessels and is meeting the public's expectations and serving the public interest by building the number and size of major vessels now to help address growing traffic demand and population growth.

The majority of the proposed NMV Project costs are attributable to the need to replace the four C- and V-Class vessels that have exceeded their useful service and economical life, and to add a fifth NMV beyond those being replaced to ensure operational resilience and meet forecasted increases in service demand. To best accommodate this, BC Ferries has strategically decided to divide the construction of the seven NMVs into two phases. Phase 1 will involve the construction of five NMVs, while Phase 2 will allow the flexibility to cover the remaining two vessels once the remaining C-Class vessels need to be replaced. This phased approach allows BC Ferries to defer the costs associated with two vessels to a later date, while still capturing the resiliency and operational benefits provided by the additional vessel. While not the plan at this time, it also enables BC Ferries to build only one future vessel during Phase 2, if it is determined a twelfth vessel is not needed.

8.3 Project Phasing Moderates Price Cap Impacts

Summary: With demonstrated price escalation in the shipbuilding markets, this investment is expected to increase in cost the more it is delayed. Splitting the vessel replacement project into two phases, and deferring replacing two C-Class ships, optimizes BC Ferries' investment and moderates price cap and customer affordability impacts.

By splitting the vessel replacement project into two phases, BC Ferries optimizes its investment, ensuring a prudent use of resources and softening the impact on price caps compared to constructing all seven vessels in a single phase. This meets customers' travel needs, while also supporting affordability by not putting unnecessary upward pressures on fares earlier than required.

The public has indicated that reliability and affordability are essential. < > With demonstrated price escalation in the shipbuilding markets, this investment is expected to increase the more it is delayed. BC Ferries' approach prioritizes the public interest and responsibly balances its current reliability and capacity needs with the affordability of fares, avoiding putting undue pressure on customers before any further additional ships are needed. For the reasons outlined in this filing, the Company does not believe it is prudent or in the public interest to proceed with a smaller project scope (four vessels) that does not keep pace with projected population growth and that is counter to the expressed public interest priorities of vessel and service reliability. To delay the addition of a twelfth vessel at this point would mean at least another 10 years before it could be added to the fleet. Such a scenario would not only put the system's reputation and ability to meet customer expectations at risk, but it would also mean that the wait times and delays currently experienced by customers would be exacerbated despite the introduction of the four new vessels.

Significantly, the twelfth vessel will also benefit affordability for BC Ferries customers – and all island communities served by or through the major routes – in another way. By enabling a step change in capacity that supports supply chains and commercial shippers, the BC Trucking Association believes the additional vessel helps to reduce shipping costs that otherwise would have been passed directly to consumers. See Sections 3.6.2, 4.3 and 4.7.1 for further discussion.

8.4 Measures to Achieve the Lowest Price

Summary: BC Ferries has taken numerous measures to obtain the lowest price for the customers in financing and procurement.

BC Ferries' capital program is funded through a combination of retained earnings and debt sourced from lenders. The Company has taken numerous measures in respect to the

NMV Project to ensure affordability with respect to achieving the lowest price for the customers. These range, for example, from the following:

- < >
- Careful and deliberate operational and financial analysis and decision-making with respect to the number, timing and type of vessels;
- Carefully planning for traffic demand, vessel longevity and other factors affecting resilience and reliability, while using timely and appropriate vessel deployments (SUR and OAK) to help offset capital costs;
- Retaining professionals to provide expert advice where needed, including shipbroking naval architecture and risk management;
- Carefully designing the competitive approach to competitive procurement and to contract management to achieve moderate and fair prices; and,
- Implementing a governance process that is designed to ensure appropriate level of oversight on this large project.

8.5 Reprioritizing Capital Plan and Exploring External Funding to Reduce Cost Pressure

Summary: BC Ferries has reviewed its Capital Plan for opportunities to reduce cost pressure. BC Ferries has removed lower priority capital projects and reduced or delayed others where appropriate and safe to do so. BC Ferries is also continuing to explore opportunities for external funding or additional revenues, including potential investments from other partners.

BC Ferries' filing to the Commissioner for price-cap-setting purposes for PT6 was submitted in September 2022, followed by supplemental filings in March and August 2023. The August 2023 supplemental filing included a 'Build 7' project with a \$< > capital placeholder. < >

BC Ferries is aware that despite measures to achieve the lowest price for the NMVs, there are potential significant implications for future price cap determinations. To help mitigate this, BC Ferries has taken the following steps:

- Carefully reviewed its Capital Plan, including removing capital projects that are not required and reducing or delaying others where appropriate and safe to do so; and,
- Continuing to explore opportunities for internal or external funding or additional revenues, including potential investments from other partners (see Section 6.9).

The Company's decision to strategically divide the construction of the seven NMVs into two phases, with accompanying cost containment measures in other areas of BC Ferries' 12-Year capital plan, increases the financial capacity to proceed with the NMV Project. See Section 5.5.5 for a further discussion of price cap implications with respect to the NMV Project.

Section 9 Project Governance, Procurement and Implementation

9.1 Introduction

This section addresses NMV Project governance, procurement and implementation.

9.2 BC Ferries is Following Expert Recommendations on Organization, Governance and Controls

Summary: BC Ferries is putting in place an organizational and governance structure along with appropriate controls based on recommendations of a third party expert. These recommendations incorporate industry best practices.

The NMV Project is BC Ferries' largest-ever capital investment, and is linked to other projects and initiatives that are required for its success. Together, these projects and initiatives form a larger Fleet Renewal Program, elements of which include:

- The NMV Project itself (including future phases for additional vessels);
- A significant number of terminal upgrades so the new ships can be put into service. These improvements span from building new berths and upgrading existing ones, to eventually installing complex charging infrastructure to support all-electric battery vessel operation. Specific projects will occur at, but are not limited to, Tsawwassen, Departure Bay, Horseshoe Bay and Langdale;
- Workforce planning and recruiting to crew the ships;
- Training for crews to operate the ships;
- Maintenance strategies to care for the ships;
- Transition efforts to bring the ships into service; and,
- Communications and community engagement activities to distribute information and garner project acceptance.

Given this complexity, BC Ferries engaged an external business consultant in late 2023 to provide organizational observations and recommendations, define a suitable organizational design, and implement the necessary governance structure and controls. One of the consultant's key recommendations was to implement organizational and governance structures that focus on the entire scope and scale of activities necessary to introduce new vessels to the fleet, rather than implementing individual projects, including the NMV Project, using the existing project management framework.

To oversee this program effectively, BC Ferries will establish a new program management structure, separate from the existing corporate structure. This structure will consist of a matrixed program organization with both project and functional elements, which will be autonomous from the corporate organization. An empowered Fleet Renewal Program Board (“FRPB”) will be led by BC Ferries’ CEO and will focus on successful program delivery. The FRPB will report to the Company’s Board of Directors, through a newly-established, separate committee called the Capital Projects Committee (Fleet Renewal Program) Project Board (“CPC(FRP)”).

Figure 20 illustrates the Fleet Renewal Program’s governance structure, and how it relates to the existing corporate organization. Once the new governance and organizational structures are implemented, the Fleet Renewal Program (including the NMV Project) will switch from the traditional BC Ferries corporate governance and reporting processes to the new Program approach:

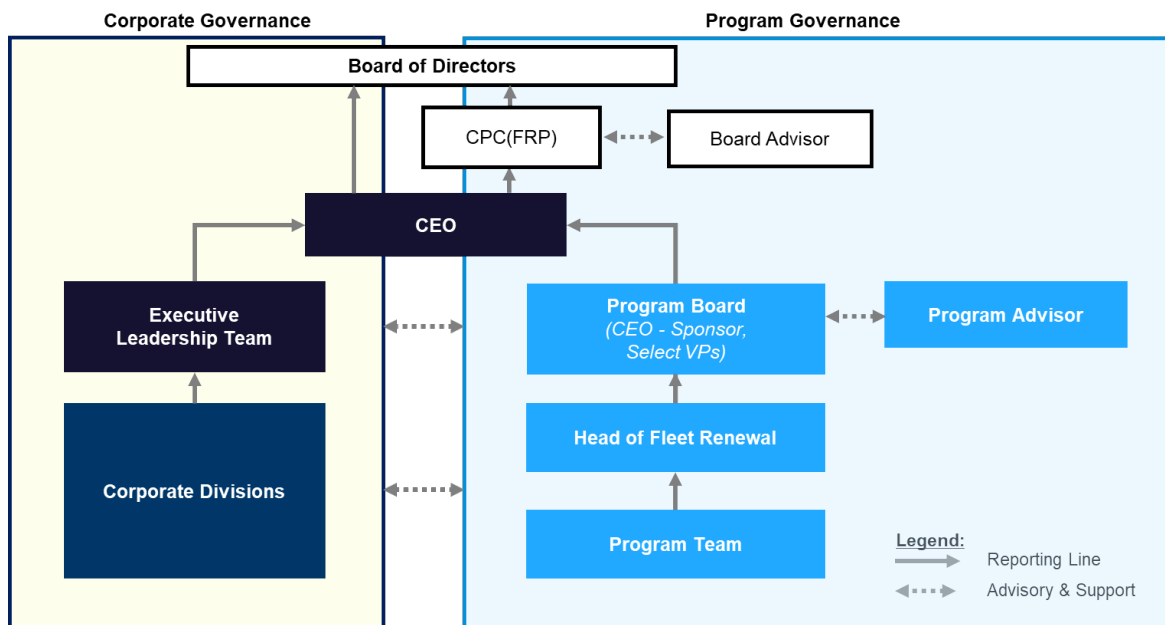


Figure 20: Fleet Renewal Program Governance Framework

Figure 21 illustrates the Program organizational structure, which spans both laterally across all projects related to fleet renewal, and vertically across all functions required to support these projects. Project managers will drive the renewal projects, and functional leads will oversee specific areas of project support and will ensure that those functions are addressed consistently, and with an overall Program view across the various renewal projects. Projects will be organized into sub-programs, under their own leads. All functional and sub-program leads will report to the Head of Fleet Renewal. The Head of Fleet Renewal, functional and sub-program leads, and project managers will establish and maintain interfaces with various aspects of the corporate

organization to ensure organizational consistency and alignment with BC Ferries’ overall vision and goals. Regularly scheduled meetings with the FRPB will occur to review vessel construction progress, manage changes, and update the scope, schedule, budget and risks:

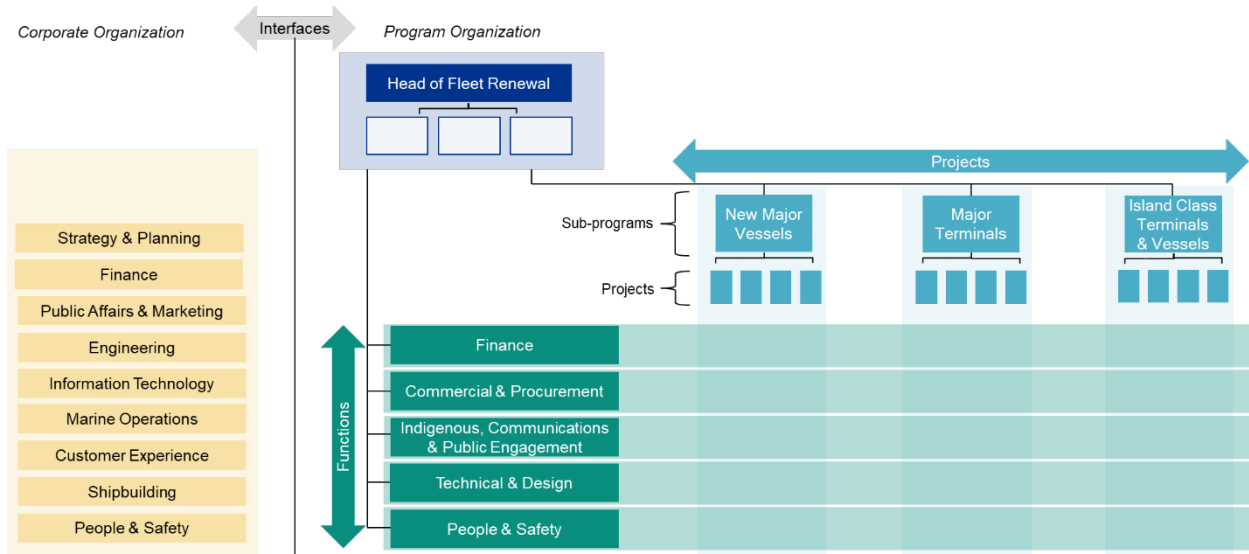


Figure 21: Fleet Renewal Program Organizational Structure

The program governance model will include monthly reports to the FRPB detailing program performance and risk items, among other topics. BC Ferries will establish and gain FRPB approval for primary and supporting key performance indicators (“KPIs”) for the sub-programs and projects governed under the model. The KPIs are not yet finalized, but will include:

- Health and safety;
- Schedule and progress;
- Cost;
- Permits and environmental compliance;
- Procurement / commercial; and,
- Quality.

BC Ferries will track each of these KPIs and provide regular reports on whether each KPI is on-plan, at risk or off-plan. The Company will also establish escalation protocols to raise items to the FRPB when identified criteria indicate potential performance issues. A project controls office, established as part of and specific to the Fleet Renewal Program, will support tracking and reporting on project performance. Staff will report risk and change management issues regularly to the FRPB.

BC Ferries has already started the Fleet Renewal Program by:

- Establishing and appointing the Board CPC(FRP), and obtaining approval of the terms of reference. The CPC(FRP) was established by the Board of Directors at their quarterly meeting in August 2024 and held their first meeting in September 2024;
- Identifying members of the internal FRPB, including BC Ferries' CEO and select vice presidents. The FRPB began regular meetings in September 2024; and,
- Appointing the first two program positions: a Director of Fleet Renewal Transformation, responsible for overseeing stand-up of the new program organization, and a Director of Fleet Renewal Personnel & Safety, who will support staffing the new organization.

The Company anticipates the Fleet Renewal Program will be fully established and running under its own governance by April 2025.

9.3 Adopting a Procurement Model Best Suited to the Project

Summary: BC Ferries retained a world-leading shipbroker to help identify, select and enter into a design-build-deliver contract arrangement with a selected shipyard. It will acquire each new vessel under a separate contract with a single shipyard selected from a pool of pre-qualified proponents, and the contracts will include milestones and off-ramps. Timing for the procurement process is aligned with this Section 55 application.

9.3.1 Procurement Process

BC Ferries engaged the services of a world-leading shipbroker in June 2018 (under a previous instance of the NMV Project) to help identify, select and enter into a design-build-deliver contract arrangement with a selected shipyard. The shipbroker has expertise in international vessel procurement, with teams located throughout Europe and Asia to support shipbuilding sales and purchase contracts.

As part of the overall procurement strategy, BC Ferries concluded a request for expression of interest in late 2023, which identified < > shipyards interested in the NMV Project. The Company subsequently issued a follow-on request for supplier qualifications that established a list of < > prequalified shipyards for the RFP phase of the procurement process.

On September 4, 2024, BC Ferries' Board of Directors approved the NMV Project, < >.

On September 16, 2024, BC Ferries issued a formal RFP package to qualified shipyards. The RFP includes a technical specification (developed during the basic design phase) and a specimen shipbuilding contract. The shipyards have been asked for a formal proposal, including a fixed price offer, based on the technical package, and the Company will assess the proposals in accordance with an RFP evaluation plan.

9.3.2 Shipyard Selection and Contracts

Historically, BC Ferries' would provide proponent shipyards with minimum functional and technical requirements, operating performance targets and amenities that had to be satisfied in the final design and construction of the vessels, and would require that the shipyard develop a concept design as a part of their proposal.

BC Ferries has used a different approach for the NMV Project, by taking a very active role in the vessel design process and by engaging a contracted naval architecture firm to help define the basic vessel design prior to shipyard selection and contract award. This preliminary work will provide shipyards with a comprehensive basic design package, which will help minimize shipyard risk and is expected to lower overall ship-construction costs.

Although the Company has provided the basic design for the NMV as part of the procurement process, the NMV contracts will follow the familiar design-build-deliver contract model as the procurement method for the NMV Project, based on previous experience and project goals. This means that key risks, including vessel design and performance, will be fully assumed contractually by the selected shipyard.

BC Ferries will acquire each new vessel under a separate design-build-deliver contract. All five contracts are expected to be awarded to the same shipyard to ensure identity and standardization.

9.3.3 Contract Milestones and Off-Ramps

BC Ferries will identify milestone dates in the shipbuilding contract. If any vessel is delayed beyond these dates for any reason other than a permissible delay by a specified period, BC Ferries will be entitled to terminate the relevant contract and recover all expended funds. These milestone events will serve as off-ramps for each of the shipyard contracts if the project is underperforming. The Company anticipates including contract milestones for:

- Delivering a design summary report prior to construction;
- Keel laying;
- Installing the machinery / propulsion package; and,
- Launching.

A cross-default clause will allow BC Ferries the right to cancel all individual shipbuilding contracts in the extremely unlikely event of a substantial default for one contract that is likely to be indicative of a problem with all ships of the series.

9.3.4 Procurement and Section 55 Application Timing

The legislative requirement to seek pre-approval of the NMV Project’s proposed capital expenditure requires BC Ferries to submit this application to the Commissioner before the contracts with the shipyards have been finalized. BC Ferries has submitted this application during the shipyard RFP phase, in anticipation that the Commissioner’s decision will shortly follow the approximate RFP closing date. Subject to the Commissioner’s approval of this application and after selecting a shipyard, BC Ferries will work with that proponent to finalize terms, including any updates to the specimen contract and the technical specification, before finalizing the five fixed-price contracts for the complete design and build of each vessel.

The timing of this filing ahead of contract execution introduces the risk that some of BC Ferries’ cost assumptions in this application may require subsequent amendment, with a commensurate change in the project’s projected capital expenditure. < >

9.4 Project Milestone Dates and Delivery

Summary: BC Ferries has carefully planned how the NMV Project will be delivered. Provided that BC Ferries is in a position to sign the NMV contract in early 2025, BC Ferries has high confidence that the in-service dates for the NMV can be achieved. The current procurement timeline includes reasonable allowances for design phase and vessel construction and delivery. In the event that timelines must change, BC Ferries has the flexibility to adjust in-service dates with knowledge of the shipyard capabilities in order to achieve a balance of schedule, cost and risk considerations.

9.4.1 Milestone Dates

Table 27 shows the NMV Project’s anticipated major milestones. Dates are informed by past shipbuilding projects, but may vary depending on the construction schedule of the selected shipyard. After awarding shipyard contracts, and throughout implementation, BC Ferries will monitor and update dates within the project schedule as needed. The project manager will report progress and changes regularly to the Fleet Renewal Program Board.

BC Ferries has scheduled NMV contract signing for early 2025. Any delay to the contract signing may lead to increased contract cost incurred due to ongoing shipbuilding market escalation, and to requirements for further refit work for legacy vessels to enable their continued operation.

Table 27: Key Milestones

Key Milestones	Forecasted Date
Detailed Business Case Board Approval	September 2024
Design-Build-Deliver Shipyard RFP Release	September 2024

Key Milestones	Forecasted Date
Design-Build-Deliver Shipyard RFP Close	January 2025
Section 55 Commissioner Approval	February 2025
Design-Build-Deliver Contract Award	April 2025
Detail Design of NMV Complete ¹	April 2026
NMV #1 Steel Cutting (Start Production)	April 2026
NMV #1 Delivery to BC	October 2028
NMV #1 Enters Service	April 2029
NMV #5 Enters Service	April 2031
Project Close	April 2032

¹ Vessel design and construction schedule is highly dependant on the capabilities of the shipyard selected.

BC Ferries has high confidence that the in-service dates for the NMV can be achieved. The current procurement timeline includes reasonable allowances for design phase and vessel construction and delivery. The Company’s shipbroker has advised that BC Ferries is approaching the shipyards in good time to achieve vessel delivery in 2028, so that ships can start to enter service in 2029. The reasonably-detailed basic design package provides a good starting point for shipyards to understand BC Ferries’ requirements, and should ensure a relatively rapid transition from contract award, to detailed design and to construction. Further, the procurement approach will allow BC Ferries to understand what is achievable regarding delivery timelines. In the event that timelines must change, the Company has the flexibility to adjust in-service dates with knowledge of the shipyard capabilities in order to achieve a balance of schedule, cost and risk considerations.

Consequences of delays to the in-service date include:

- Continued service reliability and resilience issues associated with the legacy vessels, as discussed in this filing;
- Possible further required refit or repair work for legacy vessels to enable their continued operation;
- Inability to meet projected revenue expectations;
- Delayed opportunities for possible service upgrades for Routes 1 and 3; and,
- Increasing risk of a major mechanical outage occurring with no supporting vessels available, especially during peak periods.

Additionally, final delivery dates of certain NMVs may not synchronize with BC Ferries' preferred schedule. If this occurs, the new vessels may need to prolong their stay at the FMU or at a terminal berth; either of these scenarios will incur additional caretaking costs. BC Ferries will be unable to develop a detailed transition schedule until after shipyard contracts are signed and delivery dates are better understood; however, the Company expects that the shipyard will collaborate with BC Ferries to make necessary adjustments to delivery dates that will support efficient and effective entry into service.

9.4.2 Contingency Plans for Delays

The timelines for NMV vessel construction will be determined primarily by the shipyard selected for the design-build-deliver contracts. The Company currently expects that the Project schedule is sufficient to ensure that contracts can be awarded, and shipyards can deliver vessels, in time to meet the projected in-service date for the first NMV in 2029.

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9.4.3 Project Delivery

Delivering the NMV Project's scope will involve:

- Selecting a shipyard to lead the design, build and delivery efforts;
- Completing the design process for the vessels that will evolve the basic design through detailed design to a production-ready state, including plan-approval by the Classification Society (included under the Transport Canada Delegated Statutory Inspection Program), and selecting machinery and equipment systems from a pre-established BC Ferries Makers List;
- Constructing each vessel at the shipyard according to contractually agreed specifications under the supervision of BC Ferries' shipbuilding division's on-site acceptance team;
- Verifying essential project requirements through a requirements traceability program, including conducting factory acceptance tests for key equipment, harbour acceptance tests to ensure all systems installed in the vessel perform to standards, and sea acceptance tests to ensure that vessels will meet BC Ferries' project requirements;
- Delivering the vessels to BC, if they are not delivered from a shipyard within the province (the shipyard will be responsible for delivering the vessels on their own keels, at the shipyard's risk);
- Once the ships are in BC, implementing a formal process for accepting the vessels from the builder;

- Implementing a new vessel warranty to cover the initial two years of operation for each ship; and,
- Transitioning the vessels over to the operating fleet after:
 - Completing any required post-delivery / pre-service maintenance;
 - Training sufficient crew to staff the vessel;
 - Completing the ship's stores load-out; and,
 - Completing dock fits.

9.4.4 Permits and Approvals

Transport Canada, Class and Licensing

BC Ferries anticipates that the NMVs will be fully licensed for domestic roll-on / roll-off passenger service on Near Coastal, Class 2 voyages within the Strait of Georgia. The American Bureau of Shipping will act as the "Recognized Organization" through Transport Canada's Delegated Statutory Inspection Program, conducting plan approvals and surveys throughout the project and issuing final certificates for delegated functions.

Transport Canada will issue the Minimum Safe Manning Documents, along with any required statutory exemptions granted by the Marine Technical Review Board, based on applications submitted by BC Ferries.

Other Permits

BC Ferries will seek permits, approvals and certifications as necessary from other regulatory bodies as applicable, such as potable water certification from Health Canada and radio licenses from Industry Canada.

Section 10 Public, Stakeholder and First Nations Engagement

10.1 Introduction

This section describes BC Ferries' efforts over several years to gather feedback and insights related to the NMV Project. These opportunities include engaging employees, customers and communities in-person and online. Engagement efforts give customers and communities a voice in the decisions that affect them most, while enabling BC Ferries to continually evaluate the services it provides to ensure it is offering a reliable and affordable experience that aligns with the needs of travellers.

10.2 Customers and Communities

10.2.1 2017 Sunshine Coast Engagement

In 2017, BC Ferries undertook an engagement process with the Sunshine Coast and Bowen Island communities to gather feedback on the issues most significant to them. This feedback was intended to guide long-term planning and future developments. The key findings from this engagement process were:

- Sunshine Coast communities value the ferry system as a vital link in their transportation network and desire service that supports quality of life for residents and economic development for the region;
- Sunshine Coast communities widely consider commuters (including students) as priority users of the ferry system and community members generally feel that schedules should be built around key commuting times; and,
- Sunshine Coast communities want more frequent service and more capacity to accommodate their growing population and tourism markets.

10.2.2 2019 Public Engagement on Ferries for the Next Generation

In 2019, BC Ferries conducted extensive public engagement with respect to passenger amenities for the NMVs. Over 11,000 people provided input through online engagement, on-board pop-ups and community workshops. As the Company's plans for passenger amenities have not changed since 2019, the input gathered through this engagement effort remains applicable.

The findings from this engagement underscore that key considerations for the NMVs include accessibility, cyclist amenities, family spaces, pet areas and outdoor spaces. The feedback indicated that:

- Accessibility enhancements should focus on accessible signage, induction loop system, onboard mobility and elevator access, seating, and washroom access, with recommendations for braille, closed captioning for announcements and accessible facilities;
- Cyclist amenities should address the need for adequate parking and storage, unobstructed pathways and facilities such as bike repair stations;
- Family spaces require better seating, enhanced and larger play areas and quiet areas for sensory-sensitive children;
- Pet spaces should include improved amenities and temperature-controlled areas allowing better pet comfort and safety, with better views and access to the vessel;
- Outdoor seating should be improved and enclosures or weatherproofing should be included for year-round comfort;
- Vehicle decks should be open, not closed; and,
- Respondents strongly supported improving existing amenities over providing new ones.

10.2.3 2023/24 Charting the Course

The CTC initiative is discussed throughout this filing, and in detail at Section 3.6. The CTC initiative undertook comprehensive public engagement in the fall of 2023 and spring of 2024 to consider the vision and to gather feedback on proposed public interest goals and objectives for the ferry system.

10.2.4 2024 Union of BC Municipalities Annual Convention

BC Ferries attended the annual convention for the Union of BC Municipalities in September 2024, to engage with local government elected officials and staff. Over four days, the Company shared information about the NMV Project during scheduled and 'chance' meetings, and during the two-day tradeshow. BC Ferries received positive feedback in support of the future build of seven vessels, and the current approach for the first five. In addition to qualitative feedback, many attendees offered letters of support that are expected to be submitted directly during the Commissioner's public consultation opportunity with respect to this filing.

10.3 Commercial Customers and Interest Holders

BC Ferries plays a critical role in supporting the supply chains to local communities. Integral to this, commercial customers rely on ferry services to move their goods to and from the communities, in support of supply chains and local economies.

The NMV Project team has ensured the design of the vessel will meet needs of B.C.'s supply chain. BC Ferries continues to engage the BC Trucking Association, which has indicated the

Project – and in particular the twelfth vessel – are critical to meet the future growth demand for goods and services.

BC Ferries has also engaged other in interest holders about the NMV Project. These interest holders range from large economic organizations to small businesses, from local governments to regional districts in the communities BC Ferries’ serves, and from small tour operators to the largest tourism industry champions – all of whom rely on BC Ferries for the efficient and timely movement of people and goods. As demonstrated by the correspondence included in Appendix L, various interest holders support the NMV Project.

10.4 First Nations

BC Ferries is committed to constructive and mutually respectful relationships with First Nations peoples, based on reconciliation, enhanced collaboration and effective working partnerships. The Company strives to involve First Nations groups in planning and developing projects and programs where their interests may be affected. Several Coastal First Nations provided input through the CTC initiative and spoke to the need for improved and expanded water transportation options for students and communities. Engagement with First Nations on the NMV Project will commence at the same time as other forms of partner and public engagement.⁴⁰

The NMVs will navigate throughout First Nations’ traditional territories. As with all customers, First Nations peoples will benefit from more reliable connectivity with their communities, and additional capacity providing more opportunities to travel, transact and participate in activities both within and outside their communities.

10.5 Provincial Government

BC Ferries has included provincial government representatives throughout the NMV Project on an ongoing basis. The Company has provided a shipbuilding overview to elected officials, and conducted multiple and detailed briefings to senior staff within the Ministry of Transportation and Infrastructure. BC Ferries has also shared detailed information about the NMV Project with

⁴⁰ When possible, BC Ferries supports opportunities specific to First Nations with respect to culture, hiring and procurement. The Company’s RFP asks proponents to indicate any equipment, services, labour or supplies that will be provided by Canadian Indigenous-owned businesses. BC Ferries will also consider other opportunities to include First Nations in the NMV Project as it progresses.

the Ministry of Finance, Ministry of Energy, Mines and Low Carbon Innovation, and the Ministry of Jobs, Economic Development and Innovation.

The most current policy position articulated by the governing provincial party is that BC Ferries is a “marine highway” and that they will work with “BC Ferries to support affordable and reliable ferry service”.⁴¹

In 2023, the Province provided an important one-time \$500 million contribution, ultimately buying down the price cap from a required 9.2 percent annual increase to a 3.2 percent annual increase. It was understood that while the one-time funding would support affordability throughout PT6, a structural funding gap remained, and a subsequent funding solution would be required. Since then, a number of challenges are placing increasing strain on the financial conditions of the ferry system, including: higher costs to address end-of-life terminal and berth infrastructure, new requirements to address at-risk terminal infrastructure that were identified after the current rate caps were finalized, a higher than expected increase in operating costs related to maintenance requirements and unexpected vessel repairs, along with necessary investments to stabilize the workforce and minimize related service cancellations.

At the same time, fleet renewal is required in order to continue to support the evolving needs of communities and provide reliable service. The NMV Project is the cornerstone of fleet renewal which will provide service on major routes for decades to come. BC Ferries and the Province have both acknowledged these challenges will require collaboration going forward to ensure fares remain as affordable as possible.

10.6 Employees

BC Ferries believes that meaningful employee involvement in the NMV Project has a direct and positive impact on customers. By engaging employees who are closest to operational realities, the Company ensures that project outcomes align with both service delivery needs and customer expectations. In addition, the Company believes that whenever possible its employees should have a voice in decisions that affect them, and the NMV Project is no exception.

The Company’s approach to employee engagement has been to involve a wide array of participants from different levels and functions, to help foster a sense of ownership and commitment. BC Ferries values their contributions, which are directly influencing the NMV Project's development and progress.

⁴¹ BC NDP 2024 platform, *An Action Plan for You*, page 56.

10.6.1 Concept and Design Input

BC Ferries' employees know the day-to-day business of running major vessels, and their input is essential to successful implementation of the NMVs. During the NMV Project's concept and basic design phases, the Company implemented a comprehensive and inclusive employee engagement strategy to ensure robust feedback and collaboration across the organization. Seven specialized groups were established, each focused on a different critical area: design support, energy supply, terminal interface, supportability, information and operational technology, requirements definition, and communications / engagement. Each group was comprised of 10 to 20 subject matter experts, including departmental representatives, union representatives and management staff selected from various business areas to represent a diverse range of expertise and insights.

The subject matter experts played a crucial role in the engagement process. Each of the seven specialized groups met regularly (every two weeks on average) to discuss progress, share updates and identify the best paths forward. The meetings provided a platform for continuous dialogue, allowing participants to address challenges, brainstorm ideas and align on project goals. Subject matter experts not only contributed their own knowledge, but also actively consulted with their colleagues within their respective departments, gathering additional insights and ensuring a well-rounded perspective.

Much of the employee engagement was focussed on increasing vessel operational efficiencies and safety, including in the development of the vessels' wheelhouses, machinery control room and engineering spaces. In addition, employees provided key input on enhanced efficiency, comfort and reliability for customers, including for vessel design features enabling faster vessel loading and unloading, easier passenger movement throughout the vessel, more efficient food service amenities and better-positioned amenities throughout the vessel (such as lounges, parent rooms, children's play area, pet lounge, exterior seating and different types of washrooms).

BC Ferries is confident that this extensive and collaborative engagement strategy enabled comprehensive feedback from all corners of the Company, ensuring that the NMV Project is well-informed and aligns with the needs and expectations of the entire organization. This collaborative approach with employees ensures that the NMV Project not only meets technical and operational goals, but also delivers tangible benefits for our customers, such as reduced travel times, smoother operations and a more enjoyable travel experience. By valuing employee input, BC Ferries creates a foundation for continuous improvement that ultimately serves the public interest.

10.6.2 Employee Communications

BC Ferries recognizes that the NMVs will have an impact across the Company, and that hundreds of employees will play a crucial role in the NMV Project as well as the vessels' introduction to the fleet. BC Ferries provides updates at key points to keep employees informed, including:

- Written and audio reports from the Chief Executive Officer;
- Briefings to Senior Leaders, as well as to the communities of Senior Captains and Senior Chief Engineers who provided feedback on behalf of their communities and cascaded information to their respective subordinate teams; and,
- Well-attended lunch & learn webinar briefings for all managers conducted on September 23 and October 1, 2024.

Updates will continue for the duration of the Project.

10.7 BC Ferry & Marine Workers' Union

During the development of the design of the NMVs, the NMV Project team engaged the BC Ferry & Marine Workers' Union ("BCFMWU") through various working groups as well as direct one-on-one in-person meetings. The Marine Operations union representatives participated in monthly departmental sub-working groups that fed input into the larger project cross-function working groups, while the Fleet Engineering union representatives were engaged individually and invited to provide feedback on specific design elements. The Union leadership endorsed BCFMWU representatives through the duration of the project design development.

10.8 Alignment of NMVs with Feedback

BC Ferries has incorporated the feedback of the public into its NMV planning. As discussed in this filing, our approach to the NMVs will address the public interest (including as identified during the CTC engagement) by ensuring they are reliable, affordable and integrated with other modes of transportation. BC Ferries also understand the importance of the ferry system to the Sunshine Coast and that community's desire for more frequent service, which are being considered during planning for future major vessel deployments.

In addition, the design of NMVs will incorporate many highly requested features. The vessels' arrangement includes wide walkways, increased elevator access to all decks and multiple accessible washrooms. The vessels will include bike racks and BC Ferries will continue to investigate how to add charging for e-bikes, subject to current federal regulatory limitations. The design includes a spacious children and family area close to washroom facilities. An improved pet area aligned with industry standards, will be located in the interior passenger areas, allowing for improved comfort, external views, improved amenities and better access to

the remainder of the ship's offerings. On the outer decks, a full walk-around promenade gives 360° views of coastal waters with large sections fully covered for poor weather. Inside, amenities such as the coffee bar, gift shop, cafeteria and a paid entry lounge have been optimized for space, comfort and technology.

Section 11 Coastal Ferry Services Contract and Other Obligations

11.1 Introduction

This section details how the NMV Project is consistent with the Coastal Ferry Services Contract (“CFSC”), the vision for coastal ferry services and other obligations.

11.2 The NMV Project Will Ensure Compliance with the CFSC

Summary: The NMV Project is consistent with the Coastal Ferry Services Contract, and will have a positive impact on BC Ferries’ ability to deliver all services required under the contract, as well as to meet other obligations.

The CFSC stipulates the core services to be provided on the major routes. The NMVs will help BC Ferries to effectively meet – and exceed – core service levels, while ensuring service reliability and resilience, with minimal service interruptions. In addition, these vessels will allow the Company to meet the obligation each year to provide sufficient capacity on the major ferry routes to carry the previous year’s traffic.⁴²

The CFSC also directs BC Ferries to look at innovative ways to deliver services that respond to the needs of the communities and customers it serves.⁴³ As detailed through this filing, the Company is building the type and number of NMVs that will allow it to replace aging vessels, meet existing demand, financially support the coastal ferry system, work toward standardization, develop resilience and plan for future growth and transportation integration. At the same, BC Ferries is prudently minimizing expenses, as described in this filing, including by dividing the construction of the seven NMVs into two phases.

11.3 The NMV Project is Consistent with the *Coastal Ferry Act*

Summary: The NMV Project is consistent with the Coastal Ferry Act, including helping to meet provincial GHG emissions targets.

Similar to the Coastal Ferry Services Contract, the Act suggests that ferry operators “be encouraged to be innovative and to minimize expenses without adversely affecting their safe

⁴² See, in particular, the core services described in Appendix 1 of the Coastal Ferry Services Contract.

⁴³ See paragraph 1 under “Core Service Levels” in Appendix 1 of Schedule “A” of the Coastal Ferry Services Contract.

compliance with core ferry services”.⁴⁴ For the reasons articulated above, the NMV Project has been planned to deliver resilient and reliable ferry service, while minimizing expenses through a phased approach to the construction of the NMVs.

The NMV Project is also consistent with the Act’s direction that ferry operators “be encouraged to meet provincial greenhouse gas emission targets in their operations and when developing capital plans”.⁴⁵ See Section 7.3.4 and Appendices D & E for a discussion of the NMV Project’s alignment with provincial climate change goals.

11.4 The NMV Project will Support the Anticipated Vision for Coastal Ferry Services

Summary: The NMV Project is aligned with the CTC initiative, which articulates the vision and public interest goals for coastal ferry services based on broad public, stakeholder and First Nation engagement.

BC Ferries is collaborating with the B.C. Ferry Authority on the CTC initiative, with input from the Province. The NMV Project is consistent with the CTC initiative, which, as described in Section 3.6, takes a long-term view of the coastal ferry system and has confirmed core public interest goals as being resilient, affordable and integrated. Aligning the NMV Project with this initiative ensures that it will be consistent with the vision for coastal ferry services.

⁴⁴ *Coastal Ferry Act*, Section 38 (1) (d).

⁴⁵ *Coastal Ferry Act*, Section 38 (1) (a.1).

Section 12 Conclusion – NMV Project is in the Public Interest

The extensive evaluation that BC Ferries has presented in this filing supports approval of the NMV Project as a “major project expenditure” under Section 55(2) of the Act. BC’s population continues to expand, increasing traffic and placing capacity pressures on the ferry system. There is a pressing need for replacing end of life vessels with larger, modern vessels that can maintain service on the major routes, profitably meet growing demand, and add much-needed resiliency against likely but unpredictable mechanical disruptions.

BC Ferries is an essential public service that connects customers and communities. In alignment with the public interest, this Project is critical to building a more resilient ferry service – a system that remains affordable, is reliable, has built-in redundancy, can be supported by users and stakeholders, and supports long-term economic activities of the Province. The NMVs will enhance BC Ferries’ fleet along its busiest and most profitable routes.

The investment in five vessels now, with two additional vessels built in a later phase, is the best approach to balance the needs of the customers, communities and supply chains with the costs to the users and taxpayers. In particular, the NMV Project will meet the expectations of customers and interest holders alike, avoiding the worsening waits, delays, reliability challenges and capacity vulnerabilities that exist today, and appropriately balancing them with prudent and responsible affordability considerations. In support of provincial emissions targets, the NMVs will also operate with cleaner fuels, with opportunities for conversion to all-electrical operation in the future.

The public interest benefits of increased resilience, capacity and service for customers – with an approach that prioritizes affordability – outweigh the short-term increase in capital costs, especially as population and traffic continue to grow and increase pressure on existing vessels. The public – including coastal residents, major tourism, economic and other organizations in the province – wants a ferry service that is affordable, reliable and resilient. The NMV Project is reasonably required and in the broad public interest, having regard to the needs of ferry users, taxpayers and the financial sustainability of BC Ferries and the economy of the province. BC Ferries is excited with the addition of these new ships that will serve British Columbians into middle half of the 21st Century.

APPENDIX A Section 55 Question Cross-Reference

The following itemizes responses to questions in “Guidelines for British Columbia Ferry Services Inc. for Applications under Section 55 of the Coastal Ferry Act” dated July 19, 2023.

Commissioner Determinations

Commissioner Determination	Response Location
a) Is the project reasonably required?	<i>Section 4</i>
b) Does the proposed capital expenditure demonstrate good judgment, based on wisdom, experience and good sense?	
i) Does the proposed capital expenditure indicate a wise use of resources?	<i>Section 6</i>
ii) Does the proposed capital expenditure show due consideration for the future?	<i>Section 4.4</i>
iii) Has it been demonstrated that the proposed capital expenditure would not reasonably be considered excessive?	<i>Section 6</i>
c) Does the proposed capital expenditure provide good value, at a moderate and fair price? Is it affordable i.e., how does the project impact price caps in the current performance term and beyond?	<i>Section 5.5</i>
d) Is the proposed capital expenditure provided for in a board approved capital plan?	<i>Section 3.7</i>
i) Is the total cost different in any respect from what was approved in the most recent capital plan?	<i>Sections 3.7 and 8.5</i>
ii) 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?	<i>Section 8.5</i>
iii) Does the scope of the proposed capital expenditure differ in any respect from what was approved in the most recent capital plan approved by the Board?	<i>Section 3.7</i>
e) Is the proposed capital expenditure consistent with the current Coastal Ferry Services Contract?	<i>Section 11.2</i>
f) Is the proposed capital expenditure consistent with any government long term vision for the future of coastal ferry services?	<i>Section 11.4</i>
g) Is the proposed capital expenditure in the public interest? Specifically, does the capital expenditure ensure, or enhance, a ferry service that remains safe, reliable and affordable?	<i>Sections 3.6.2 and 12</i>

Commissioner Determination	Response Location
h) Does the capital expenditure contribute to reduction in GHG emissions?	<i>Sections 4.10 and 7.3.4, Appendix D</i>

Project Overview and Rationale

Demonstrate why the capital expenditure is necessary and why it is prioritized at this time and that the project aligns with the long-term vision and capital plan for the ferry system.

Section 55 Question	Response Location
1. Overview of the proposed project	
a) Provide a summary of the project including the individual elements.	<i>Sections 7 and 9.4, Appendix C</i>
2. Project Rationale	
a) Describe the reason(s) for the project and what issues, opportunities and/or deficiencies it will address.	<i>Section 4</i>
b) Describe how the project is prioritized in relation to other capital projects.	<i>Section 8.5</i>
c) Detail the consequences of delaying or not completing the project.	<i>Section 4.9</i>
d) Demonstrate that the project is consistent with the most current long-term capital plan established by BC Ferries.	<i>Sections 3.7 and 8.5</i>
e) Demonstrate that the project has Board approval.	<i>Section 3.7</i>
f) Describe how the project is consistent with the current Coastal Ferry Services Contract and the provincial vision for coastal ferry services.	<i>Section 11.2</i>
3. Options	
a) Describe a full range of options and in doing so, explain: i) If the need can be met without a new capital spend; ii) If the existing asset can be better utilized or managed to reduce or limit the capital spend; or iii) If the need can be fully or partially met in an alternative way.	<i>Section 5</i> <i>Section 5.2.1</i> <i>Section 5.2</i> <i>Section 5.2</i>
b) Demonstrate that all viable options have been considered.	<i>Section 5</i>

Options Analysis

Demonstrate that a thorough analysis of the financial impacts and well as non-financial impacts, such as customer service, environmental and social impacts, quantified where possible, of each of the options has been undertaken to clearly demonstrate the reasons for the preferred option.

Section 55 Question	Response Location
1. Financial Analysis	
a) Capital cost estimates by year.	<i>Section 6.2</i>
b) Incremental (or reduced) operating costs by year.	<i>Section 6.4 and Appendix H.8</i>
c) Incremental (or reduced) revenues by year.	<i>Appendix H.8</i>
d) Details of how capital and operating cost estimates and revenue estimates were developed.	<i>Appendix H</i>
e) Details of how the contingency amounts were developed.	<i>Appendix H.7</i>
f) A net present value (NPV) analysis on a lifecycle basis comparing the options	<i>Section 5.5.4</i>
g) Details of the rationale for the discount rate.	<i>Section 5.5.4</i>
h) Sensitivity analysis of key drivers as applicable, e.g., discount rate, inflation rate, capital expenditures, operating costs and revenues.	<i>Appendix J</i>
i) Total project budget for the preferred option including IDC, contingency and risk premium.	<i>Section 6.2</i>
2. Risk Analysis	
a) Details on the risk assessment approach. Demonstrating how the risk analysis has been incorporated into the capital cost estimates.	<i>Section 6.7 and Appendix I</i>
b) Risk identification and mitigation including the following elements: <ul style="list-style-type: none"> i) A risk register with mitigation identifies in managing significant risks. ii) Risks organized by stages of the project: planning, procurement, execution and post execution. iii) Risk quantification based in the likelihood and consequence of the risk occurring. iv) Assessment of how risks are retained, shared and transferred contractually. v) The quantified risks, as appropriate, should be mapped onto the contingency budget. 	<i>Section 6.7 and Appendix I</i>

Section 55 Question	Response Location
3. Customer Impact	
a) An analysis of how the proposed project will impact customers, now and in the future. <ul style="list-style-type: none"> i) Vehicles. ii) Foot passengers. iii) Cyclists. iv) Individuals with limited mobility and other accommodation needs. v) Commercial traffic. 	<i>Sections 3.6 and 7.4, Appendix L</i>
b) Impact on servicing future demand.	<i>Section 4</i>
4. Innovation and Standardization Impacts	
a) Details of any innovative or untried concepts and associated benefits and risks.	<i>Appendix C</i>
b) Details of any new technologies included in the proposal.	<i>Appendix C</i>
c) Where applicable, details of how the proposal contributes to standardization of assets.	<i>Section 4.11.1</i>
5. Environmental Impacts	
a) Demonstrate how the options align with BC Ferries' Clean Futures Plan.	<i>Section 7.3.4 and Appendix D</i>
b) If applicable, provide details of alignment with federal and provincial climate change mitigation and adaptation goals.	<i>Appendix D</i>
c) Describe how each of the options achieve:	<i>Appendix D</i>
<ul style="list-style-type: none"> i) Reduction in GHG emissions. ii) Reduction in energy consumption. 	<i>Appendix D</i>
d) Where applicable, describe mitigation measures to minimize any environmental effects.	<i>Appendix D</i>
6. Social/Community Impacts	
a) Where applicable, describe how the options will impact directly affected communities and First Nations.	<i>n/a</i>
b) Describe mitigation measures to minimize any potential impact to communities and First Nations.	<i>n/a</i>

Section 55 Question	Response Location
7. Public Interest	
a) Describe how the project is in the public interest.	<i>Sections 3.6.2 and 4, Appendix L</i>

Stakeholder Engagement

Demonstrate that thorough and genuine engagement was undertaken with stakeholders affected by the project.

Section 55 Question	Response Location
a) Details of engagement with stakeholders that are affected by the proposed capital expenditure. Example of stakeholders, depending on the project: <ul style="list-style-type: none"> i) <i>Employees</i> ii) <i>Ferry Advisory Committees</i> iii) <i>Local affected communities</i> iv) <i>Customers</i> v) <i>Local First nations</i> vi) <i>Transit authorities</i> vii) <i>Commercial transportation and good suppliers</i> viii) <i>Tourism associations</i> 	<i>Sections 4 and 10, Appendix L</i>
b) Describe whether the provincial government has been apprised of or consulted on the proposed project.	<i>Section 10.5</i>

Project Governance, Procurement and Implementation

Demonstrate that there is an appropriate project governance process and oversight in place for procurement and implementation of the project.

Section 55 Question	Response Location
a) Details of the procurement process including a rationale for why the particular methodology was selected.	<i>Section 9.3</i>
b) Details of project governance and oversight structure, reporting procedures and implementation monitoring. Where applicable, include performance measures to monitor that the project meets its objectives.	<i>Section 9.2</i>
c) In-Service Date	<i>Section 9.4</i>

Section 55 Question	Response Location
i) <i>Provide details of the impact on current operations.</i>	Appendix C
ii) <i>Provide the anticipated date on which the asset or project will come into service.</i>	Section 9.4.1
iii) <i>Provide information on the confidence of the in-service date and any consequences of delay.</i>	Section 9.4.1
iv) <i>Provide details of the contingency plans should the project be delayed.</i>	Section 9.4.2

APPENDIX B C- and V-Class Vessel History

The history of each C-Class and V-Class vessel is summarized in the following subsections.

B.1. C-Class Vessels

In 1976 a new generation of "jumbo ferries" was launched with the first three C-Class vessels: *Queen of Alberni*, *Queen of Coquitlam* and *Queen of Cowichan*. The *Queen of Coquitlam* and the *Queen of Cowichan* were, at the time, two of the world's largest double-ended ferries.

B.1.1 *Queen of Alberni*

The ALB was built at Vancouver Shipyards. It was the same length as the other C-Class vessels, but it was adapted to carry commercial vehicles and therefore only had a single car deck but could carry 145 over-height vehicles. Table B-1 provides a brief summary of ALB's history along with major events and repair / upgrade work:

Table B-1: Summary of *Queen of Alberni's* History

Year	History
1976	ALB started serving Route 1. It was also used on Route 2 from time to time, especially during the summer.
1979	ALB ran aground on Collision Reef in Active Pass.
Spring 1984	ALB was lifted at Burrard Yarrows to increase its car-carrying capacity to 300 and passenger capacity from 779 to 1170. After the work was completed, ALB was assigned to Route 3.
1986	ALB moved to Route 2. During its refit, its passenger lounges and cafeterias were expanded to make the vessel more suitable for service on this route.
1989	ALB had a hard landing at Departure Bay.
1990	BC Ferries announced the mid-island route between Tsawwassen and Departure Bay (which later became Tsawwassen to Duke Point) and assigned ALB to the route, where it has served ever since.
1992	ALB collided with a coal freighter in the Strait of Georgia.
2002	ALB received three generator sets to replace the ship's service generator.
2004	ALB received a lube oil purifier.
2005	ALB received an on-board sewage treatment system.

Year	History
2006-2007	ALB underwent mid-life upgrade work.
2012	ALB underwent hub rebuilds and refurbishment of the controllable pitch propeller.
2020	ALB experienced a mechanical failure.
2021-2022	ALB underwent life extension work to bring the vessel to the end of its life as part of the (earlier) NMV Project.

Table B-2 details ALB’s mechanical incidents by system and fiscal year:

Table B-2: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								2
Propulsion	4	8	5	11	12	17	30	33
Ship Service Systems	2	2	5	3	4	4	10	9
Ancillary Equipment	13	6	10	9	2	7	12	3
Passenger and Crew Services	1				2		1	2
Instrumentation and Controls			1	5		1	4	4
Communication Equipment								2
Safety Equipment								5
Other	8	7	6	21	13	20	25	5
Total	28	23	27	49	33	49	82	65

Table B-3 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-3: Percent of ALB Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to Vessel Maintenance	0.00	0.00	0.00	0.04	0.07	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.39	0.00	0.00	0.30	4.10	0.70	2.19	2.28
% Sailings Delayed due to Vessel Maintenance	0.00	0.00	0.00	0.00	0.14	0.29	0.05	0.04
% Sailings Delayed due to Vessel Mechanical	0.79	0.40	0.72	1.07	0.92	0.82	1.14	1.92

B.1.2 Queen of Coquitlam

The COQ was built at Burrard Dry Dock with a capacity of 350 vehicles. Table B-4 provides a brief summary of QOC’s history along with major events and repair / upgrade work:

Table B-4: Summary of Queen of Coquitlam’s History

Year	History
1976	COQ started serving Route 2.
1980	While at Burrard Shipyards, COQ crashed onto its side when a support beam failed. As a result, the engine room and the drydock were flooded, a small fire broke out and the ship leaned heavily against the dock wall. After repairs were completed, COQ became a backup vessel providing supplemental sailings out of Departure Bay.
1986	COQ was moved to Route 3.
1995	COQ hit a piling at the entrance of its berth as it arrived in Horseshoe Bay from Langdale as a result of engine failure caused by a faulty air hose. Both the ferry and the dock sustained minor damage and service was disrupted for over six hours until a replacement ferry arrived. COQ entered dry dock for emergency repairs.
2001	COQ received new ship service generators.

Year	History
2002	COQ began major upgrade work to extend its life by 20 years. The work completed included extraordinary maintenance, regulatory compliance modifications, an escalator replacement, a complete repainting and restaurant and passenger accommodation renovations.
2003	COQ returned to service and became the primary vessel on Route 2 while the OAK began its mid-life upgrades.
2003	After a British report was published on marine evacuation chutes similar to those on COQ and their safety for the elderly, infants and the disabled, Transport Canada restricted the number of small children and physically disabled people COQ could carry to 10 due to life raft restrictions, causing waits for some people and subsequent media coverage. Life rafts were added to address this.
2003	COQ provided secondary sailings on Route 3 out of Langdale during the summer months and provided supplemental sailings on Route 2. It replaced other C-Class vessels for refits or repairs during the rest of the year.
2004	COQ received a lube oil purifier.
2005	COQ received car deck ventilation improvements.
2006	COQ received replacement emergency generators.
2008	COQ received a replacement boiler.
2009	COQ received new anchor handling gear and a replacement alarm panel.
2022	COQ underwent life extension work to bring the vessel to the end of its life as part of the (earlier) NMV Project.

Table B-5 details QOC's mechanical incidents by system and fiscal year:

Table B-5: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								2
Propulsion	5	9	6	5	4	6	7	6
Ship Service Systems	7	5	1	7	5	2	2	3
Ancillary Equipment	19	14	9	15	3	3	5	7

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Passenger and Crew Services		1	3	1	1	4	2	
Instrumentation and Controls	1	4	3	5	3	1	2	
Communication Equipment								1
Safety Equipment	4	8	7	13	6	5	5	5
Other								2
Total	36	41	29	46	22	21	23	26

Table B-6 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-6: Percent of QOC Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to Vessel Maintenance	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.00	0.82	0.00	1.09	0.00	0.40	0.99	0.04
% Sailings Delayed due to Vessel Maintenance	0.00	0.00	0.00	0.04	0.00	0.05	0.00	0.08
% Sailings Delayed due to Vessel Mechanical	0.28	1.02	0.15	0.46	0.44	0.95	0.67	1.20

B.1.3 Queen of Cowichan

The COW was built at Yarrows Limited with a capacity of 350 vehicles. Table B-7 provides a brief summary of COW's history along with major events and repair / upgrade work:

Table B-7: Summary of Queen of Cowichan's History

Year	History
1976	COW started serving Route 2.
1981	COW was moved to Route 3.
1985	COW collided with a small craft at White Cliff Point; three people died.
1995	Passengers were injured due an accident involving COW's escalators. As a result, COW was moved to Route 2 (as the main vessel from Horseshoe Bay to Departure Bay) where disembarking passengers did not have to use the escalators. The escalators were later removed.
2004	COW began mid-life upgrade work to extend its life. Work completed included extraordinary maintenance, regulatory compliance modifications, and extensive passenger accommodation renovations. COW also received a lube oil purifier.
2005	COW's emergency generator was replaced.
2006	COW received car deck ventilation improvements.
2008	COW was moved to supplementary status on Route 2.
2008	COW received new anchor handling gear and a boiler replacement.
2009	COW received an upgrade for shore power synchronization.
2010	COW was moved back to primary vessel on Route 2.
2012	COW underwent alarm and monitoring system replacement work.
2014	COW received lighting upgrades.
2023	COW underwent life extension work to bring the vessel to the end of its life as part of the (earlier) NMV Project.

Table B-8 details COW's mechanical incidents by system and fiscal year.

Table B-8: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								2
Propulsion	10	5	6	10	2	11	15	14
Ship Service Systems	3	8	2	2	4	2	1	3

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Ancillary Equipment	19	17	12	4	6	6	8	12
Passenger and Crew Services			3	1	2	2	1	2
Instrumentation and Controls	2	1	1		1	2	3	4
Communication Equipment								2
Safety Equipment	4	10	6	11	8	9	15	5
Other								2
Total	38	41	30	28	23	32	43	46

Table B-9 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-9: Percent of COW Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to Vessel Maintenance	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.50	0.00	0.07	0.29	0.00	0.37	0.65	0.39
% Sailings Delayed due to Vessel Maintenance	0.00	0.00	0.00	0.00	0.05	0.04	0.04	0.08
% Sailings Delayed due to Vessel Mechanical	0.31	0.57	0.39	0.43	0.19	0.72	1.92	2.16

B.1.4 Queen of Oak Bay

The OAK was built in Victoria in 1981. Table B-10 provides a brief summary of OAK’s history along with major events and repair / upgrade work:

Table B-10: Summary of Queen of Oak Bay’s History

Year	History
1981	OAK briefly served Route 1 before being moved to Route 2 as the primary vessel out of Horseshoe Bay where it continues to serve today.
2003	OAK received new ship service generators.
2005	OAK finished its six-month mid-life upgrade at Vancouver Drydock Company in North Vancouver, including improved and expanded passenger amenities as well as safety and mechanical improvements.
2005	OAK lost power four minutes before docking at Horseshoe Bay terminal, though it was still able to steer with its rudders. It slowly ran into the nearby Sewell's Marina where it destroyed or damaged 28 pleasure craft, before going aground a short distance from the shore. An inspection revealed minimal damage to the ship, with only some minor damage to a metal fender, paint scrapes to the rudder, and some minor scrapes to one blade of a propeller. BC Ferries concluded that a missing cotter pin was to blame.
2010	OAK received an upgrade for shore power synchronization.

Table B-11 details OAK’s mechanical incidents by system and fiscal year.

Table B-11: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								1
Propulsion	5	4	5	8	12	14	9	7
Ship Service Systems	4	4	4		2	1	2	1
Ancillary Equipment	13	5	10	6	3	7	7	11
Passenger and Crew Services	5	2	3	1		1	3	1
Instrumentation and Controls	3	1	1	1	2	2		

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Communication Equipment								1
Safety Equipment								
Other	11	3	13	2	12	31	13	4
Total	41	19	36	18	31	56	34	26

Table B-12 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-11: Percent of OAK Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to % Vessel Maintenance	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.07	0.36	0.00	0.00	0.20	0.20	1.08	0.04
% Sailings Delayed due to Vessel Maintenance	0.00	0.12	0.00	0.04	0.00	0.08	0.09	0.00
% Sailings Delayed due to Vessel Mechanical	0.91	0.48	0.59	0.52	0.47	1.05	1.66	0.29

B.1.5 Queen of Surrey

The SUR was built in Vancouver in 1981 with a capacity of 308 to 362 cars and 1,494 passengers. In place of individual cars, SUR can load 12 semi-trailer trucks, and the vehicle deck is divided into three sections with two longitudinal casings. Four lanes in the centre of the deck are usable by either trucks or cars, while two outboard lanes and two lanes on the gallery deck are for cars only, and reached by fixed ramps. The upper deck provides eight lanes for cars, reached only from a shore-based ramp. Table B-13 provides a brief summary of SUR’s history along with major events and repair / upgrade work:

Table B-13: Summary of Queen of Surrey's History

Year	History
1981	SUR entered service on Route 2 as the primary vessel out of Departure Bay.
1996	SUR moved to Langdale to operate on Route 3 to replace COW, where it has been the year-round vessel ever since.
2003	SUR was disabled in Howe Sound due to a diesel oil fire in one of the engine rooms.
2003	SUR was moved to dry dock for emergency repairs following a mechanical problem with a propeller.
2003	SUR received new ship service generators.
2004	SUR collided with a tugboat in Horseshoe Bay, causing significant damage to the tugboat.
2005	SUR hit the dock at Tsawwassen due to human error.
2006	SUR finished a mid-life upgrade at Washington Marine Group's dry dock in North Vancouver, including significant safety and mechanical improvements, upgraded passenger amenities and new evacuation equipment.
2016 to 2022	Third quarter-life upgrade was completed in two phases. This project involved significant pipe renewals, replacement of the tail shaft and emergency generator, deep overhaul of oil distribution boxes and upgrades to the electrical system, elevators and fire protection system. These major upgrades brought the vessel up to regulatory standards and replaced electrical or mechanical components that had reached their end of life. Passenger and crew accommodation betterments were also completed.

Table B-14 details SUR's mechanical incidents by system and fiscal year:

Table B-12: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								1
Propulsion	5	4	5	8	12	14	9	7
Ship Service Systems	4	4	4		2	1	2	1

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Ancillary Equipment	13	5	10	6	3	7	7	11
Passenger and Crew Services	5	2	3	1		1	3	1
Instrumentation and Controls	3	1	1	1	2	2		
Communication Equipment								1
Safety Equipment								
Other	11	3	13	2	12	31	13	4
Total	41	19	36	18	31	56	34	26

Table B-15 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-13: Percent of SUR Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to Vessel Maintenance	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.04	0.10	0.00	0.07	0.00	0.00	0.41	0.17
% Sailings Delayed due to Vessel Maintenance	0.02	0.04	0.00	0.02	0.02	0.00	0.04	0.04
% Sailings Delayed due to Vessel Mechanical	0.36	0.35	0.16	0.20	0.37	0.62	0.54	0.79

B.2. V-Class Vessel

B.2.1 *Queen of New Westminster*

The NW was built 1964 in Victoria as one of seven similarly designed ferries that served as the foundation of BC Ferries' service for decades. The vessel has been both stretched (lengthened) and lifted (received an upper deck). Although NW is listed as a V-Class ship (Victoria Class) due to their similar profiles, it has more in common with the B-Class (Burnaby Class) ships that were never lifted and it was classified as a B-Class until it underwent significant renovations. Table B-16 provides a brief summary of NW's history along with major events and repair / upgrade work:

Table B-14: Summary of *Queen of New Westminster's* History

Year	History
1966	NW started serving Route 2.
1971	NW departed its berth at Departure Bay during vehicle loading, and both vehicle occupants fell into the water but were rescued.
1973	NW was stretched at Burrard Drydock, adding a 25 metre mid-section to increase vehicle and passenger capacities (including the upper deck outside seating still on the ferry today) and to allow for expanded food services and a newsstand.
1976	NW was moved to Route 3.
1981	NW was reclassified as a Burnaby Class vessel.
1986	NW was listed as a supplementary vessel (not assigned to any specific route).
1991	NW was lifted (3 metre-high upper car deck installed), modified and repowered (new engines) to make it more efficient and flexible. It also received a complete inner refurbishment and a new underwater body. NW was put into regular service on Route 30 between Tsawwassen and Nanaimo.
1992	A van was thrown from the upper car deck onto the lower car deck and then into the water after the ferry left the dock as it was being loaded, killing three passengers. Both the Transportation Safety Board and Royal Canadian Mounted Police investigated, and former Chief Justice Nathan Nemetz undertook an official inquiry that resulted in numerous recommendations regarding loading procedures. BC Ferries assumed the blame for the accident.
2005	NW received car deck ventilation improvements.

Year	History
2008	NW underwent a major retrofit to keep it in service until at least 2021, including a new interior and the Seawest lounge. NW was listed as the secondary vessel during peak periods out of Tsawwassen and provided occasional service as spare vessel on Route 30.
2014	NW received a rudder slide upgrade and replacement Machinery Control Room analogue gauges.
2023	NW underwent life extension work to delay retirement.
2024	NW lost a propeller, forcing its immediate and prolonged removal from service.

Table B-17 details NW’s mechanical incidents by system and fiscal year:

Table B-15: Mechanical Incidents by Fiscal Year

System Group	2017	2018	2019	2020	2021	2022	2023	2024
Hull and Superstructure								1
Propulsion	18	9	11	17	12	17	8	20
Ship Service Systems	5	4	2	4	4	1		9
Ancillary Equipment	13	16	20	11	3	14	4	17
Passenger and Crew Services		2	3		2	3	1	1
Instrumentation and Controls		4	2	2	2	2	1	2
Communication Equipment								3
Safety Equipment								
Other	7	10	4	11	8	18	12	10
Total	43	45	42	45	31	55	26	63

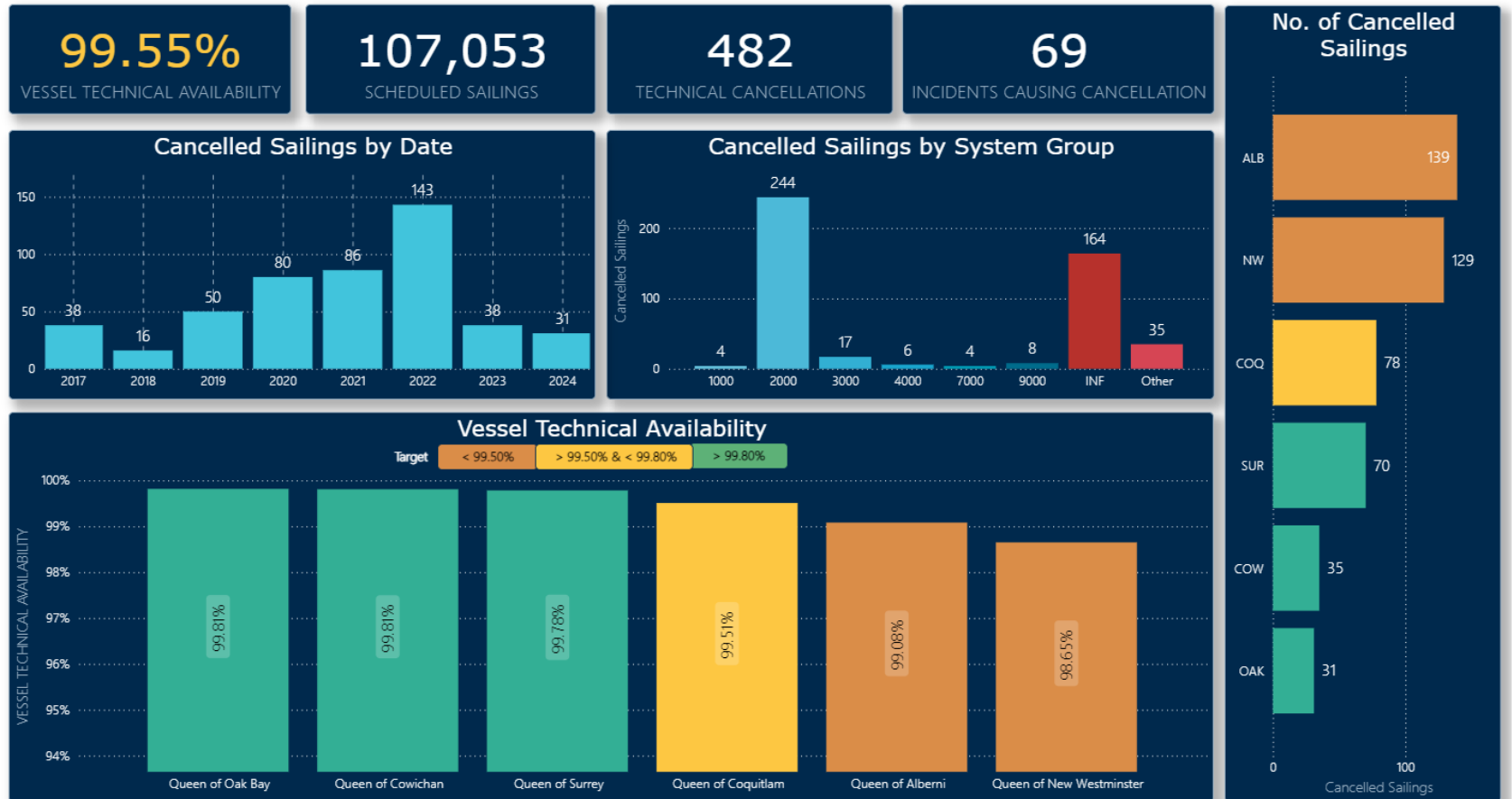
Table B-18 breaks down delayed and cancelled sailings based on fiscal year and reason for the delay / cancellation as a percentage of total sailings that year:

Table B-16: Percent of NW Sailings Impacted by Mechanical Failures or Maintenance

	2017	2018	2019	2020	2021	2022	2023	2024
% Sailings Cancelled due to Vessel Maintenance	0.00	0.00	0.21	0.06	0.00	0.00	0.00	0.00
% Sailings Cancelled due to Vessel Mechanical	0.13	0.23	0.89	0.45	0.15	4.24	0.77	2.09
% Sailings Delayed due to Vessel Maintenance	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Sailings Delayed due to Vessel Mechanical	0.33	0.16	1.61	0.78	0.08	1.34	0.84	0.62

B.3. Sailing Cancellations – C- and V-Class Vessels

Figure B-1 details technical incidents involving C- and V-Class vessels that have caused cancelled sailings from Fiscal 2017 through Fiscal 2024 through a variety of lenses: by vessel, by year and by system group, and includes other relevant details such as technical and overall availability:



Technical Incidents Causing Cancelled Sailings | 12-Aug-2024 12:57

Figure E-1: Overview of Technical Incidents Causing Cancelled Sailings, Fiscal 2017 to Fiscal 2024

B.4. Vessel Details – Major Vessels

Table B-19 provides comparative details for the various major vessels:

Table B-7: Vessel Capacity Details

Specification	Spirit Class SBC / SVI	Coastal Class REN / INS / CEL	NW	ALB	COQ	COW	SUR	OAK	NMV
Current	Route 1	Routes 1, 2 and 30	Route 1	Route 30	Route 3	Route 2	Route 3	Route 2	N/A
Future	Route 1	Routes 2, 30 and 3 (possible)	Retire	Retire	Retire	Retire	Route 3 (possible)	Route 3 (possible)	Route 1, 2, 3, 30 (possible)
Crew	46-49	32-38	34-37	30-33	33-35	33-35	33-35	33-35	< > (assumed)
Passengers and Crew	2100	1604	1332	1200	1494	1494	1494	1494	2100
AEQ Capacity	358	310	254	280	316	312	307	307	360
Commercial Capacity	34 semis	32 semis	24 semis	30 semis	12 semis	12 semis	12 semis	12 semis	34 semis
Built	1993 / 1994	2007 / 2008 / 2008	1964	1976	1976	1976	1981	1981	2028-2030 (assumed)
Fuel Type	Dual Fuel LNG / Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel- battery hybrid, all- electric ready

Specification	Spirit Class SBC / SVI	Coastal Class REN / INS / CEL	NW	ALB	COQ	COW	SUR	OAK	NMV
Overall Length [m]	167	160	130	139	139	139	139	139	172
Beam [m]	27.10	28.00	23.17	27.10	27.10	27.10	27.58	27.58	27.6
Maximum Displacement [tonnes]	11,642 / 11,681	10,034	6,129	6,422	6,465	6,508	6,556	6,673	11,800
Maximum Speed [knots]	20.50	23.00	20.00	20.50	20.50	20.50	20.50	20.50	22.0
Car Deck Configuration	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower ¹	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower ¹	Open Upper, Enclosed Lower	Open Upper, Enclosed Lower
Car Deck Height Limit: Upper / Main	2.1 m / 4.57 m	2.9 m / 4.57 m	2.1 m / 4.17 m	2.1 m / 4.57 m	2.1 m / 4.57 m	2.1 m / 4.57 m	2.1 m / 4.57 m	2.1 m / 4.57 m	2.9 m / 4.7 m
Passenger Amenities	Common to all vessels: Coastal Café / cafeteria, Coast Café Express / coffee bar, Passages Gift Shop / gift shop, Kids Zone, elevators and accessible washrooms								
	Seawest Lounge, pet area, work / study stations	Seawest Lounge, pet area, work / study stations	Seawest Lounge, pet area, work / study stations	Pet area, work / study stations	Pet area	Pet area, work / study stations	Pet area	Pet area	Premium lounge, pet lounge, work / study stations

¹ On Route 3, the vessels can operate with one set of doors open (with a set of flexible gates across the opening) as this route is considered 'sheltered waters.'

APPENDIX C New Major Vessel Supplemental Details

C.1. NMV Characteristics Comparison with Other Vessel Classes

Table C-1 presents the key NMV characteristics, and compares those characteristics to the Spirit, Coastal, and C-Class vessels:

Table C-1: Key Vessel Characteristics

Category	NMV	Spirit Class	Coastal Class	C-Class
Configuration	Double-ended, roll-on / roll-off passenger vessels, with bridges at each end to facilitate operational needs including rapid vessel departure from terminals	Single-ended, roll-on / roll-off passenger vessels, with a bridge at one end	Double-ended, roll-on / roll-off passenger vessels, with bridges at each end to facilitate operational needs including rapid vessel departure from terminals	Double-ended, roll-on / roll-off passenger vessels, with bridges at each end to facilitate operational needs including rapid vessel departure from terminals
Size / Displacement	172 m / 11,800 t maximum	167 m / 11,640 t maximum	160 m / 10,035 t maximum	139 m / 6,550 t maximum
Vehicle Capacity, AEQ	360	358	310	307 to 316
Passenger Capacity, Passengers and Crew	2,100	2,100	1,604	1,494
Commercial Capacity, Number of semi trailers	34	34	32	COQ, COW, OAK and SUR: 12 ALB: 30
Maximum Draft, metres	5.75	5.03	5.65	5.85
Maximum Speed, knots	22+	20	23	ALB: 22 COQ, COW, OAK and SUR: 20.5

Category	NMV	Spirit Class	Coastal Class	C-Class
Propulsion Topology	Diesel-battery hybrid with ~10 MWh battery energy storage system; all-electric ready on initial operation	Four dual-fuel (diesel / LNG) engines with geared reduction shafts, and two shaft generators	Four diesel-electric generators Two 11-MW drive motors with geared reduction shafts	ALB, COW and COQ: Two diesel engines with common geared reduction shafts
Propulsor	Four azimuth propulsors	Conventional single-ended twin shafts with controllable-pitch propellers and high-lift rudders, including dual bow thrusters	Double-ended single shaft with controllable-pitch propeller and rudder	ALB, COW and COQ: Double-ended single shaft with controllable-pitch propeller with rudder
Passenger Service Decks	Decks 5, 6 and 7	Decks 5 and 6	Decks 5 and 6	Deck 5
Marine Evacuation Deck	Deck 5	Deck 5	Deck 5	Deck 5
Vehicle Decks	Open upper and main vehicle decks Double lane loading / discharge for all vehicles, incorporating wider openings at ends (3x AEQ width) Deck Height Limit: Upper 2.9 m Main 4.7 m	Open upper vehicle deck Closed main vehicle deck Double lane loading / discharge for all vehicles Deck Height Limit: Upper 2.3 m Main 4.6 m	Open upper vehicle deck Closed main vehicle deck Double lane loading / discharge for all vehicles (in practice only a single commercial vehicle passes through at a time) Deck Height Limit: Upper 2.845 m Main 4.6 m	Open upper vehicle deck Closed main vehicle deck Double lane loading / discharge for non-commercial vehicles Deck Height Limit: Upper 2.1 m Main 4.57 m
Berth Configuration	Major berth standard	Major berth standard with Spirit Class modifications	Major berth standard	Legacy vessel berth

C.2. NMV Innovations

The NMV Project establishes a new, industry-best vessel design, incorporating a variety of innovations and technologies that are new to BC Ferries but already proven and established in

the marine industry. Some of these technologies and innovations are itemized in Table C-2 along with their benefits and risks:

Table C-2: Technologies / Innovations New to BC Ferries and Associated Benefits and Risks

Technology / Innovation New to BC Ferries	Benefits	Risks
<p>Design approach: The NMV Project represents BC Ferries’ deepest involvement in vessel design to date. In the past, BC Ferries has approached shipyards with basic requirements and relied on them to develop ship concepts, in addition to the detailed design and construction. For the NMV Project, BC Ferries has worked with various consultants to develop concept and basic designs, and conduct studies to establish preferred options and design details.</p>	<p>Reduces risk for both BC Ferries and the shipbuilder.</p> <p>Delivers vessels that are more attuned to BC Ferries’ and customer’s needs.</p> <p>Promotes standardization.</p> <p>Anticipated to reduce procurement cost.</p>	<p>Potentially limits shipyard innovation.</p>
<p>Hull shape: BC Ferries, through its contracted naval architecture firm, conducted an extensive hull form optimization design process over two years that included over 700 computer simulations and more than 100 model tank tests. This work has resulted in one of the world’s most hydrodynamic efficient double-ended hull form with four propulsors. In the past, BC Ferries left developing a hull form with the shipyard, allowing for only a short timeframe with fewer opportunities to optimize the form.</p>	<p>Highest hydrodynamic efficiency achieved for a double-ended hull form.</p> <p>Provides shipyard and BC Ferries with high certainty of hull form performance.</p>	<p>Potentially limits shipyard proposals for alternative hull form designs.</p>

Technology / Innovation New to BC Ferries	Benefits	Risks
<p>Batteries and electrification: The NMV Project represents BC Ferries' commitment to future vessel electrification, while providing a practical transition from conventional fossil fuels. The vessels use a diesel-battery hybrid power plant upon initial construction: diesel engines power electric generators to charge the batteries, which in turn power the ship. The batteries act as a buffer, allowing the diesel engines to be smaller than they would have to be if they powered the ship directly, and enabling them to operate continually at their most fuel-efficient and constant speed.</p> <p>Once the terminals have been upgraded with the electrical infrastructure they need to support full electrification, the NMVs' battery capacity will be increased. The NMVs will be BC Ferries' largest vessels equipped with these capabilities, and will play a central role toward achieving BC Ferries' GHG reduction goals.</p>	<p>Diesel-battery hybrid power plant is more efficient than larger, direct-diesel engines.</p> <p>Diesel-battery hybrid power plant can also be run on B100, which reduces GHG emissions.</p> <p>Future upgrade to all-electric operation will eliminate tank-to-wake GHG emissions for these vessels (i.e., zero vessel exhaust).</p>	<p>Battery systems are potentially more expensive than direct-diesel systems.</p> <p>All-electric operation depends on terminal upgrades and new transmission power lines as a separate project.</p>
<p>Heating and cooling system: The NMVs' design will use a new method to heat and cool the vessel using highly efficient onboard heat pumps and heat exchangers. This new method will collect and redistribute heat as needed to heat and cool vessel equipment and spaces.</p>	<p>Reduced electrical power for hotel loads on the ship.</p> <p>Environmental resiliency.</p>	<p>Increase sustainment / maintenance costs.</p>
<p>Underwater radiated noise reduction: The NMV Project dramatically reduces underwater radiated noise given its smaller diesel-battery hybrid power plant and its propulsor design. This benefits the Southern Resident Killer Whales and other marine mammals that communicate and hunt using sound. (See also Appendix D, section D.3.)</p>	<p>Expected 63 percent reduction in underwater radiated noise along major routes resulting from five NMVs in service.</p>	<p>Optimizing propellers for low underwater radiate noise can come at the cost of lowering hydrodynamic efficiency and thus increasing fuel consumption for a given speed.</p>

Technology / Innovation New to BC Ferries	Benefits	Risks
<p>Propulsor choice: BC Ferries commissioned a study to evaluate propulsors and recommend the optimum arrangement. As a result, the NMVs will use four azimuth pulling propulsors capable of thrust vectoring in any direction wherever the NMV can hold a steady position during beam wind conditions of up to 50 knots. The four propulsors will also provide a stepped level of redundancy not typically seen in major vessels, allowing the potential for operations to continue even if a single propulsor fails.</p>	<p>High maneuverability. Low energy consumption. Low underwater radiated noise. High degree of redundancy, with the potential to operate with one failed unit. Potential to conduct an in-water change of a failed propulsor without the need to dry-dock.</p>	<p>Potentially higher capital expenditures for these propulsors.</p>
<p>Integrated Logistics Support: The NMV Project has written requirements and selected notations that will improve vessel reliability by identifying critical components, developing maintenance plans, selecting appropriate quantities of spares, and training BC Ferries employees on the maintenance needs.</p>	<p>Improved reliability. Informed maintenance decisions. Vessel design and maintenance plans that are better aligned with BC Ferries practices.</p>	<p>More work required at the shipyard phase, increasing the vessel price.</p>
<p>Operational Technology: The NMV will have an Integrated Automation System to enable the collection of data about as well as the control of onboard systems. With this system, BC Ferries will be able to make more informed decisions about vessel operations and maintenance. This system (or 'system of systems') represents a degree of integration not seen on other BC Ferries vessels.</p>	<p>Informed operational decisions. System automation. Higher labour efficiency.</p>	<p>Increased sustainment / maintenance costs.</p>

C.3. Impact on Current Operations

The following subsections detail how the NMV Project will impact BC Ferries' current operations now and throughout delivery.

C.3.1 Fleet Maintenance Unit Availability for NMV Transition Work Period

BC Ferries will require a brief work period upon vessel delivery to conduct any warranty work and post-delivery capital project work that was not part of the shipyard vessel construction contract. To achieve this additional work, the NMV Project will have to work within the schedule limitations of the FMU. The FMU's availability will be constrained during the peak refit season (October 1 – March 31), as only FMU Berth 1 can accommodate a Spirit Class vessel or NMV,

meaning NMVs cannot be berthed at the FMU at the same time as Spirit Class vessels undergoing refit.

Further, if a NMV were to occupy FMU Berth 1, substantial extra expenses would be incurred to support concurrent refits in FMU Berths 2, 3 and 4, including tugboat support for vessels navigating in and out of Deas Basin, as the NMVs would require adjustment to allow sail-through.

Alternatively, BC Ferries could perform this work at the NMV points of assembly (“POAs”) terminal berths for their deployed routes, although this could entail additional expenses and / or travel costs for technical teams. Another option would be to use local non-BC Ferries berths as an alternative to the FMU, albeit with an increase in project costs and without the availability of ramp access. Such costs were included during project budget and contingency development where applicable.

C.3.2 Workforce Transition and Training

BC Ferries recognizes that there are challenges with crew transition and training during the peak summer season, due to the primary importance of supporting ongoing operations. The Company will mitigate these challenges by implementing required resource recruitment and training efforts during off-peak periods in advance of vessel delivery.

Before the anticipated October 2028 NMV delivery date, BC Ferries will plan for and implement sufficient new engineering crew recruitment and training to permanently staff the first NMV. BC Ferries will also augment existing staffing pool resources for relief purposes. Similarly, the Company will plan for and implement sufficient net new officer and deckhand recruitment and training to meet the first NMV’s post-delivery sea trial, dock fit, load-out and training requirements.

This first NMV crew will continue to support the training needs of subsequent NMVs. BC Ferries anticipates addressing any excess resources remaining after completing all vessel delivery and training through regular workforce planning.

The Company does not expect a need to hire additional catering resources ahead of delivery of the first NMV, provided that NMV delivery and the subsequent training window occur outside peak periods. Based on the current delivery schedule, BC Ferries expects to use existing off-peak extra resources for training.

If delivery timelines shift and training is required during peak period service, the Company will require significant additional crew resources across all departments. As this situation poses a tangible risk to operations, BC Ferries will perform ongoing reviews of project delivery timelines to manage this risk.

C.3.3 Spares

The NMV Project will evaluate requirements for critical spares as part of an integrated logistics effort. The shipbuilding and operations departments will collaborate to identify and procure appropriate spares to support the vessels once they enter service, and the project construction contract will include an allowance for spare parts and capital spares. BC Ferries will strategically select spare parts to benefit the NMV class vessels as a whole, as the NMVs, being diesel-battery hybrid vessels, will be substantially different from the other major vessel classes.

APPENDIX D Environmental Protection

BC Ferries is committed to reducing its environmental footprint through responsible stewardship and sustainable practices and innovations. The NMV Project aligns with the Company's commitment and demonstrates continuous improvement in the areas of GHG emissions and underwater radiated noise, as well as with its objective – identified through the CTC engagement – to be environmentally sensitive and resilient.

The NMV Project is a key initiative of BC Ferries' decarbonization strategy, and is pivotal in ensuring that BC Ferries can meet future GHG emission reduction targets and support the provincial and federal governments' progress toward their GHG reduction goals for the marine transportation sector. The NMV Project will achieve its GHG reduction goals using a diesel-battery hybrid power plant that can run on B100 with all-electric operation capability. Beyond GHG emission reductions, the NMV Project also achieves significant improvements in hull and propulsion efficiency, which reduce energy use and underwater radiated noise emissions.

The following sections further details the NMV Project's environmental benefits, and its alignment with internal and external environmental plans and goals.

D.1. GHG Emission Reduction

D.1.1 Concept Design Study

The majority of the major fleet generally operates today on a B5 (based on context, this base fuel blend is also referred to as ULSD in this Application). The Concept Design Study evaluated all known and foreseeable future fuels / energy carriers potentially available to the BC market in terms of commodity pricing, well-to-wake emissions, tank-to-wake emissions and bunkering needs. Specifically, the study evaluated:

- Diesel: ULSD, B100 and renewable diesel;
- Liquefied natural gas ("LNG"): conventional LNG and renewable LNG;
- Methanol: fossil-based (grey), fossil-based with carbon capture (blue) and biogas-derived (green);⁴⁶

⁴⁶ Alternative fuels are often classified by colour according to the degree of sustainability of its production process, making it a more or less environmentally friendly fuel, and therefore more or less useful for contributing to decarbonisation. In general, "Grey" fuel types are the least sustainable, where as "Green" fuel types are the most sustainable and "Blue" fuel types are in between.

- Liquid hydrogen: fossil-based (grey), fossil-based with carbon capture (blue) and water-derived using electrolysis (green);
- Ammonia: fossil-based (grey), fossil-based with carbon capture (blue) and water-air-derived using electrolysis (green); and,
- BC Hydro grid electricity: direct-to-grid vessel plug-in charging including different methods of service (distribution service and transmission service) both with and without a buffer shore-side energy storage system (i.e., battery).

The study determined that the only two viable technology pathways for the NMV to achieve a zero-emissions future were single-fuel engines (i.e., diesel) and dual-fuel engines (i.e., diesel and natural gas). BC Ferries studied both technology pathways extensively and evaluated key considerations, such as energy security (including such factors as environmental acceptability and affordability), costs (including energy affordability and conversion to all-electric operation) and safety. Based on the analysis, BC Ferries selected single-fuel diesel engines as the preferred technology enabling ULSD and B100, combined with sufficient shipboard battery capacity for immediate hybrid use, and expandable for future all-electric operation. Note that blends of diesel fuel types are possible: for example, as noted above, B5 represents a blend of B5 with 95 percent ULSD.

LNG was not selected. Factors working against LNG included:

- **GHG targets:** Vessels using LNG would not be successful in meeting the Company's future GHG targets, as tank-to-wake emissions would be negatively impacted by methane slip.
- **Costs:** BC Ferries' financial assessments indicate a relatively low impact (i.e., less than four percent price cap impact forecasted between Fiscal 2029 and Fiscal 2040) on forecasted cash flow when comparing the choice of all-electric over LNG vessels.

BC Ferries' analysis did not show that electrification would be cheaper than running purely on LNG; however, it did not account for the potential of carbon taxes on LNG, which could increase LNG expenses. The assessment also did not include potential cost reductions through grants, low-interest loans, and external agreements, or LNG's carbon debt, all of which would bring electrification costs closer to par with LNG's costs. LNG also requires a costly conversion process to remove cryogenic fuel storage systems to install an all-electric propulsion plant, whereas the single-fuel option has space for batteries from day one;

- **Safety:** BC Ferries identified multiple risks related to the necessary practice of *ship-to-ship* LNG bunkering if the NMVs were to be designed as LNG ships;⁴⁷
- **Public perception:** The public prefers renewable energy alternatives over LNG; and,
- **Price Cap:** As discussed further in Appendix E, the Company evaluated various implementations of LNG and NMV electrification and their implications on price cap, including:
 - Electrification in Fiscal 2030 versus B5-only use (B5 was used as the comparator for the baseline options and NPVs);
 - Electrification in Fiscal 2030 versus LNG-only use; and,
 - Electrification in Fiscal 2030 versus electrification in 2040 with LNG use until then.

The analysis showed that despite the higher upfront costs, the long-term energy savings and substantial GHG reductions make eventual electrification a more viable option for meeting both financial and environmental goals compared to LNG.

The preferred diesel-battery hybrid propulsion topology operates so that diesel engines power electric generators, and both the shipboard batteries and the electric generators supply electrical power directly to the electrical motors that turn the propulsors. The shipboard battery acts as a buffer to absorb the load variations of the propulsors, allowing the diesel engines to operate continually at their most fuel-efficient, fixed speed. When less power is needed to operate the propulsors (e.g., during vessel deceleration and when the vessel is in dock), the additional power available by the operating diesel engine electrical generators is used to charge the shipboard batteries. This arrangement allows the diesel engines to be smaller than they would have to be if they powered the propulsors directly (either mechanically or electrically).

BC Ferries anticipates operating the NMVs with B100. In terms of meeting the GHG emissions reduction requirements, using B100 in conjunction with the installed batteries will optimize engine usage, reducing tank-to-wake GHG emissions by up to 90 percent compared to using fossil-fuel based diesel. Future installation of additional batteries (in conjunction with land-side charging infrastructure) will result in all-electric operation, and reduce tank-to-wake GHG emissions to zero.

⁴⁷ BC Ferries identified these risks during a hazard identification and risk workshop conducted in January 2020 and in an LNG risk assessment held in February 2023. These risks are not included in the risk register because LNG was not selected as the NMV energy source.

To confirm the selection of the diesel-battery hybrid, all-electric ready vessel configuration and the energy source decision, BC Ferries engaged an external organization with experience implementing strategies related to sustainable marine projects to review the overall energy carrier decision rationale and supporting documentation. The consultant confirmed that the energy carrier selection was reasonable and supported by the available industry body of knowledge.

D.1.2 Avenues to Emissions Reductions

The NMV Project reduces GHG emissions by implementing the following technologies:

- **Diesel-battery hybrid power plants**, which use diesel engines to power electric generators to charge batteries, which in turn power the ship. This arrangement reduces GHG emissions because it allows the diesel engines to be smaller than they would have to be if they powered the ship directly (because the batteries act as a buffer and address load variations), and the diesel engines can continually operate at their most fuel-efficient, fixed speed (again because the batteries act as a buffer). Because the batteries power the ship, future replacement of the diesel generators with more batteries provides a simple, direct path to future all-electric operation;
- **B100 usage capability**, which reduces tank-to-wake GHG emissions by up to 90 percent compared to fossil-fuel-based diesel. Biodiesel is a renewable fuel that can be manufactured from new and used vegetable oils, animal fats and recycled restaurant grease. Biodiesel reduces GHG emissions in that the carbon dioxide released during combustion is offset by the carbon dioxide sequestered while growing the feedstock from which the biodiesel is produced. Although various percentages of biodiesel could be employed in any vessel, the NMV has been specifically designed to include engines and fuel systems that can run B100; and,
- **All-electric operation capability**, which will eliminate all tank-to-wake GHG emissions. All-electric operation depends on installing shore-based electrical infrastructure, and additional batteries in the NMVs. The vessel design anticipates these future batteries, and assigns space and weight allowances for them.

BC Ferries will implement these technologies regardless of the number of NMVs procured, but the absolute magnitude of the GHG emission reductions depends on the number of NMVs built and when they will come into service. The years leading up to all-electric operation will span multiple years, as new vessels come into service, legacy vessels are retired and electrification is implemented.

Table D-1 compares the well-to-wake GHG emission reductions and the tank-to-wake GHG emission reductions per year for all vessels on Routes 1, 2, 3 and 30, operating in 2050 as the

selected representative year. Each NMV has a 45-year design life, so the estimated GHG emission reductions over the life of the vessels result from multiplying the numbers by 45. The table assumes:

- Option 0 – Status Quo is the baseline condition, and involves extending the life of the five existing legacy C-Class vessels (ALB, COQ, COW, OAK and SUR) beyond their 48 to 53 years of service life, and the V-Class vessel (NW) beyond its 65 years of service life. These vessels use diesel power plants with fossil-fuel-based diesel (currently, these ships generally use B5);
- Options 1 through 4 replaces the six legacy vessels in Option 0 with NMVs in the 2030s through the two phases of the NMV Project, as well as assumes replacement of the two Spirit Class vessels with two additional NMVs in the 2040s. All NMVs are assumed to use diesel-battery hybrid power plants and are designed to be able to consume B100 biodiesel. In the representative year of 2050, the difference in the GHG emissions calculated between options 1 through 4 is less than 1,000 tonnes; therefore, the GHG emissions of Options 1 through 4 are shown as the same.

Table D-1 GHG Emission Comparison (at 2050)

GHG Emissions for Existing Vessels using Diesel Power Plants with Fossil Fuel Based Diesel	
GHG Emissions (tCO₂e⁴⁸ / year)	Options 0 – Baseline – Status Quo (11 Vessels operating at 2050) Six legacy vessels, operating on fossil fuel-based diesel; Two Spirit Class vessels, operating on fossil fuel-based LNG; Three Coastal Class vessels, operating on fossil fuel-based diesel.
Tank-to-Wake	261,000
Well-to-Wake	330,000
GHG Emissions for Various Numbers of NMVs using Diesel-Battery Hybrid Power Plants and B100, Combined with Legacy Vessels Using Diesel Power Plants and Fossil Fuel Based Diesel	
GHG Emissions (tCO₂e / year)	Options 1 through 4 (at 2050) Seven NMVs procured under Phase 1 and 2, operating on B100; Two NMVs for Spirit Class replacement, operating on B100; Three Coastal Class vessels, operating on fossil fuel-based diesel.

⁴⁸ tCO₂e / year = tonnes of carbon dioxide equivalent per year.

Tank-to-Wake	46,000
Well-to-Wake	39,000

Table D-1 therefore shows that any option with NMVs operating with B100 or as all-electric represents a significant opportunity to reduce both tank-to-wake and well-to-wake GHG emissions compared to the status quo. The predicted tank-to-wake GHG emissions reduction is up to 215,000 tCO₂e / year by 2050 and the predicted well-to-wake GHG emissions reduction is up to 291,000 tCO₂e / year by 2050 compared to the status quo.

D.2. Alignment with External Climate Change Goals

As discussed below, the NMV Project aligns with federal, provincial and international climate change mitigation and adaptation goals for the transportation sector.

D.2.1 Provincial Climate Change Goals

The Province’s CleanBC Plan sets various GHG reduction targets for BC as a whole compared to 2007 levels: 40 percent GHG reduction by 2030, 60 percent by 2040, and 80 percent by 2050. As part of these overall targets, the CleanBC Plan sets a 27 to 32 percent reduction target by 2030 for the transportation sector. The NMV Project is a key part of BC Ferries’ decarbonization strategy, and is fundamental to supporting the Province’s progress toward its future GHG reduction goals for the transportation sector. Table D-2 details how the NMV Project aligns with the Province’s climate change mitigation and adaptation goals.

Table D-2: NMV Project Alignment with Provincial Climate Change Goals

BC Climate Change Mitigation and Adaptation Goals	NMV Project Alignment
Encouraging the adoption of cleaner fuels.	<p>The NMVs’ diesel-battery hybrid power plants will be able to operate on B100, and the vessels’ batteries will improve efficiency by buffering peak loads. This will allow the power plants to be smaller and operate at their optimum speed. The combination of biodiesel with smaller power plants will reduce tank-to-wake GHG emissions by up to 90 percent compared to larger power plants operating on fossil-fuel based diesel.</p> <p>Future installation of additional batteries and on-shore charging infrastructure will result in all-electric operation, and eliminate tank-to-wake GHG emissions when operating with hydroelectricity.</p>

BC Climate Change Mitigation and Adaptation Goals	NMV Project Alignment
Adopting cleaner technology and electrifying as much of the transportation system as possible.	BC Ferries’ total GHG emissions represents 18 percent of BC’s domestic navigation activities within the transportation sector.
Encouraging people to reduce the number of trips and increase the efficiency of those trips.	BC Ferries is working with its transit partners and the Province to explore opportunities to reduce travellers’ reliance on personal vehicles, and thereby increase travel efficiency. The NMV Project will provide extra passenger capacity, and support other travel modes (such as by installing additional bike racks on deck) to meet customers’ changing travel needs.
Making sure BC’s transportation infrastructure can withstand the effects of climate change, including extreme weather events.	<p>The NMVs provide added resiliency during extreme weather, as they are designed to operate in higher wind and sea conditions than existing vessels (noting that BC Ferries evaluates weather conditions on individual routes when making sailing decisions).</p> <p>The four azimuth propulsors also provide a significant stepped increase in the NMV’s wind-holding capability compared to other in-service major vessels. Improved NMV heating and cooling systems will enable continued cooling during high-heat summer months, but at a reduced energy demand on the vessel.</p> <p>Finally, the NMVs will be able to operate on any blend of diesel, providing fuel flexibility and operational resiliency using established supply trains if the preferred fuel (B100) is unavailable due to extreme climate events.</p>

D.2.2 Federal Climate Change Goals

The Government of Canada has committed to ambitious GHG emission reduction targets of 40 to 45 percent below 2005 levels by 2030, and net-zero emissions by 2050, as enshrined in the *Canadian Net-Zero Emissions Accountability Act*. Vehicles account for over 80 percent of Canada’s transportation-related GHG emissions, and the domestic marine sector represents only 2.4 percent of those emissions (in 2019). BC Ferries contributes approximately 9 percent of the GHG emissions within the domestic marine sector.

While the federal government has focused its goals on vehicles, their 2030 Emissions Reduction Plan commits to exploring the following for the marine sector:

Developing a national action plan to enable the marine sector to reduce its emissions, which could include engagement with stakeholders on energy efficiency / carbon intensity requirements for domestic vessels in-line with requirements for international vessels.

The federal government requires that domestic vessels be in line with international vessel requirements related to energy efficiency and carbon intensity. The NMV Project will meet this requirement by displacing fossil-fuel-based diesel with biodiesel and hydroelectricity.

The NMV Project will comply with Transport Canada's Canadian Carbon Intensity Indicator reporting requirements.

D.2.3 International Maritime Organization Goals

The International Maritime Organization's ("IMO") GHG emission reduction goals relate to the international shipping sector and not domestic vessels. Regardless, the NMV Project will align with IMO's goals of reducing GHG emissions from international shipping by 70 to 80 percent by 2040, and striving to reach net-zero GHG emissions by around 2050.

The IMO promotes the adoption of alternative energies, such as electricity and biofuels, as fundamental components of its strategy to reach its long-term targets. The NMV Project's use of diesel-battery hybrid power plants with B100, and the NMVs' future conversion to all-electric operation, directly align with this strategy.

D.3. Other Environmental Benefits

D.3.1 Energy Efficiencies

The benefits of NMV energy efficiencies have been discussed elsewhere in this filing (see especially Appendix C, Section C.2 for NMV innovations.) To summarize here, the NMV Project eases pressure on fuel (i.e., energy) consumption by implementing the following technologies:

- **Advanced, highly efficient hull design**, which allows the vessels to glide through the water with minimal resistance. The hull shape was optimized through extensive computational fluid dynamic simulations and numerous physical model tests;
- **Highly efficient four-propulsor design**, which propels and manoeuvres the ship efficiently and with less drag than previous designs. The propulsors can individually thrust-vector (azimuth / rotate to any 360 degree angle and adjust thrust power from zero to 100 percent) to optimize performance and efficiency at different speeds and phases of the round trip, including while in berth;
- **Highly redundant and efficient propulsion plant design**, which generates, distributes, converts and supplies propulsion power and hotel power through out the vessel. The direct-current electrical distribution system is specifically designed to minimize electrical system losses between main engines / batteries and propulsor motors and hotel loads. Additionally, the distributed arrangement of the main engines,

batteries, switchboards, power converters and propulsors provides a significant leap forward in propulsion redundancy, which supports vessel service availability; and,

- **Highly efficient heating and cooling system design**, which collects and redistributes heat through efficient heat pumps and recovery heat exchangers to equipment, batteries, engines and spaces requiring heating and / or cooling. This design reduces the total energy load on the vessel used to generate heat or cooling for direct application.

D.3.2 Underwater Radiated Noise Reduction

Underwater radiated noise can interfere with marine mammals that communicate, navigate and fish using echolocation, whistles and calls. Route 1 and part of Route 30 are located within the Southern Resident Killer Whales' designated critical habitat. Reducing underwater radiated noise in these areas is a high priority, and replacing the four vessels that operate these routes with NMVs helps to address the issue directly.

Propeller cavitation is responsible for approximately 90 percent of a vessel's underwater radiated noise, while the vessel's engines are the main producers of mechanically created noise and vibration. The NMVs will help to reduce underwater radiated noise by using a diesel-battery hybrid design, which reduces engine size.

BC Ferries has included strict underwater radiated noise limits in the design package with which shipyards must demonstrate compliance, and expects that Option 2 – Build 5 (Preferred) will reduce underwater radiated noise sound energy by 63 percent compared to the 2016 baseline. The Phase 2 NMV Project will introduce two more NMVs and retire the final two C-Class vessels after 2037, which will further reduce underwater radiated noise sound energy by an expected 95 percent compared to the 2016 baseline.

As with BC Ferries' current vessels, the NMVs will need to slow down when whales are spotted in the vicinity of operations to reduce noise and otherwise to ensure their safety.

D.3.3 Green Marine Certification

Green Marine is an environmental certification program for North America's maritime industry. It targets key environmental issues related to biodiversity protection, air, water and soil quality, and community relations. To obtain Green Marine certification, participants must demonstrate continual and measurable improvement, year after year.

The NMV Project may contribute toward future Green Marine certification achievements, including:

- **GHG Emissions:** The use of B100 will support Level 4, Criterion 4.1 and Level 5, Criterion 5.1, which pertain to annual average reductions in GHG intensity since the baseline year; and,
- **Oily Discharge:** The implementation of an integrated bilge treatment system will support Level 4, Criterion 4.2, which specifically addresses the use of these systems.

APPENDIX E Energy Pathway Financial Analysis

BC Ferries strives to reduce its environmental footprint and enhance fuel efficiency, and choosing the optimal energy pathway becomes crucial for economic and ecological sustainability. This financial analysis compares the two prominent energy pathways: single fuel (diesel) and dual-fuel (diesel / LNG) systems. By evaluating key financial metrics such as capital expenditures, operational costs, fuel efficiency and long-term economic impacts, this analysis seeks to illuminate the relative financial merits and challenges of each option. The analysis supports BC Ferries' decision to proceed with a diesel-battery hybrid, all-electric ready vessel; however, as described in Section 7.3.4 full electrification of major route vessels will be addressed in a separate future project.

E.1. Option 1: NMV Electrification in Fiscal 2030 versus B5

Figures E-1 and E-2 compare incremental funding requirements and annual price cap increases from using B5 with the impact of immediate NMV electrification in Fiscal 2030, assuming a twelfth vessel and SUR and OAK life extensions:

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Figure E-1: Financial Implications: Electrification – Incremental Funding Requirement

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Figure E-2: Financial Implications: Electrification – Price Cap Increases

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E.2. Option 2: NMV Electrification in Fiscal 2030 versus LNG

Figures E-3 and E-4 compare incremental funding requirements and annual price cap increases from using LNG with the immediate impact of NMV electrification in Fiscal 2030, assuming an additional (twelfth) major vessel and SUR and OAK life extensions:

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Figure E-3: Financial Implications: Electrification versus LNG – Incremental Funding Requirement

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Figure E-4: Financial Implications: Electrification versus LNG – Price Cap Increases

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E.3. Option 3: LNG with Electrification in Fiscal 2040 versus Electrification in Fiscal 2030

Figures E-5 and E-6 compare incremental funding requirements and annual price cap increases from using LNG in Fiscal 2030 with a conversion to electrification in Fiscal 2040, versus immediately electrifying the NMVs in Fiscal 2030, assuming an additional (twelfth) major vessel and SUR and OAK life extensions:

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Figure E-5: Financial Implications: LNG with Subsequent Electrification (Fiscal 2040) versus Immediate Electrification (Fiscal 2030) – Incremental Funding Requirement

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Figure E-6 - Financial Implications: LNG with Subsequent Electrification (Fiscal 2040) versus Immediate Electrification (Fiscal 2030) – Price Cap Increases

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E.4. Energy Pathway Assumptions for the Financial Model:

The financial model includes the following assumptions for the energy pathway:

- Option 2 – Build 5 (Preferred) is the baseline option for all energy pathway options.
- All non-NMV vessels will operate on either ULSD / B5 or LNG and be static across all energy pathway options.
- Phase 2 NMVs are forecasted to come into service in Fiscal 2036 and Fiscal 2037 and are assumed to operate on ULSD / B5 and be static across all energy pathway options. This will most likely not be the case, but applied as an assumption for the purposes of isolating the financial impact of the energy pathway for the first five NMVs.
- The optimal pathway to electrification has the following assumed schedule: Route 1: Fiscal 2031; Route 30: Fiscal 2030; Route 2: N/A (not assuming the energy pathway of Phase 2 NMVs); Route 3: N/A – Coastal Class assumed to be operating on route.
- Batteries: electrification will require increased battery capacity from the initial 10MWh installed on each NMV. Inflation is not applied to battery costs going forward, which is viewed as a conservative approach given battery costs are expected to decrease over time. The following total battery capacity is needed for each route to operate fully electric:
 - Route 1: 30MWh; \$< > (Fiscal 2025\$);
 - Route 30: 54MWh; \$< > (Fiscal 2025\$);

- Route 2: 43MWh; \$< > (Fiscal 2025\$) N/A (not assuming the energy pathway of Phase 2 NMVs); and,
- Terminal Electrification: the following costs pertain to terminal infrastructure required for the electrification of Routes 1, 2 and 30. Pricing is based on estimates provided by BC Hydro (interconnection costs) and BC Ferries engineering consultant (transmission line, terminal substation, duct bank and charging tower). The following are the estimated costs for terminal electrification:
 - Departure Bay - \$< > (Fiscal 2025\$) – Route 2 - N/A (not assuming the energy pathway of Phase 2 NMVs);
 - Duke Point - \$< > (Fiscal 2025\$) – Route 30;
 - Horseshoe Bay - \$< > (Fiscal 2025\$) – Route 2 - N/A (not assuming the energy pathway of Phase 2 NMVs);
 - Swartz Bay - \$< > (Fiscal 2025\$) – Route 1; and,
 - Tsawwassen - \$< > (Fiscal 2025\$) – Route 1 + 30.
- Electrification Conversion Costs from LNG: an assumed cost of \$< > (Fiscal 2025\$) per vessel is required to remove the cryogenic tanks from the vessels and to convert them to electrification. These cost assumptions are validated by information from the recent Spirit Class LNG conversion refits, and also through comparisons with two other vessel owners who have completed recent conversion work.
- Fuel: the forecasted cost of a fully electric round trip on a NMV is materially less expensive than operating on diesel options (ULSD, bio-diesel, renewable diesel and / or blends). This favourable cost per round trip is driven by electric motor efficiencies (85 percent engine efficiency) compared to internal combustion engines (40 percent engine efficiency) and lower cost per unit of energy (assumed transmission rates: < >.
- Urea: consumption is assumed to be minimal when a NMV is converted to fully electric. Costs will no longer be incurred in the financial analysis for NMVs once the respective route is electrified. Urea will only be consumed by diesel fuel options.
- Ship to ship bunkering: LNG is assumed to require ship to ship bunkering to meet fueling requirements. A rate of \$< > per GJ is applied based on a past Request for Information.

- Carbon Credit: the British Columbia Low Carbon Fuel Standard is expected to be active until Fiscal 2030. As there is no certainty of this program past this date or of the eligibility of the assumed fuel choice, the credit benefit and / or dis-benefit has not been included in the financial analysis for all four options.
- No reduction in maintenance costs or unplanned maintenance have been included within the financial analysis.

APPENDIX F Options Comparison Supplementary Information

F.1. Introduction

Section 5 discusses the four viable options considered that could meet the business needs of replacing aging assets, increasing fleet capacity and addressing service resiliency, repeated here:

- **Option 1 – Build 7:** Build seven NMVs and retire the six legacy vessels. This adds a twelfth vessel to the major vessel fleet in Fiscal 2030 as part of this NMV project;
- **Option 2 – Build 5 (Preferred):** Build five NMVs, retire four legacy vessels (ALB, COQ, COW and NW), and life-extend two legacy vessels (SUR and OAK). This adds a twelfth vessel to the major vessel fleet in Fiscal 2030 as part of this NMV project; SUR and OAK would be replaced by 2037 as part of the Phase 2 NMV Project;
- **Option 3 – Build 6:** Build six NMVs and retire the six legacy vessels. BC Ferries would add another vessel for the major vessel fleet by 2037, as part of the Phase 2 NMV Project, bringing the total to 12 vessels; and,
- **Option 4 – Build 4:** Build four NMVs and retire four legacy vessels (ALB, COQ, COW and NW), and life-extend two legacy vessels (SUR and OAK). The Company would add three vessels to the major vessel fleet by 2037 as part of the Phase 2 NMV Project, bringing the total to 12 vessels.

This section provides details on these options supplemental to Section 5, and also reviews two further options considered non-viable:

- **Option 5 – Purchase Used Vessels:** Procuring up to seven market-available vessels to meet as many project objectives as possible; and,
- **Option 6 – Lease Replacement Vessels:** Leasing vessels to meet project objectives.

F.2. Option 1 – Build Seven

Figure F-1 provides a possible option for high-level annual deployments of 12 major vessels, with all seven NMVs in service, but excluding refit relief redeployments:

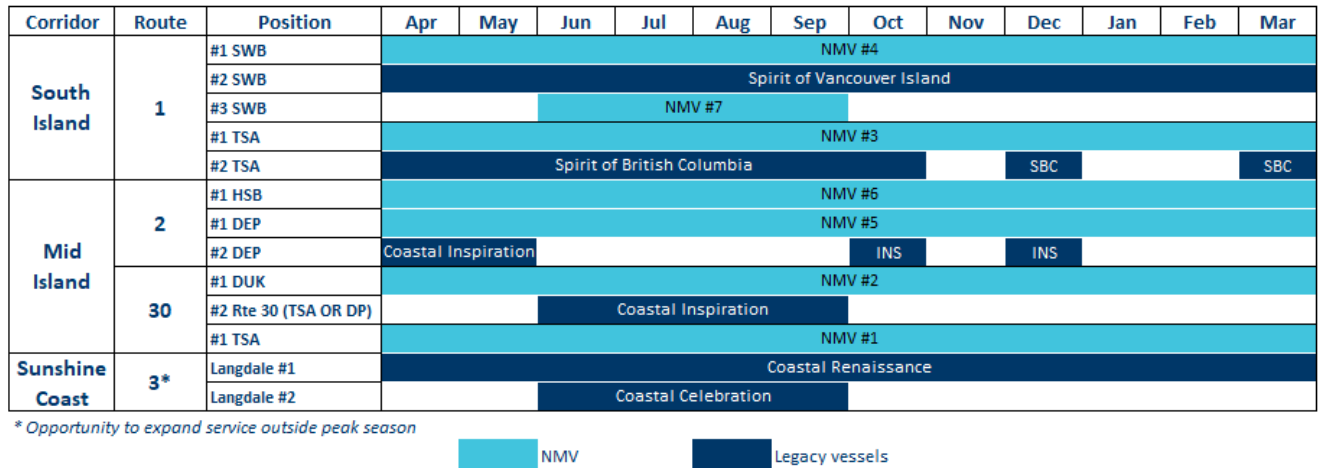


Figure F-1: High-level Annual Deployment of 12 Major Vessel Fleet with all NMVs in Service, Excludes Refit Relief Redeployments

Table F-1 provides the annual operating budget for seven NMVs, in Fiscal 2025 dollars:

Table F-1: Annual Operating Budget in Fiscal 2025 Dollars (Option 1 – Build 7)

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F.3. Option 2 – Build 5 (Preferred)

Figure F-2 provides a possible option for high-level annual deployments of 12 major vessels, with five NMVs and two C-Class vessels in service, but excluding refit relief redeployments:

Corridor	Route	Position	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
South Island	1	#1 SWB	NMV #4												
		#2 SWB	Spirit of Vancouver Island												
		#3 SWB			NMV #5										
		#1 TSA	NMV #3												
		#2 TSA	Spirit of British Columbia									SBC			SBC
Mid Island	2	#1 HSB	Coastal Renaissance												
		#1 DEP	Coastal Celebration												
		#2 DEP	Queen of Oak Bak							OAK		OAK			
	30	#1 DUK	NMV #2												
		#2 Rte 30 (TSA OR DP)	Coastal Inspiration												
Sunshine Coast	3*	#1 TSA	NMV #1												
		Langdale #1	Queen of Surrey												
		Langdale #2		Queen Of Oak Bay											

* Opportunity to expand service outside peak season

NMV Legacy vessels

Figure F-2: High-level Annual Deployment of 12 Major Vessel Fleet with Five NMVs in Service, Excludes Refit Relief Redeployments

Table F-2 provides the annual operating budget for five NMVs, in Fiscal 2025 dollars:

Table F-2: Annual Operating Budget in Fiscal 2025 Dollars (Option 2 – Build 5 (Preferred))

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F.4. Option 3 – Build 6

Figure F-3 provides a possible option for high-level annual deployments of 11 major vessels, with six NMVs and all legacy vessels retired, but excluding refit relief redeployments:

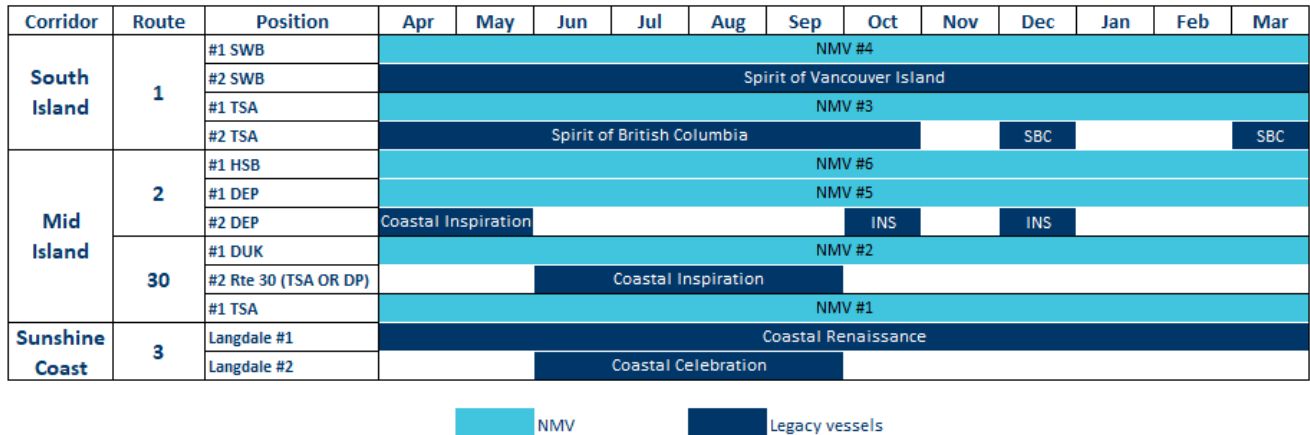


Figure F-3: High-level Annual Deployment of 11 Major Vessel Fleet with six NMVs in Service, Excludes Refit Relief Redeployments

Table F-3 provides the annual operating budget for six NMVs, in Fiscal 2025 dollars:

Table F-3: Annual Operating Budget in Fiscal 2025 Dollars (Option 3 – Build 6)

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F.5. Option 4 – Build 4

Figure F-4 provides a possible option for high-level annual deployments of 11 major vessels, with four NMVs and two C-Class vessels in service, but excluding refit relief redeployments:

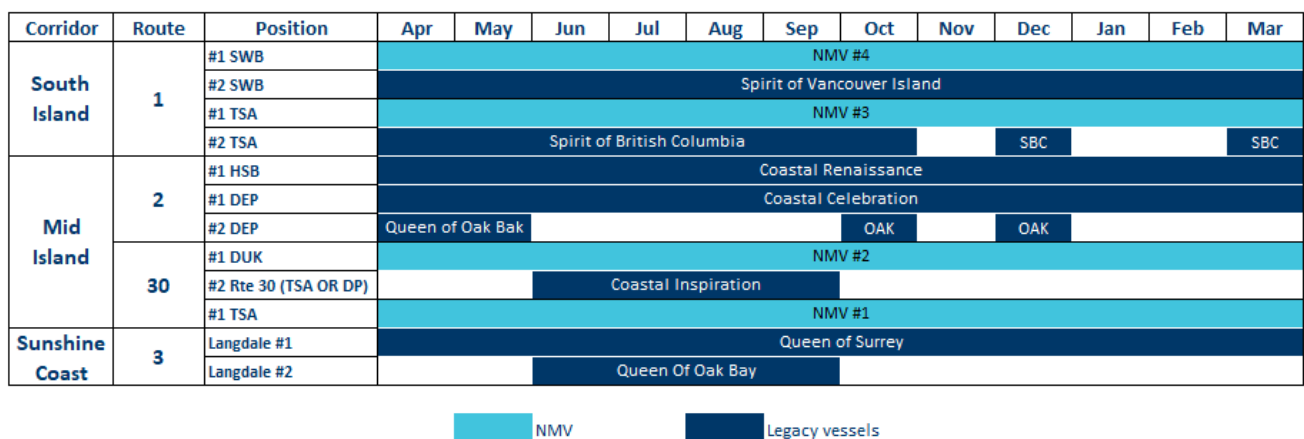


Figure F-4: High-level Annual Deployment of 11 Major Vessel Fleet with four NMVs in Service, Excludes Refit Relief Redeployments

Table F-4 provides the annual operating budget for four NMVs, in Fiscal 2025 dollars:

Table F-4: Annual Operating Budget in Fiscal 2025 Dollars (Option 4 – Build 4)

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F.6. Options 1-4: Vessel Crews

Vessel crew size and make up are based on two important considerations: the vessel’s Minimum Safe Manning (“MSM”) document issued by Transport Canada and the BC Ferries-generated crew profiles that address operational and service requirements.

The *MSM document* provides Transport Canada’s baseline of the minimum crew size and certifications required per watch based on varying passenger counts. For the purposes of BC Ferries’ operations, the MSM levels are typically identified as “A”, “B” and “C” licenses as appropriate.

Crew profiles address the different operational service levels offered onboard and can differ based on route, whether the vessel is ‘#1’ or ‘#2’ on the route, season and even the day of the week. Typically, the deck and engineering departments will remain at consistent staffing levels while catering numbers and job position mix may change based on the service requirements. Depending on the vessel and route there can be several different crew profiles available to choose from when creating the vessel crew schedules.

F.6.1 Minimum Safe Manning for NMVs

The anticipated MSM level for NMVs is still to be confirmed by Transport Canada during the project’s implementation phase, but it will be consistent for the NMVs for each viable option considered in this application.

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F.6.2 Crew Profiles for NMVs

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F.7. Other Non-viable Options

F.7.1 Option 5: Purchase Used Vessels

This option involves procuring up to seven market-available vessels to meet as many project objectives as possible. Potential approaches include seeking used vessels to outright eliminate the need for NMVs, and / or seeking a smaller number of used vessels to reduce the number of NMVs required within the project.

However, this option was not considered viable. BC Ferries actively monitors the used-vessels market. Several factors contribute to whether a used vessel is appropriate, including commercial needs, physical condition, regulatory compatibility, fleet compatibility, major berth compatibility and standardization. The affected routes have specific needs, and any used vessels would have too many compromises across these factors to make pursuing this option worthwhile. Acquiring used vessels would abandon the corporate strategy of standardization, identity and interoperability, and would not contribute towards realization of BC Ferries' emissions-reductions goals.

Additionally, a recent market survey of vessels listed as currently available for resale from international shipbroking organizations revealed that no appropriate vessels are currently available that would meet BC Ferries' requirements for size, speed and configuration on the routes being considered for this project.

F.7.2 Option 6: Lease Replacement Vessels

This option involves leasing vessels to meet project objectives. While a lease arrangement may yield short-term financial advantages, it is not a sustainable or cost-effective solution in the long run. Leased vessels often incur substantial monthly payments that, over time, can surpass the overall cost of procurement. Additionally, leasing contracts typically entail rigorous terms and conditions, imposing constraints on operational freedom and flexibility. Vessel leasing would deviate from the established corporate strategy emphasizing standardization, identity and interoperability.

BC Ferries has certain restrictions and minimum obligations to its current bondholders that may reduce or eliminate the viability or benefit of a leasing proposal with a perspective partner. Typically lease arrangements will require a financial structure, whether a premium interest rate or an equity stake, that may prove costlier and / or expose the Company to the risk of breaching its covenants, including meeting its obligations under the Coastal Ferry Services Contract.

APPENDIX G Project Budget for Option 2 – Build 5 (Preferred)

Table G-1 provides the project budget for Option 2 – Build 5 (Preferred).

Table G-1: Option 2 – Build 5 (Preferred) Budget

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APPENDIX H Basis of Estimate

H.1. Basis of Estimate: Vessel Construction Budget

The NMV Project's most significant cost will be the design-build-deliver contracts that BC Ferries will negotiate and award to the selected shipyard. The contract cost estimates were informed by separate assessments performed by a shipbroker, BC Ferries and a third-party shipyard consultancy.

H.2. < >

H.3. < >

H.4. < >

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H.6. < >

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H.8. < >

H.9. Key Notes and Assumptions for NPV, Revenue and Operating Cost Calculations

General

- 53 year NPV references the years of construction and the useful life of the vessel (i.e., 45 years).
- 7 percent discount rate, based on the current borrowing rate of < > percent plus risk premium.
- 2 percent annual inflation rate is used for ongoing costs unless otherwise noted, which is aligned with corporate and Bank of Canada long-term projections.
- Refer to the Basis of Estimate for details on the up front investment.

Baseline

- Used for the purposes of comparison to incremental positive and negative cash flows to drive the NPV calculations for each of the options.
- Fleet deployment is based on a full service plan.

- Ongoing costs (excluding fuel) and capital investments are based on five year averages for the current fleet (C-, V-, Coastal and Spirit Classes) and inflated over time.
- Fuel costs were calculated by historical consumption averages per major route per vessels using a full service deployment. Fuel for comparison will be ULSD B5 with rates aligned to BC Ferries' long term forecast.
- Ongoing operating costs (vessel labour, terminal labour, insurance, maintenance and refit) are aligned with BC Ferries' budget for Fiscal 2025.

On Going Capital Investment

- < >
- Batteries: the current NMV design has a 10 MWh battery installed on each vessel. < >
- Terminal: due to the increased service of five ship peak service on Route 1, construction of Tsawwassen Berth 2A is a required investment to facilitate the incremental vessel. < >
- Capital Spares: initial spare costs to be included with the NMV Project's shipyard contract cost for each NMV. Life cycle spare costs have not been included in the NPV as the approach has not been corporately determined.
- < >
- < >

On Going Operating Costs / Savings

- Fuel: annual consumption rate costs for legacy major vessels (Spirit and Coastal Classes) on specific routes were calculated via historical average. Consumption rates per NMV were provided via the marine architect with consideration of the basic design specifications established to date. Full service deployment is assumed and annual fuel rates were provided by BC Ferries' Long Term Forecast. B5 is the assumed fuel for the NPV analysis.
- Urea: Urea consumption is positively correlated with fuel consumption and is a mandated requirement. Rate of consumption and price per unit were informed via BC Ferries' historical data on use of urea on existing vessels.
- < >
- Maintenance, Refit and MOI (Capex): costs were provided through consultation with the project team, Fleet Engineering and Fleet Technical. < >

- C- and V-Class Disposal: costs per vessel were provided by internal subject matter experts. < >

On Going Revenue Impact

- Vehicle and Passenger traffic: informed by the CTC initiative's traffic forecasts, with differences across options determined by capacity differences.
- < >
- Net Retail Revenue: average passenger spend for onboard catering and retail services is assumed to be similar to a Spirit Class vessel on Route 1 and a Coastal Class vessel on the other major routes.

APPENDIX I Key Project and Schedule Risks

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APPENDIX J Sensitivity Analysis

The cost model for the NMV Project incorporates several key assumptions to evaluate financial implications over time. This Appendix provides a sensitivity analysis of specific variables and their potential effects, as applicable, on annual net operating costs, project expenses or NPV.

J.1. Foreign Currency Exchange Rate

The currency denomination for the NMV shipbuilding contracts is not currently known. Even if the contracts are denominated in Canadian dollars, the selected shipbuilder may need to convert to a foreign currency to pay workers and order supplies, which in turn affects the Canadian dollar price. Until the contracts are signed and any relevant hedges placed, BC Ferries remains exposed to foreign exchange risk (see also Appendix I).

< >

J.2. Discount Rate

The analysis that determines NPV uses a discount rate to assign greater value to near-term cash flows and less value to the more distant (and therefore less certain) cash flows. < > Note the NPV ranking of the options does not change with changes to the discount rate, however, the differential among the options shrinks with a lower assumed discount rate, and grows with a higher assumed discount rate, as will be evident in Table J-3.

Table J-2: Changes to Discount Rate

< >

Table J-3 illustrates the difference between the net present value for Option 2 – Build 5 (Preferred) and the other options. This difference is driven by:

- The timing of capital investment (NMV Phase 1 (Fiscal 2025 – Fiscal 2031) versus NMV Phase 2 (Fiscal 2033 – Fiscal 2037));
- Vessel construction deferral factor (Phase 2) (< > percent premium);
- Capital cost of C-Class (SUR and OAK) 5-year life extensions;
- Revenue and expense implications of the life extended C-Class vessels compared to NMVs; and,
- Revenue and expense implications associated with the timing of the introduction a twelfth major vessel.

At a 7 percent discount rate, the NPV of Option 2 – Build 5 (Preferred) is:

• < >

Table J-3: Changes to Discount Rate Compared to Option 2

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J.3. Battery Cost

The Company expects, based on consultations with its ship design consultant and internal specialists, that battery prices will decrease over the lifetime of the vessels through innovation and increased supply. As a result, inflation has not been applied to ongoing battery replacement costs.

< >

Table J-4: Fluctuations in Battery Costs (\$ millions)

< >

J.4. Condition Based Maintenance and the Capital Life Cycle

BC Ferries has typically used a time-based approach with its preventative maintenance program, and the base case financial analysis is based on this. However, the Company is currently planning to move to a CBM approach that monitors the real-time condition of assets to determine what and when maintenance needs to be performed. Table J-5 illustrates potential favourable cost reductions of using a CBM strategy on the quarter life, mid-life and three quarter life NMV capital life cycle upgrades.

Table J-5: Cost Reductions from Condition Based Monitoring (“CBM”)

< >

CBM potential savings have not been included in any other NPV for capital life cycle costs other than the above sensitivity analysis. < > If the potential savings materialize, they will benefit all options and will not materially impact the differential across the options.

J.5. Labour

Labour is BC Ferries’ top operating expense and has a large impact throughout the financial analysis. With wage rates being equal across the options, the main differences come from fleet mix, crew levels (and composition) and deployment. There will be an opportunity to revisit deployment when the vessels are nearing (and in) service to optimize revenue and operational efficiencies, which could have a positive impact on net operating results.

< >

J.6. Fuel

ULSD B5 is the baseline fuel for each of the options within the financial analysis, but is not necessarily the fuel choice for NMV operation. Table J-7 illustrates the incremental differences between bio-diesel, renewable diesel and electrification to the Option 2 – Build 5 (Preferred) Baseline NPVs. The comparative fuels chosen below are considered a means to achieving the Company’s environmental objectives.

For the analysis, there is no assumed price differential between B5 and B100. The negative NPV variance to B5 is due to B100 having lower energy density and therefore requiring greater volume of consumption. < >

Renewable diesel has a lower energy density and higher price than B5 and therefore shows the least favourable NPV.

Electricity is more efficient, and is much less expensive per kWh than the other fuel sources, which shows in its favourable NPV compared to the other fuel sources. Of the four energy pathways noted below, electrification differentiates with a required upfront terminal and battery investment and ongoing battery life cycle costs. Refer to Appendix E for details and assumption within the electrification pathway.

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APPENDIX K Incremental Economic Impact of BC Ferries' New Vessel Program

This Appendix includes the study completed by InterVISTAS Consulting Inc.



Incremental Economic Impact of BC Ferries' New Major Vessel Program

December 13, 2024

Contents

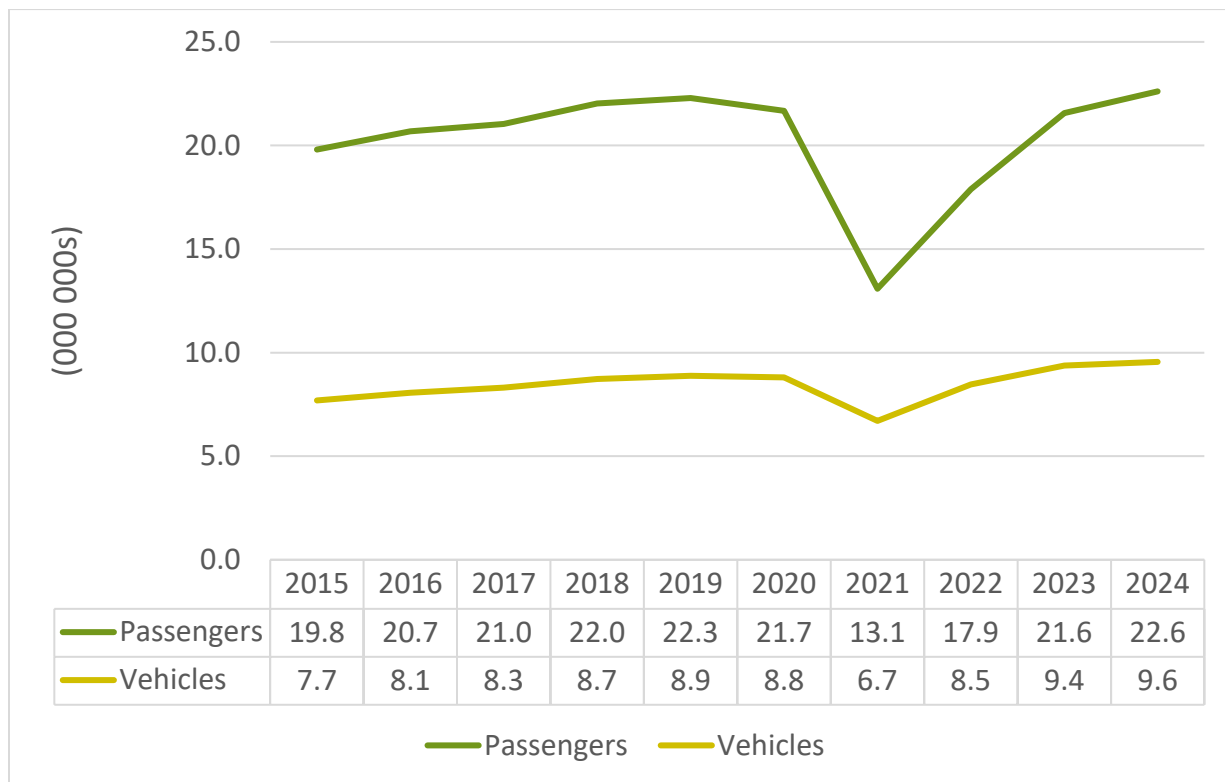
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1 Introduction

BC Ferries ranks as one of the top ferry operations globally, having facilitated the travel of over 22 million passengers and nearly 10 million vehicles during fiscal 2024. Traffic levels have surpassed those achieved prior to the global pandemic in 2019. **Figure 1-1** shows BC Ferries' passenger and vehicle traffic from 2015-2024.

Growing population, increased demand and aging fleet require proactive action by BC Ferries to revitalize its fleet.

Figure 1-1: BC Ferries' passenger and vehicle traffic, 2015-2024



Source: BC Ferrie's Annual Reports.

With a growing population, aging fleet and increased travel demand, BC Ferries needs to revitalize its fleet through the New Major Vessel (NMV) Program that will replace vessels within the current fleet and increase capacity, allowing BC Ferries to meet future travel demand. This analysis assesses the incremental economic impact associated with the proposed NMV Program, should it be approved by the BC Ferries Commissioner.

1.1 Overview of BC Ferries' New Major Vessel Program¹

Through the NMV Program, BC Ferries aims to modernize and expand its fleet by introducing up to seven new major vessels by 2037. The first five vessels are expected to be operational by 2031, with the initial vessel entering service in 2029. These vessels will serve the busiest routes between Vancouver Island and the Lower Mainland, significantly increasing capacity and enhancing the travel experience for passengers. Each vessel will accommodate up to 2,100 passengers and 360 automobile equivalents (a standard unit of measure). This compares to an average capacity of 1,380 passengers and 290 automobile equivalents for the current vessels that would be replaced. Designed with sustainability in

The New Major Vessel program will help support BC Ferries commitment to environmental sustainability that aligns with the province's CleanBC goals.

mind, the new vessels will utilize diesel-battery hybrid propulsion systems capable of converting to all-electric operation once shore-based recharging infrastructure is in-place at terminals. This initiative supports BC Ferries' commitment to environmental sustainability and aligns with the province's CleanBC goals.

As well as modernizing the BC Ferries fleet, the NMV Program will result in increased capacity, greater frequency of sailings during the Peak season and improved reliability of overall services. This aligns with the needs of BC Ferries customers. In the 2024 BC Ferries Coastal British Columbia Area Travel Demand Survey, 62% of surveyed respondents indicated that *number of departures* had an impact on their travel experience with BC Ferries, the single biggest factor affecting travel experience. In addition, *reduced trip cancellations* (54% of respondents) and *on-time departures/arrivals* (41%) were the most cited areas for improvement. Approximately 40% of respondents indicated that *more departures* would encourage them to make use of coastal ferry services, the second most popular response (after *cheaper ticket prices*).

1.1.1 Why is the New Major Vessel Program important for BC's future growth?

BC Ferries is facing significant challenges as its current fleet ages, compromising the reliability of the ferry system in British Columbia. Six vessels in the fleet that operate on the Major Routes are decades old (built in the 1960s, 1970s and 1980s) and, despite investments to extend their lives, are nearing the end

BC Ferries proposed New Major Vessel Program will update its aging fleet, increasing the system's overall safety and reliability for its customer base.

of their service lives. Four of those vessels are in urgent need of replacement because further prolonging their service lives is not an option. As vessels approach or exceed their planned service life, they become more prone to mechanical and operational issues, which require the removal of vessels from operation for extended time periods to undertake repairs and impact service levels.

¹ Source: <https://www.bcferrys.com/in-the-community/projects/new-major-vessels>.

In addition, demand for services is expected to increase. BC Stats forecast that the population of the Lower Mainland will increase from 3.4 million in 2023 to 4.6 million in 2040 (+34%) while the population of Vancouver Island and the Coastal Regions will increase from 935,000 to 1,140,000 (+22%).² To address the needs of a growing population, additional ferry capacity is essential. BC Ferries' operations are crucial for providing both residents and visitors with dependable and affordable travel options, while also enhancing the overall customer experience. A growing population and increased demand for services are key drivers of the need for the proposed New Major Vessel Program.

BC Ferries is also focused on improving operational efficiency and adopting more sustainable practices to ensure long-term viability. BC Ferries is using industry-best technologies with the NMVs and taking sustainable actions which are anticipated to reduce maintenance costs and improve fuel efficiency.

Furthermore, ferry operations play a vital role in maintaining the connectivity of communities, supporting social and economic ties across the region. The ferry system connects numerous coastal and island communities, providing essential transportation links that facilitate the movement of people, goods, and services. This connectivity is vital for residents who rely on ferries for daily commutes, access to healthcare, education, and other essential services.

Socially, BC Ferries fosters community ties by making it easier for people to visit family and friends, participate in community events, and engage in cultural and recreational activities. The company also engages with communities to understand the needs and concerns of the communities it serves. This engagement helps build strong, long-lasting relationships and ensures that ferry services are responsive to the evolving needs of the population. Overall, BC Ferries is more than just a transportation provider; it critically supports the social and economic connections of coastal British Columbia.

1.2 Economic Impact Overview

The NMV are designed to carry 52% more passengers and 24% more vehicles than the average capacity of the vessels being retired, with anticipated higher employment requirements to operate the new vessels.

BC Ferries contributes directly to employment in British Columbia, as well as the province's GDP through its business and commercial activities and operations. It also acts as an economic catalyst, facilitating the growth of regional businesses and industrial sectors.

Economic impact is a measure of the employment, spending, and economic activity associated with a sector of the economy, a specific project (such as the construction of new infrastructure), or a change in government policy or regulation. In this case, what is assessed is the incremental economic impact of BC

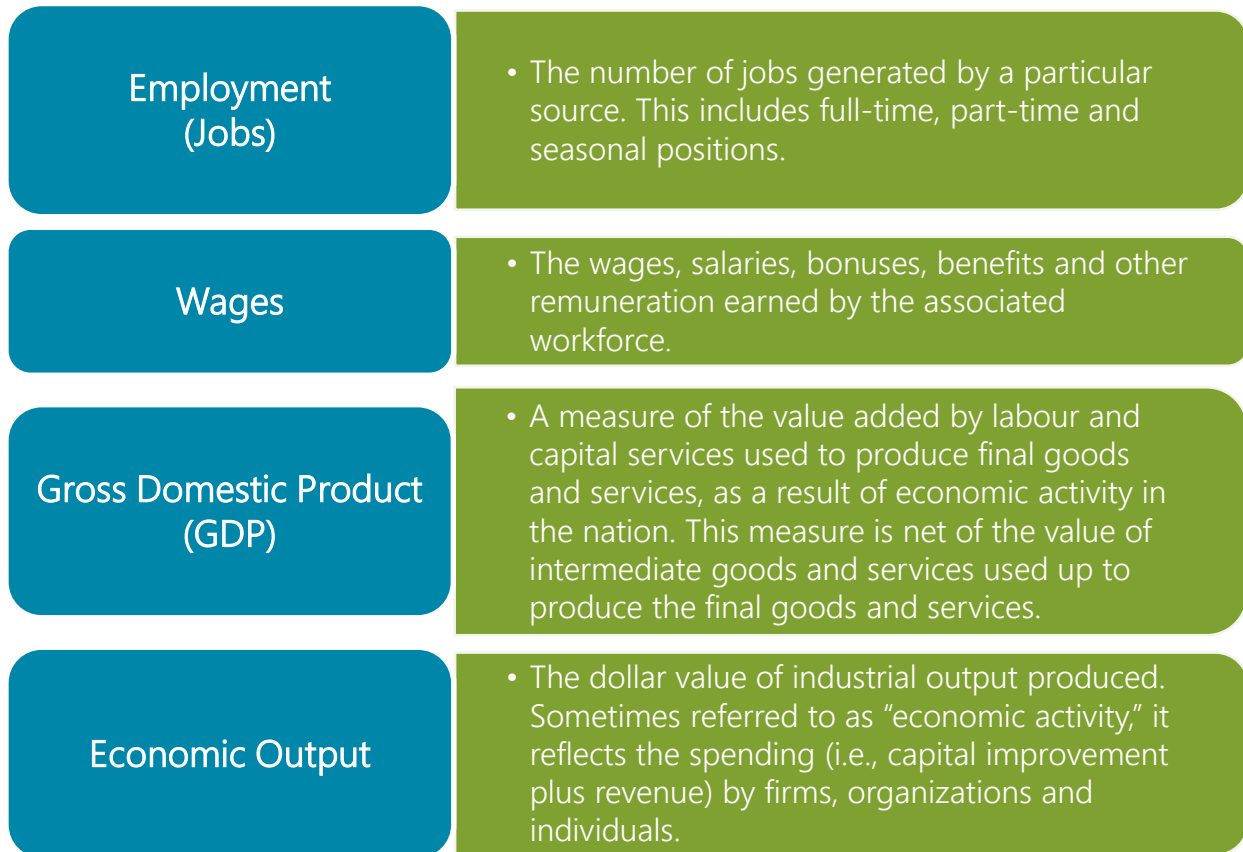
Ferries' proposed NMV Program. The program is scheduled to deliver five NMVs, of which will replace older vessels in BC Ferries' fleet. The NMV are designed to carry 52% more passengers and 24% more vehicles than the average capacity of the vessels being retired, with anticipated higher employment requirements to operate the new vessels.

² <https://bcstats.shinyapps.io/popApp/>.

The NMV Program will also add one additional vessel to BC Ferries' fleet on its major routes, which provides a step-function increase in resiliency but also the overall capacity for passengers and vehicles. The economic impact estimate discussed in Section 2, includes the total incremental traffic capacity provided by the New Major Vessels.

Economic impact is commonly measured in several ways, including employment (jobs), wages, GDP, and economic output, as summarized in **Figure 1-2**. BC Ferries' operations support both the local economy and the provincial economy. The importance of the industry is highlighted by both the employment/wage impacts and the impacts on the greater economy, through both GDP and economic output.

Figure 1-2: Measurements of Economic Impact



1.2.1 Categories of Economic Impact

The three major components of economic impact are *direct, indirect, and induced impacts*. These distinctions are used as a base for the estimation of the total economic impact of incremental operations and traffic associated with the NMV Program.

These categories of impacts are described below and summarized in **Figure 1-3**.



Direct impacts associated with activities directly related to the operation and execution of incremental sailings by BC Ferries due to the implementation of the New Major Vessels program. The direct employment base comprises staff on the vessels, at the terminals and those working elsewhere to support the incremental operations.



Indirect impacts of industries that supply, support, or are wholly dependent on activities arising from BC Ferries' operations. For instance, indirect employment includes the portion of employment in supplier industries which are dependent on sales to the water transport sector, e.g., food wholesalers that supply food for catering on board the vessel, fuel providers, and IT suppliers.

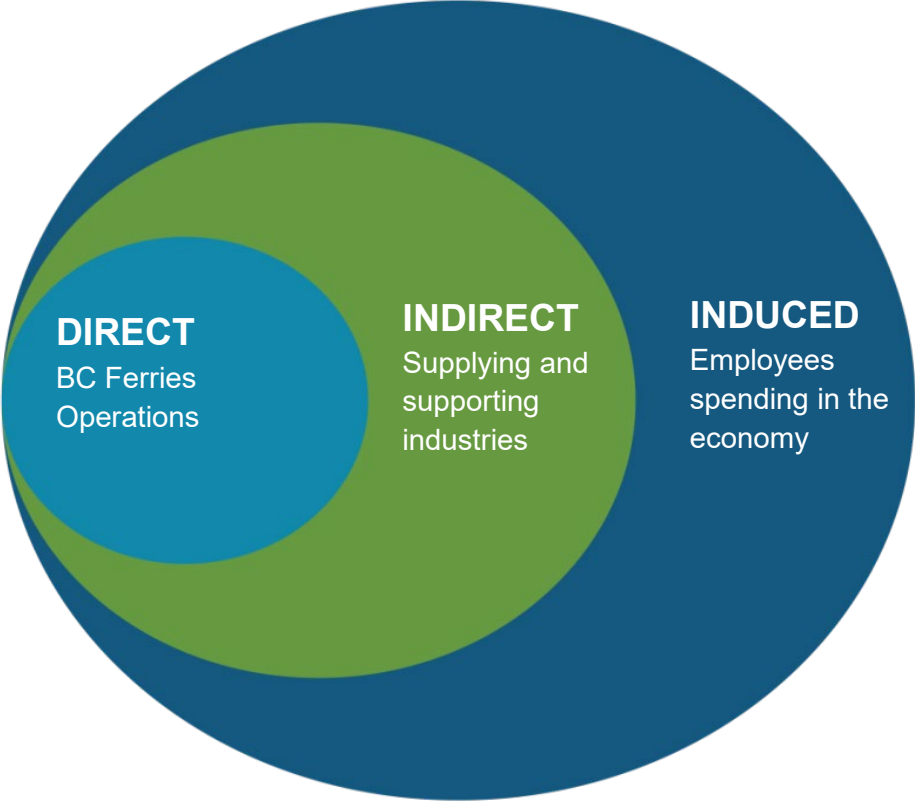


Induced impacts created by the spending of wages, salaries, and profits earned through direct and indirect economic activities. It captures the economic activity generated by the employees of firms directly or indirectly connected to BC Ferries' operations spending their wages in the wider economy. For example, a terminal employee might spend their wages on groceries, restaurants, childcare, dental services, home renovations and other items which, in turn, generate employment in a wide range of sectors of the general economy.



Total economic impacts as the sum of the direct, indirect, and induced impacts.

Figure 1-3: Categories of Economic Impact Generated by the New Major Vessel Program



2 Economic Impact Results

BC Ferries’ proposed NMV Program is anticipated to result in a net increase of one additional vessel, as well as increasing the overall capacity of BC Ferries’ service offerings. The following discussion and economic impact results are related only to the total estimated *incremental* passengers and vehicles to be handled by BC Ferries in 2035. Incremental traffic includes the capacity supported by one additional New Major Vessel and the incremental capacity of the New Major Vessel relative to the capacity of the existing vessels that will be replaced.

The incremental economic impact is considered for the following areas, where possible, quantitative impacts are shown:





1. Estimated employment positions to operate and maintain the new vessels.
2. Tourism spending by non-local visitors, whose travel is facilitated by BC Ferries.
3. The value of commercial cargo that is transported via BC Ferries’ services between Vancouver Island and the Lower Mainland.
4. Agglomeration impacts.
5. Social impacts.

Appendix A includes a summary of the Economic Impact Modelling Methodology.

2.1 Incremental Vessel Operations in 2035

The New Major Vessel Program is scheduled to deliver five NMVs, of which four vessels will replace older vessels in BC Ferries fleet. The New Major Vessel Program will add one additional vessel to BC Ferries fleet, while also increasing the overall capacity for passengers and vehicles compared to the vessels to be replaced. Based on data provided by BC Ferries, it is anticipated that additional jobs will be required to support operations on the vessel, maintenance and terminal operations. Including direct, indirect and induced employment impacts, the total incremental impacts results in 785 jobs, earning \$64 million in wages and generating nearly \$100 million in GDP in British Columbia, as shown in **Figure 2-1**.

Figure 2-1: Economic Impact of Incremental Vessel Employment, 2035

				
Impact	Employment (Jobs)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
<i>Direct, Indirect + Induced – Total BC</i>	785	\$64	\$97	\$213

Note: Totals may not sum, due to rounding. Monetary impacts presented in 2024 dollars.

2.2 Broader Economic Impacts

Beyond BC Ferries employment base to support its operations and maintenance activities, BC Ferries also support and facilitate other economic sectors, known as Catalytic Impacts.

The previous sections document the jobs and GDP associated with the operation and maintenance of the New Major Vessels. However, the economic impact of the ferry services does not end there. The BC Ferries system is critical transportation infrastructure and an extension of the road system to enhance the connectivity of the province. As such, ferry services support and facilitate other economic sectors and business activities – sometimes referred to as

catalytic impacts (as Wider Economic Benefits). This includes a range of tourist activities and spending on Vancouver Island and the Lower Mainland. BC Ferries enables the movement of commercial goods and services, benefiting businesses in the province providing connections to the national and global economy. Ferry services also have an important role in social connectivity, enabling access to health services, education and family connections.

The following sections describe these catalytic and social impacts specific to the proposed NMV Program.

2.2.1 Incremental Tourism Activity in 2035

Tourism is a significant industry in British Columbia's economy, contributing over \$18 billion in revenue in 2022 and supporting \$7.2 billion to the province's GDP. Tourism is one of the largest economic sectors for the province, surpassing industries such as forestry, agriculture and mining.³ There are nearly 17,000 tourism related businesses in the province that serve non-local visitors from within Canada, the US and internationally. Overall, the province welcomed over 3.2 million international visitors, with the province's tourism industry employing nearly 155,000 people.

BC Ferries' services play an integral role in facilitating the movement of these visitors to different parts of the province. Visitors spend money in the province on accommodations, food and beverage, retail, recreation services, and on local ground transportation.

According to BC Ferries' analysis, with the implementation of the New Major Vessel Program, passenger demand is estimated to increase by 382,000 and 198,200 vehicles. Based on BC Ferries Customer Satisfaction Survey results, it is estimated that approximately one-third (34%) of BC Ferries passengers are travelling for leisure/vacation purposes. Of the total incremental passengers, nearly 130,000 are estimated to be non-local visitors that will spend money in the BC economy and generate jobs and other opportunities.

BC Ferries' NMV Program is estimated to facilitate the travel of 130, 000 incremental visitors in 2035, spending over \$45 million in the provincial economy, supporting over 560 total jobs in tourism related industries.

³ Source: <https://news.gov.bc.ca/factsheets/bcs-tourism-industry-a-resilient-economic-driver>

The primary source for estimating direct tourism visitor spending is data from Statistics Canada’s National Travel Survey (NTS) and Visitor Travel Survey (VTS), which provide insights into person-visits and expenditures at the CMA (Census Metropolitan Area) level. An average visitor spending rate of \$353 is used in this analysis.⁴

The estimated annual incremental visitor spend in British Columbia is approximately \$46 million which is spent on accommodations, food and beverage, retail, recreation services, and on local ground transportation industries. **Figure 2-2** displays the economic impact of the incremental non-local visitors travelling on BC Ferries in 2035.

Incremental tourism facilitated by BC Ferries NMV program is estimated to support a total (including direct, indirect and induced) 565 jobs, generating \$43 million in GDP.

Figure 2-2: Summary of Incremental Tourism Activity Facilitated by BC Ferries Operations in British Columbia, 2035

Impact	Employment (Jobs)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
Direct	415	\$14	\$24	\$46
Indirect	95	\$6	\$11	\$19
Induced	55	\$3	\$8	\$12
Total BC	565	\$23	\$43	\$76

Note: Totals may not sum, due to rounding. Monetary impacts presented in 2024 dollars.

2.2.2 Incremental Commercial Truck Traffic in 2035

The BC Ferries system is an important conduit for the movement of goods within BC and onwards to and from global markets. The goods transported range from groceries, consumer goods and construction materials needed by local residents and businesses, to key exports that support Vancouver Island’s key industry clusters, including agriculture and aquaculture, forestry, technology, education, healthcare and manufacturing. BC Ferries is a key facilitator of short sea shipping between the mainland and Vancouver Island, enabling efficient goods movement.

In 2024, it was estimated that commercial vehicles transported goods worth \$8 billion. With BC Ferries operating 185,000 sailings per annum, the average

*Incremental commercial trucks are estimated to carry cargo valued at over **\$240 million** in 2035, with the implementation of the New Major Vessels supporting key industry sectors in British Columbia*

⁴ The average visitor spend of \$353 is based on domestic visitors to BC that visit the Vancouver CMA using water transportation.

value of cargo per sailing was approximately \$43,200. Total commercial truck footage volume handled was 12.8 million. Based on industry average truck lengths, this translates to 330,000 trucks utilizing BC Ferries' services in 2024, implying that the average value of cargo per truck is \$24,100.

In 2035, based on scenario modelling conducted by BC Ferries, the incremental commercial truck footage is estimated to be approximately 480,000. Based on industry average truck lengths, the incremental trucks handled with the New Major Vessels is estimated to be 10,100 trucks. Thus, the estimated value of cargo carried on the incremental truck volume is approximately \$244 million in 2035.

BC Ferries' services are a critical part of the supply chain for the province and its regions and enhancements to its service will only improve the quality and reliability of this vital system.

2.2.3 Agglomeration and Employment

Improving the connectivity provided by BC Ferries' services will reduce the generalized transportation costs (travel time, wait times, reliability, etc.) for businesses, employees and trade activity, unlocking economic benefits for regions of BC. The "travel premium" associated with regions relying on ferry connectivity will be reduced, creating new employment and business development opportunities.

A key element is agglomeration effects that arise from the effective clustering of businesses, services and people through improved transportation links. Agglomeration effects results from the greater exchange of skills, experience and knowledge facilitated by business and employees and being better connected to markets. Businesses have access to a wider and deeper labour pool while residents have access to a great range of jobs. The connectivity provided by ferry services can support increased interaction, competition and collaboration between businesses in different locations. Access to markets is also improved, allowing business to more easily connect with customers and expand the potential customer base. Ultimately, this agglomeration can lead to greater productivity, innovation, and efficiency due to the concentration of resources, knowledge, and networks.

There is a wealth of economic literature on the linkage between transportation infrastructure and agglomeration effects.⁵ Agglomeration impacts are often included in the evaluation of transportation projects.⁶ While agglomeration effects are typically associated with transportation systems serving urban centres, the effect also exist for ferry systems that link urban centres together and providing connectivity for regional communities.

Similarly, the improved connectivity provided by the NMV Program can enhance employment opportunities. Businesses are more likely to locate or expand their operations in regions with good connectivity. Likewise, residents in more remote communities can more easily access employment opportunities without needing to relocate to large urban centres. Improved ferry services make coming and going easier and more flexible, and effectively make "remote" communities less remote.

⁵ See example: Bolter, K. and J. Robey. 2020. "Agglomeration Economies: A Literature Review.", <https://research.upjohn.org/reports/252>.

⁶ For example, the UK's TAG evaluation guidance: webtag-productivity-impacts-tag-unit-a24.pdf (publishing.service.gov.uk).

2.2.4 Social Impacts

BC Ferries services are integral to supporting medical care, education and economic opportunities for British Columbia's communities.

Enhanced ferry services also provide a range of social benefits that enhance the quality of life for individuals and communities. These benefits include increased mobility, community connection and access to services.

In the 2024 BC Ferries Coastal British Columbia Area Travel Demand Survey, 51% of surveyed respondents reported that their use of the BC Ferries' services was primarily to visit friends and relatives (VFR). This

emphasizes the important role that ferry services play in connecting communities and fostering strong familial and social networks.

The ferry system also has an important role in providing access to health care that may not be available locally. The travel demand survey found that 5% of ferry users were travelling for medical reasons. Similarly, students can use ferry services to attend schools or universities in other locations, ensuring access to educational opportunities particularly for those in more remote areas.

BC Ferries' services also have a role in ensuring that services can be made available locally. Some regions have challenges in recruiting key workers such as health care staff, teachers and other government services. Improved ferry services will make living and working in these regions more attractive by enhancing connectivity to and from other parts of the province.

2.3 Summary

With a growing population, aging fleet and increased travel demand, BC Ferries needs to revitalize its fleet through the New Major Vessel (NMV) Program that will replace vessels within the current fleet and increase capacity, allowing BC Ferries to meet future travel demand.

BC Ferries proposed New Major Vessel program is anticipated to result in positive economic impact in British Columbia that will support 785 more jobs to operate and maintain the new vessels. The vessels are also estimated to facilitate incremental tourists to the province resulting in new tourism revenues of approximately \$45 million and supporting over 560 jobs in tourism related sectors. As well, commercial truck volumes are estimated to carry an additional \$240 million in cargo value between Vancouver Island and the Lower Mainland in 2035. Beyond these impacts, there are important agglomeration and social effects that BC Ferries facilitates for the British Columbia's residents and visitors alike.

Appendix A: Economic Impact Modelling

Direct Economic Impacts

Statistics Canada Input-Output multipliers are used to estimate the impacts generated by visitor spending in British Columbia. Visitor spending is assessed by expenditure category (including accommodation, food/beverage, retail, ground transportation) and then economic multipliers for each industry are applied to determine the associated jobs, wages, GDP, and economic output associated with every dollar of visitor spending. GDP is a measure of the monetary value of final goods and services produced as a result of economic activity, while economic output is the dollar value of industrial output produced.

Indirect and Induced Economic Impacts

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of such employers, the survey would need to cover thousands of firms for indirect employment. For induced employment, the entire economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect.

As an alternative to costly and inaccurate surveys, indirect and induced impacts are typically measured using economic multipliers derived from economic, statistical, and/or accounting models of the general economy. Because multipliers can differ in definition and application, care must be exercised in choosing the appropriate set of multipliers to use. Factors affecting the use of multipliers in analysis, and taken into account in this study, include:

- accuracy of the structure and parameters of the underlying model;
- level of unemployment in the economy;
- assumption of constant returns to scale in production;
- assumption that the economy's structure is static over time; and
- assumption that there are no displacement effects.

Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader should be aware of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

2019 Statistics Canada Input-Output Multipliers

The multipliers used for the analysis are based on Statistics Canada economic multipliers for British Columbia from the 2019 Interprovincial Input-Output model, which is recommended by Statistics Canada as the most appropriate to capture impacts associated with current economic conditions.⁷ These multipliers were updated with Consumer Price Indices to account for inflation to 2023. Multiplier impacts are presented at the provincial level.

⁷ While multipliers and ratios are available for the year 2020, guidance from Statistics Canada is to only use the 2020 data for assessments that occur within that year, due to the extraordinary circumstances of the COVID-19 global pandemic. (<https://www150.statcan.gc.ca/n1/daily-quotidien/231208/dq231208f-eng.htm>)



Prepared by

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APPENDIX L Interest Holder Support

This Appendix includes letters of support provided by interest holders.

November 4, 2024

Attention: Nicolas Jimenez, President and CEO, BC Ferries
Via email: communications@bcferries.com

Dear Mr. Jimenez:

The British Columbia Trucking Association (BCTA) is a member-based, non-profit organization dedicated to promoting and representing the commercial road transportation industry in the Province of BC. Our Association represents over 800 commercial trucking and motor coach companies that operate more than 14,000 commercial vehicles and employ over 26,000 British Columbians.

BC Ferries provides an essential service for members of our association. I am pleased to offer our strong support for your plan to build five new major vessels. We feel the fifth vessel in particular is in the public interest and fills a critical need in our future planning by giving us confidence that BC Ferries has the resiliency and capacity necessary to keep the goods the people of BC rely on moving, particularly during peak times, breakdowns or your refit season.

There is no greater priority for our members that certainty and reliability. When goods are delayed for any reason, the impacts are sharp and acute. Groceries do not make it to shelves and consumers notice. Lubricants do not make it to industrial applications and equipment shuts down. The delivery of large equipment is delayed, meaning that people do not go to work and projects get delayed. These are real, immediate consequences that our members work diligently every day moving goods and equipment around North America. When moving to and from Vancouver Island, BC Ferries is a critical link in the supply chain.

What is often not understood is the real and significant cost to BC residents associated with delays. It is very difficult to generalize revenue between dry van (“typical” two axle consumer pallet moves”) and flat deck/low bed moves (large equipment) to bulk carriers (fuel), but a conservative revenue mark for commercial moves, *including smaller class 5-7 trucks*, is \$2000 per day. If one ferry sailing is late or cancelled and drivers miss 4 hours of work, that one sailing with 20 commercial vehicles will cost motor carriers \$20,000. To start.

It is critical to understand the confines our industry operates under. One of these is Hours of Service (HOS) regulations. A four-hour delay will likely put a driver outside their HOS, meaning that the load will not be four hours late, but a minimum of 14 (as the driver must be off duty for a minimum of 10 hours). Plus, the cost of a hotel if the truck does not have a sleeper berth (likely as many island/mainland trips are not planned to be overnight). And meals. As well, the follow-on effect is significant. If that truck is delayed, then then next load, and the next, are delayed, until the cadence of loads allows for the dispatcher to rebalance demands. It is a certainty that follow on costs add considerably more to costs. Again, these are nearly impossible to quantify, but they do accrue logarithmically with longer delays.

Adding to this is, the impacts of delays of the actual goods. If an excavator is bring moved and is delayed, the crew relying on it does not go to work for that day. If the car part does not arrive, the customer does not have their vehicle fixed. This may mean inconvenience and a bus ride for a commuter, or may mean the loss of \$2000+ in revenue every day for a commercial vehicle waiting for a part. Or an entire crew not going to work at all.

Added together, it is not unreasonable to see a single ferry cancelation can cost our sector well over \$100,000, depending on what is on any given sailing. With nearly 3,000 cancelled sailings in 2023 (albeit many on smaller vessels), it is not unreasonable to state that cancellations and significant delays cost the commercial transport sector well over \$100 million per year.

It is critical to understand that every dollar in those costs is passed on to consumers. The trucking industry provides services and must recover their costs to stay in operation. If it costs more, they must bill more. There is only one person who pays those costs – the end consumer.

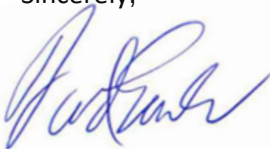
When considering “affordability,” what often is overlooked is how reliability and capacity offset upfront cost. If only four ships are approved, BC Ferries’ capacity growth will fall behind population projections and economic growth, meaning delays, waits and the risk of breakdowns will be worse than they are today. The millions of dollars of costs caused by delays every year will be passed on to consumers; the economic impact for business will not be mitigated.

By approving all five vessels, the Ferry Commissioner will help ensure BC Ferries can keep pace and improve how it serves our members. The consistency we rely on, the crucial predictability required by our members’ customers, will be improved.

While we recognize that there will likely be necessary increases to fares to build these five ships, this is to be expected with the current growth in inflation, increase in ridership, and knowing that the current number of ships aren’t sufficient to meet the movement of goods to and from communities up and down BC’s coast. There is no question that at least five major ships are required so that our members can continue to have reliable, predictable, affordable service.

I encourage you to share this letter with the Ferry Commissioner so she is aware of our members’ strong endorsement and belief that your project, as proposed, is absolutely essential to providing the service continuity required by our members to ensure that coastal BC residents’ needs are met.

Sincerely,



Dave Earle
President and CEO

(604) 787-1335
DaveE@BCTrucking.com



November 4, 2024

Attention: Nicolas Jimenez, President and CEO, BC Ferries

Via email: communications@bcferries.com

Re: BC Ferries New Vessels

Nicolas,

As President & CEO of the British Columbia Hotel Association, I am writing in support of your plan to build five new major vessels to serve our coastal communities. The fifth vessel in particular, is vital for BC Ferries' future planning. It will ensure reliable service during peak times, inevitable breakdowns, and periods for scheduled maintenance.

A new fleet of five vessels will have a hugely positive impact on British Columbia's hospitality industry. It will directly benefit our sector by increasing tourism capacity, improving accessibility to remote destinations, and enhancing overall visitor experience. This will lead to job creation and economic growth in communities across the province. Additionally, a more reliable and efficient ferry service will strengthen our supply chain, ensuring that our hotels and restaurants have consistent access to the goods and services they need to operate successfully.

Approving only four ships will leave BC Ferries' capacity behind population growth for our province. This will worsen existing delays and breakdowns, further straining the fleet. By approving all five vessels, the Ferry Commissioner will help ensure additional resiliency during breakdowns and maintenance and will allow for greater capacity in peak season and year-round. It will also support our local economy and peoples' day-to-day needs. The new vessels will allow reliable access to work, healthcare, and other essential services for people who rely on our coastal ferry system.

Additionally, we are in favour of the climate benefits that come with the innovative technology employed in the new major vessels. They will incorporate hybrid propulsion systems, representing a significant step toward reducing emissions. These ships are designed with the flexibility to convert to full electric operation in the future. By utilizing bio and renewable diesel initially, BC Ferries can minimize emissions now while preparing for all-electric operations as infrastructure evolves. The new major vessels will also significantly reduce underwater radiated noise, ensuring quieter operations – benefiting marine life and enhancing the overall passenger experience.

I respectfully urge you to share this letter with the Ferry Commissioner so she understands our sector's reliance on a strong ferry system here in British Columbia. The BC Hotel Association and our members believe the plan to build five new vessels is integral to the economic health and resilience of our coastal communities. Thank you for your attention to this matter.

Thank you,

A handwritten signature in black ink, appearing to read 'Ingrid Jarrett'.

Ingrid Jarrett
President & CEO, British Columbia Hotel Association
ingrid@bcha.com



November 12, 2024

Attention: Nicolas Jimenez, President and CEO, BC Ferries
Via email: communications@bcferries.com

Nicolas,

On behalf of Destination BC, I am pleased to extend our support for BC Ferries' proposal to add five new major vessels to its fleet, which will play a crucial role in bolstering our provincial tourism infrastructure. BC Ferries' commitment to expanding capacity will be instrumental in maintaining British Columbia's reputation as a top destination of choice for both residents and visitors, supporting our economy and delivering seamless, remarkable travel experiences across the coast and beyond.

The tourism industry in BC relies on dependable, resilient infrastructure to thrive. BC Ferries' proposal to introduce five new vessels – and specifically the net new addition to its fleet – is critical to sustaining and growing our tourism industry, meeting the needs of communities, and supporting the local economies that rely on strong visitation year-round. Without these additional vessels, the forecasted demand on major routes during peak travel seasons will soon exceed capacity. This will inevitably lead to extended wait times and frustrations for residents and visitors, which has the potential to negatively impact our tourism industry—a vital sector for British Columbia, generating \$18.5 billion in annual revenue and adding \$7.2 billion to the BC economy as measured through GDP.

Destination BC is in the process of activating a new strategy developed to more strategically position British Columbia on the global stage. Through new and compelling place and route brands, we are actively working to inspire more travelers to discover more destinations within BC, across all seasons – travelers who will expect the provincial transportation infrastructure to support them through these journeys. For this strategy to succeed, it is critical that BC Ferries have the capacity to meet rising demand and deliver reliable, enjoyable service for all.

This proposal reflects the public interest, offering BC Ferries the infrastructure to support livelihoods, strengthen coastal economies, and sustain our province's tourism industry for generations to come. Moreover, BC Ferries' approach, aligned with cleaner and quieter technologies, will contribute to a more sustainable future for our region – a demonstrated priority for the tourism industry. While we understand that the cost of implementing these improvements may affect fares, we understand that BC Ferries will continue to work with the Province to explore additional revenue streams to minimize this impact on travelers.

We encourage you to share this letter with the Ferry Commissioner to underscore our strong endorsement of this project. BC Ferries' proposed vessels are essential to



ensuring that BC remains a thriving, world-class destination, with a tourism sector that can continue to contribute to our vibrant coastal communities and economic prosperity. Thank you for your attention to this important matter, and for your consideration of the long-term interests of BC's tourism industry and communities.

Sincerely,

A handwritten signature in blue ink that reads 'R Porges'.

Richard Porges
President and CEO, Destination BC



Association of British Columbia Marine Industries (ABCMI)
201-2527 Beacon Avenue, Sidney, BC V8L 1Y1
778.430.2264
contact@abcmi.ca
www.abcmi.ca

October 21, 2024

Attention: Nicolas Jimenez, President and CEO, BC Ferries

Via email: communications@bcferries.com

Re: BC Ferries Plan to Build Five New Major Vessels

Dear Nicolas,

I write to you on behalf of the Association of British Columbia Marine Industries (ABCMI) to state unequivocally that BC Ferries is a major economic contributor to the industrial marine sector in British Columbia and provides an essential service to our industry in the utilization of the products and services of BC companies and embracing new technologies in the marine sector. I'm pleased to offer our strong support for your plan to build five new major vessels. We feel the fifth vessel in particular is in the public interest and fills a critical need in our future planning by giving us confidence that BC Ferries has the resiliency and capacity necessary to keep people and our economy moving during peak times, breakdowns or your refit season.

BC Ferries is an essential part of the supply chain between Vancouver Island and the lower mainland and, without building these five new ships, expects to reach full capacity on its major routes within the next decade, resulting in delays in goods and commutes for people living in these coastal communities. The New Major Vessels will incorporate hybrid propulsion systems, representing a significant step toward reducing emissions. These ships are designed with the flexibility to convert to full electric operation in the future. By utilizing bio and renewable diesel initially, BC Ferries is able to minimize emissions now while preparing for all-electric operations as infrastructure evolves. The New Major Vessels will also significantly reduce underwater radiated noise, ensuring quieter operations – benefiting marine life and enhancing the overall passenger experience. The additional vessel will also support overall noise reduction within the fleet as it will allow BC Ferries to sail an older, noisier vessel, less frequently.

If only four ships are approved, BC Ferries' capacity growth will fall behind population projections for our region meaning delays, waits and the risk of breakdowns will be worse than they are today when we are already feeling the impact of the lack of resiliency in the fleet. By approving all five vessels, the Ferry Commissioner will help ensure BC Ferries can keep pace and improve how it serves our region, with additional resiliency during refits and breakdowns, greater capacity in peak season and year-round, and demonstrable benefits to our climate with cleaner fuels (and the option for electric power) and less noise pollution.

While we recognize that there will likely be necessary increases to fares to build these five ships, this is to be expected with the current growth in inflation, increase in ridership, and knowing that the current number of ships aren't sufficient to satisfy customer expectations. We are also aware that BC Ferries is working with the Province to consider a number of other alternatives for revenue generation in order to minimize future pressures on fares as much as possible.

I'd encourage you to share this letter with the Ferry Commissioner so she is aware of our strong endorsement and belief that your project, as proposed, is essential to keeping coastal BC on the right track as a thriving place to live, work and do business.

Sincerely,

A handwritten signature in blue ink, appearing to be 'AR', followed by a long horizontal line extending to the right.

Alex Rueben
Executive Director

November 19, 2024

Attention: Nicolas Jimenez,
President and CEO, BC Ferries
Via email: communications@bcferries.com

Re. Chamber supports addition of five new vessels to major routes

Dear Mr. Jimenez,

The Greater Victoria Chamber of Commerce has always been a vocal supporter of BC Ferries, dating back to our work in 1953 lobbying the provincial government of the time to create a public ferry service. We continue to call for investment in this important connection between Vancouver Island and B.C.'s Mainland. As the populations of both regions grow, the transportation linkage between them must also grow.

The Chamber strongly supports BC Ferries' plan to build five new major vessels. Adding a fifth vessel is especially critical as it will add resiliency and increase capacity needed to ensure supply chains can operate effectively and that people and goods are able to move efficiently. We know that all vessels require maintenance and can face mechanical challenges. Adding a vessel to this route is the right way to address this. As well, our province's population will continue to grow and proper planning can prevent major ferry routes from experiencing fewer bottlenecks during peak season because of other circumstances that increase demand, such as major events, or limit sailings, such as stormy weather.

The loss of regular sailings is more than an inconvenience for our region. Families rely on the ferries for their food security and industry depends on this transportation link for the materials needed to maintain operations. Our region's strong tourism sector depends on reliable ferry service, and areas outside Greater Victoria absolutely depend on visitors arriving here via BC Ferries.

We also encourage BC Ferries to continue working with the Province on diversifying revenue generation in order to minimize future pressures on fares as much as possible.

Please share this letter with the Ferry Commissioner so she is aware of our strong support for your proposals.

Sincerely,



Bruce Williams
CEO, Greater Victoria Chamber of Commerce

November 8, 2024

Re: Support for BC Ferries' Submission for Approval of Five New Major Vessels

Dear Eva Hage,

I am writing to you in my capacity as CEO of Destination Greater Victoria, our region's official destination marketing and management organization, to express our support for BC Ferries' proposal for the approval of five new vessels, which is essential for the sustained economic and environmental wellbeing of coastal British Columbia.

With coastal population growth expected to continue at a substantial rate, securing additional capacity is vital. This growth is mirrored by an anticipated increase in tourism, which is projected to rise significantly over the next decade. Having more ferry capacity will better serve the expected influx of visitors, ensuring that their travel experiences are smooth and enjoyable. Without this approval, BC Ferries projects that all major routes will reach capacity within the next decade, resulting in increased delays, extended wait times, and potential strain on the fleet's aging infrastructure. Approval of all five vessels will allow BC Ferries to meet rising demand, align with population projections, and provide essential resiliency during times of refits or unexpected breakdowns.

Destination Greater Victoria's latest economic impact study shows the visitor economy has recovered from the effects of the pandemic overall and continues to be a significant driver of employment and economic growth in the region. In 2023, Greater Victoria welcomed 4.9 million visitors, generating \$3.5 billion in economic outputs, contributing \$2 billion to the region's gross domestic product (GDP), contributing \$510 million towards taxes, and supporting 25,000 jobs.

Destination Greater Victoria recently unveiled its 2025-2035 Destination Master Plan, which outlines the vision, goals, and actions for the sustainable development of the visitor economy in the region over the next 10 years. The Destination Master Plan identifies strategic goals and initiatives related to tourism including connectivity and mobility.

By ensuring BC Ferries can provide reliable, sustainable, and capacity-rich service, we can better support our region's visitor economy, enabling growth that benefits both residents and visitors alike. Destination Greater Victoria recognizes that a resilient transportation network is critical to our collective future, and we support BC Ferries' proposal for the approval of these vessels.

Thank you for considering this important initiative to ensure BC Ferries can continue to support the people, communities, and natural environment of our region.

Sincerely,



Paul Nursey
CEO, Destination Greater Victoria



GREATER VANCOUVER BOARD OF TRADE

Greater Vancouver Board of Trade
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E. contactus@boardoftrade.com
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President and CEO
Bridgitte Anderson, ICD.D

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1986 - 87 Graham Clarke
1985 - 86 Arthur Hara, o.c.
1984 - 85 Allen. M. Fowles

November 21, 2024

Nicolas Jimenez
President and CEO, BC Ferries
Sent via email: communications@bcferries.com

RE: GVBOT Support for BC Ferries' New Major Vessels Project

Dear Nicolas,

On behalf of the Greater Vancouver Board of Trade (GVBOT), I am writing to express our support for BC Ferries and their plans to build five new vessels to address capacity shortages and improve system resiliency. This plan is an important step toward meeting the evolving needs of our communities, while facilitating better movement of goods and people to and from B.C.'s island communities.

For over 130 years, the GVBOT has been a key advocate for a thriving and well-connected region. As a vital transportation link connecting Greater Vancouver, and the mainland at large, to other hubs across the province, a reliable and robust BC Ferries service is paramount to ensuring that goods, workers, and travellers can move efficiently to support economic activities.

Over the last five years, our province has grown substantially, with nearly 600,000 new residents. Each day, British Columbians and commercial vehicles depend on BC Ferries' services to reach their destinations. This summer, BC Ferries set new records for passenger and vehicle traffic, transporting over 8 million passengers and 3.15 million vehicles. With many of the 11 major vessels already operating at or near capacity, adding new vessels is essential to keep pace with service demand, particularly during peak travel times, breakdowns, or scheduled maintenance/refit seasons.

With aging vessels nearing the end of their service life after 60 years of operation, and with increasing demand for reliable and frequent service, there is a need to invest in fleet renewal and expansion to sustain B.C.'s connectivity and competitiveness. The New Major Vessels Project, with the addition of the fifth vessel, will enable BC Ferries to better serve the region by providing greater capacity on major routes with new larger vessels and operational flexibility

to address current and future demands from businesses, travellers, and residents. The five new vessels will help meet the region's increasing demand by expanding capacity on major routes, providing a 40% increase for customers and 16% more for vehicles.

Increased reliability, resiliency and capacity are critical to businesses to ensure supply chain continuity, support a mobile workforce, and to boost tourism and local economies. The New Major Vessels Project is a key investment that will help meet the growing demand for transportation needs of our province, supporting the flow of goods, workers, and visitors across the province and strengthening the very foundation of our economy and connectivity.

While we are supporting of the project, we recognize that affordability is top-of-mind for our members in this high-cost environment. We encourage BC Ferries to ensure the procurement of these vessels meets our needs while leveraging opportunities to lower acquisition costs including standardizing ship design and carefully weighing design choices for cost benefit. As you consider revenue avenues to financially support this initiative, we encourage BC Ferries to continue working to explore options to balance affordability with these critical investments. In addition, there should be transparency around procurement decisions and the extent to which the full life-cycle costs and benefits of domestic options are considered. This project has the potential to provide generational opportunities for local jobs and associated benefits that should be meaningfully considered.

We thank your team for reaching out and engaging us on this important project, including a presentation to our Regional Transportation and Infrastructure Committee. We encourage this letter to be shared with the Ferry Commissioner for her consideration. As this project moves forward, we believe it would be beneficial to consider it based on a fulsome analysis, while aligning it with a longer-term strategy that considers potential services from terminals, associated locations, and any other requirements necessary to support future capacity.

Thank you for your commitment to strengthening our maritime transportation infrastructure and for taking proactive steps to ensure the region's future connectivity and prosperity.

Sincerely,

A handwritten signature in black ink, appearing to read "Bridgitte", with a long, sweeping underline.

Bridgitte Anderson
President and Chief Executive Officer
Greater Vancouver Board of Trade