

Dollars and Sense: Canada's Surface Combatant Costs

Dave Perry

In February 2020 the Parliamentary Budget Officer (PBO) will release an updated costing of the navy's Canadian Surface Combatant (CSC) project. Currently budgeted at between \$56-60 billion, the PBO is likely to report that substantially more money is needed to deliver the CSCs. That report could be a seminal moment in the project's life, and that of the Royal Canadian Navy. In no small measure the future of Canada's navy is intrinsically linked to the CSC project, as at present it represents the entirety of Canada's government approved and funded naval combat fleet.

There is significant reason to be wary about a report from PBO finding a significant gap between how much money the Department of National Defence (DND) believes the project will require for successful completion and its own estimate. As well, the report will be released to a minority Parliament during a worldwide economic crisis which is placing severe strains on Canadian federal finances. If that situation sounds familiar, it is because those same conditions were present when the PBO reported in 2011 that much more money than DND was reporting publicly at the time would be needed to acquire the F35 fighter jet. That report initiated a sequence of events that derailed the project, and a decade later, Canada still has not bought a new fighter jet, although bids have been received under the revamped competition. If the PBO finds more money is needed for the CSC project, that could spell trouble.

As it stands, the last PBO costing from 2019 estimated the budget should be closer to \$70 billion than to \$56-60 billion. Two key things have changed since then that will likely push its estimate higher. First, there are rumblings that the project is facing significant delays, placing delivery of a first ship in the 2020s out of reach. In its last effort, the PBO pegged the cost of an additional year of delay at over \$2 billion.¹

It is unclear where exactly the project stands as the government has said virtually nothing about the progress of the project since February 2019 when Lockheed Martin Canada was confirmed as Canada's winning bidder and the project entered into a critical period of detailed design work. Canadian officials and Irving Shipbuilding, the project's prime contractor, have been reviewing the detailed bid to understand it fully, make changes and translate the bid proposal into the actual ship that will be built in Halifax. That effort is complicated, time consuming and arguably more difficult than the phases of the project that came before it, and in those earlier phases the project consistently missed one milestone after another. It is

moving forward, but there is no evidence suggesting that the pace of the project has improved as the work became more difficult and that is without trying to account for any COVID-related impacts. Using the PBO's last report, a delay of just a couple of years on its own could increase costs by about \$5 billion.

The second key change between the PBO's last report and the present time relates to the actual ship itself and what Canada intends to build. When the PBO last costed the project, its analysis was based on the Royal Navy's Type 26 frigate, which had been identified at the time as the ship design upon which the winning submission was based. But the Type 26 was just the starting point for that bid, as Lockheed proposed modifying that ship design extensively to ensure it meets the navy's requirements and provides the economic benefit required by the government. Since submitting that bid in October 2018, the requirements have gone through a 'reconciliation' process that was either finished a long time ago, just finished recently, or is still ongoing, depending on whom you ask. While the parameters of this process have been fuzzy, it seems to have resulted in significant additional combat capability being added to Canada's future warships. As one assessment put it, the ship will be "brimming with missiles,"² including modern anti-air, area-air and anti-surface weapons



A CF-188 Hornet at Mihail Kogălniceanu Air Base, Romania, on 27 October 2020 as part of Canada's contribution to NATO operations in Europe. Nine years after the Parliamentary Budget Office report on the rising costs of the Hornet replacement, the Future Fighter Capability program remains in its competition stage.

Credit: S1 Zach Barr, Air Task Force Romania

CANADIAN SURFACE COMBATANT



The right ship for the RCN. The right ship for Canada.



Surveillance & Weapon Sensors

- Solid State 3D Active Electronically Scanned Array (AESA) Radar – LMC SPY-7
- Solid State AESA Target Illuminator – MDA
- Navigation Radars – X & S Band
- Electro-Optical and Infrared Systems

Electronic Warfare & Countermeasures Suite

- Radar/Radio ESM Frequency Identification
- Laser Warning and Countermeasures System
- Radio Frequency and Electronic Jammers
- Electronic Decoy System

Command & Control

- Combat Management System – LMC CMS 330 with AEGIS
- USN Cooperative Engagement Capability – Sensor Netting
- Integrated Cyber Defence System
- Integrated Bridge and Navigation System – OSI
- Internal and External Communication Suite – L3 Harris

Aviation Facilities

- 1 x CH-148 Cyclone Helicopter
- Space for embarking Remotely Piloted Systems
- Helo Hauldown and Traverse System – Indal Technologies Inc.

Weapons

- Missile Vertical Launch System 32 Cells – LMC MK 41
- Area Air Defence Missiles – Raytheon Standard Missile 2
- Point Defence Missiles – Raytheon Evolved Sea Sparrow
- Naval Fires Support – Raytheon Tomahawk
- Main Gun System – 127mm

Weapons

- Lightweight Torpedoes MK54 & Twin Launch Tubes
- Close-In Air Defence System – MBDA Sea Ceptor
- Surface-to-Surface Anti-Ship Missile – Kongsberg Naval Strike Missile
- 2 x Stabilized Rapid Fire 30mm Naval Gun System – BAE

Reconfigurable Mission & Boat Bays

- 1 x Rescue Boat – 9 metres
- 2 x Multi-Role Boats – 9-12 metres
- Mission Bay Handling System – Rolls Royce
- Modular Mission Support Capacity – Sea Container, Vehicles, Boats

Propulsion & Power Generation

- Combined Diesel-Electric or Gas Propulsion System (CODLOG)
- 2 x Electric Motors – GE
- 1 x Gas Turbine – Rolls Royce MT 30
- 4 x Diesel Generators – Rolls Royce MTU
- Integrated Platform Management System – L3 Harris

Integrated Underwater Warfare System

- Towed Low Frequency Active & Passive Sonar – Ultra Electronics
- Hull-Mounted Sonar – Ultra Electronics Sonar S2150
- Towed Torpedo Countermeasures – Ultra Electronics SEA SENTOR S21700
- Sonobuoy Processing System – General Dynamics
- Expendable Acoustic Countermeasures

Specifications:

Length: 151.4 metres
 Displacement: 7800 tonnes
 Range: 7000 nautical miles
 Beam: 20.75 metres
 Navigational Draught: ~8m
 Class: 15 ships
 Speed: 27 knots

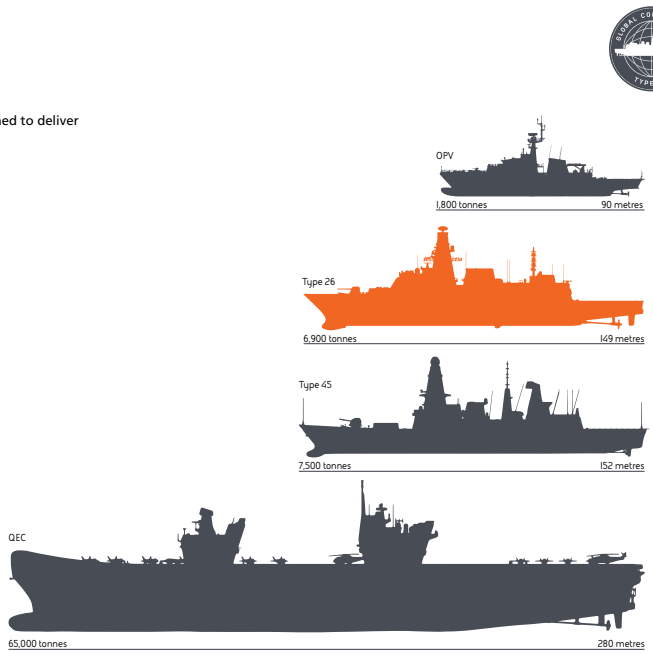
Habitability:

Accommodations: ~204
 Medical Facilities
 Shipboard Wi-Fi
 Dedicated Gym/Fitness Facilities

Type 26 Global Combat Ship

A highly capable multi mission warship optimised for Anti-Submarine Warfare and designed to deliver the full range of complex combat operations and contribute to global security.

| | |
|---|---|
|  Range In excess of 7000 nautical miles |  Speed 26+ knots |
|  Beam 20.8 metres |  Crew 157 |
|  Accommodation Up to 208, including Embarked Forces |  Propulsion 2 electric motors 4 high speed diesel generators 1 gas turbine |
|  Flexible mission bay Space for 10 x 20ft ISO containers or boats and unmanned vehicles |  Flight deck Capable of landing a Chinook helicopter |



A Royal Navy infographic shows the baseline Type 26 within the fleet architecture of the Royal Navy. Eight Type 26s will be built in addition to five cheaper Type 31 frigates. Unlike the RCN, the RN has dedicated anti-air warfare destroyers in the form of the Type 45, and thus its Type 26 lacks the long-range air defence capabilities planned for the CSC.

◀ OPPOSITE PAGE This infographic for the Canadian Surface Combatant was released by the navy in November 2020. It highlights some of the major characteristics including sensors, weapons fit and dimensions of the CSC, which differ considerably from the baseline Type 26 design.

Canadian ships have previously carried as well as the new-to-Canada Tomahawk land-attack missile and the land-attack function it will provide.

The net result, as material recently released by the RCN makes clear, is that the CSC as currently envisioned is a very different ship than the Type 26. It is both heavier and longer. And while the hull and related systems are largely the same, virtually the entire combat system is different. Costing out the differences between the major components of the combat system would presumably be a key feature of the PBO's report, including the radar, major weapons systems, combat management system, and the Cooperative Engagement Capability sensor network. Similarly, the PBO might try and assess the implications of Canada acquiring a ship with a purpose-built combat system and the extensive design and systems integration work that will be required to make it combat effective, including the impact on schedule.

As we await the PBO's report, it is worth remembering that the organization has developed a solid track record of estimating the costs of ships built under the National Shipbuilding Strategy. If it finds that significantly more money is needed to deliver this project, that may be a good sign that Canada should revisit the governance and management of this project to ensure it is being managed well. The

project's schedule keeps drifting and some of the most difficult work lies ahead. Ensuring we have project management and governance that can effectively manage an extraordinarily complicated developmental project is the best way to keep the project's costs down and deliver the navy Canada needs.

While the federal government has been acting like money is no object since the COVID pandemic started, that sentiment is unlikely to last forever, and this project could see some orders being placed more than a decade from now. World-class management of this project is imperative to deliver both world-class ships and best value for Canadian taxpayer dollars. **CNR**

Notes

1. Office of the Parliamentary Budget Officer, "The Cost of Canada's Surface Combatants: 2019 Update," available at https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/2019/Canada-Surface-Combatants-update/CSC_Update_2019_Report_E.pdf.
2. Joseph Trevithick, "Canada's New Frigate will be Brimming with Missiles," *The Drive*, 13 November 2020, available at <https://www.thedrive.com/the-war-zone/37506/canadas-new-frigate-will-be-brimming-with-missiles>

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