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REPORT 7

Operating and Maintenance Support for Military Equipment—National Defence

Office of the Auditor General of Canada

Bureau du vérificateur général du Canada

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Introduction

Background

Equipment support

7.1 Under the 2008 *Canada First* Defence Strategy, the Canadian Armed Forces must be prepared to undertake six core missions:

- Conduct daily domestic and continental operations, including in the Arctic.
- Support a major international event in Canada, such as the Olympic Games.
- Respond to a major terrorist attack.
- Support civilian authorities during a crisis in Canada, such as a natural disaster.
- Lead and/or conduct a major international operation for an extended period.
- Deploy forces in response to crises elsewhere in the world for shorter periods.

7.2 National Defence, composed of the Canadian Armed Forces and the Department of National Defence, determines the capabilities that it needs based on the six core missions contained in the *Canada First* Defence Strategy. To a large extent, delivering these capabilities depends on military equipment (ships, submarines, airplanes, helicopters, and land vehicles) being available and kept in good working condition and having the necessary trained personnel. To achieve this, military equipment requires support. In this audit, "support" refers to operating and maintenance activities that include engineering, training, inspection, maintenance and repair of equipment, and provision of spare parts.

7.3 There is inherent complexity and unpredictability in forecasting equipment support that cannot be eliminated. National Defence must plan above minimum needs, so that its equipment is ready to respond to changing circumstances. These operating and maintenance support activities are crucial to the **availability** and **reliability** of military equipment and need to be managed in a cost-effective manner to maximize the life of the equipment. Responsibility for equipment support

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Availability—The proportion of time during a stated period that a type of military equipment is in an operable state (not undergoing maintenance) in relation to the total time it is needed for operations.

Reliability—The ability of equipment to consistently perform its intended function according to its specification.

is shared among the three environments of the Canadian Armed Forces (Royal Canadian Air Force, Canadian Army, and Royal Canadian Navy), the Military Personnel Command, and the Assistant Deputy Minister (Materiel).

7.4 National Defence maintenance and repair activities are performed by Canadian Armed Forces technicians or by private sector firms.

- Simple and short-term preventive maintenance and minor repair activities are performed relatively frequently by civilians and military personnel on bases across the country or in the field. These tasks can take hours or days to be completed.
- Lengthier and more complex inspection, major repair, or complete equipment overhaul activities are centrally managed by the Assistant Deputy Minister (Materiel). These tasks are performed by National Defence or by the private sector in specialized facilities and can take days, weeks, or months to complete.

7.5 The largest equipment support budget is the National Procurement program, managed by the Assistant Deputy Minister (Materiel). The program has an annual budget of about $2.5 billion, or approximately 13 percent of National Defence's overall budget. This program purchases spare parts and contracts with private companies and foreign governments for maintenance, including more in-depth maintenance such as extensive equipment overhaul.

7.6 Of the more than 30 major types of equipment, we selected six to examine in this audit (Exhibit 7.1). Their annual contracted support costs are estimated to be approximately $700 million.

Roles and responsibilities

7.7 **National Defence.** The *National Defence Act* establishes National Defence and the Canadian Armed Forces as separate entities, operating within an integrated National Defence Headquarters, as they pursue their primary responsibility of providing defence for Canada and Canadians. National Defence is responsible for the construction and maintenance of all defence establishments and works for the defence of Canada and for research relating to the defence of Canada and the development of and improvements in materiel. "Materiel" includes items such as vessels, vehicles, aircraft, animals, missiles, arms, ammunition, clothing, stores, provisions, or equipment.

7.8 **Public Services and Procurement Canada (formerly Public Works and Government Services Canada)**. Under the *Defence Production Act*, Public Services and Procurement Canada has the authority to buy or otherwise acquire defence supplies required by National Defence, including service contracts for the repair and maintenance of defence equipment.

Exhibit 7.1 In this audit, we examined six types of equipment

Equipment	 **CC-130J Hercules** Tactical airlift aircraft that replaced 19 E-model CC-130 aircraft for international and domestic operations.	 **CC-177 Globemaster III** Strategic airlift aircraft that is used in domestic and international operations to deliver personnel and cargo.	 **CH-148 Cyclone** Maritime helicopter that will replace the Sea King helicopter and provide surveillance and control, utility, and search and rescue missions.
Number of units	17	5	28
Date of equipment delivery	2010–2012	2007–2015	2018–2021 (planned for helicopters meeting all stated requirements)
Estimated equipment acquisition cost (not including other costs such as infrastructure)	CAN$1.6 billion	CAN$1.6 billion	CAN$1.9 billion
Estimated costs of support contracts (including initial set-up costs)	US$1.4 billion over 11.5 years, plus CAN$173 million over 20 years for aircrew training	US$500 million for 10.5 years	CAN$5.8 billion over 23 years
Equipment life expectancy	40 years	37 years	25 years

Source: National Defence documents, photos, and equipment support contracts

Exhibit 7.1 In this audit, we examined six types of equipment (continued)

Equipment	 **CH-147F Chinook** Medium-to-heavy lift helicopter that is used for tactical transport of equipment and personnel during domestic or deployed operations, such as responding to humanitarian emergencies or natural disasters.	 **Tactical armoured patrol vehicle** Wheeled combat vehicle that will be used in high-threat environments abroad for reconnaissance and surveillance, command and control, and cargo, and as an armoured personnel carrier.	 **Victoria-class submarines** Strategic armed submarines that patrol over vast distances. Because of their stealth capabilities, they are used for surveillance and intelligence gathering to help control territory, airspace, and maritime areas of jurisdiction.
Number of units	15	500	4
Date of equipment delivery	2013–2014	2016–2017	2000–2004
Estimated equipment acquisition cost (not including other costs such as infrastructure)	CAN$1.2 billion	CAN$643 million	CAN$480 million
Estimated costs of support contracts (including initial set-up costs)	US$416 million for 5 years, plus CAN$112 million over 20 years for aircrew training	CAN$105 million over 5 years	CAN$1.3 billion over 10 years from 2008
Equipment life expectancy	25 years	25 years	22–26 years

Source: National Defence documents, photos, and equipment support contracts

Previous audit

7.9 In our 2011 audit of Maintaining and Repairing Military Equipment, we determined whether National Defence planned and managed the maintenance and repair of military aircraft, ships, and land vehicles to meet operational and training requirements. In that audit, we concluded that there was a lack of cost and performance information as well as a significant gap between the demand for maintenance and repair services and the funds available.

7.10 We also found that the costs to maintain replacement equipment were higher than those for existing equipment because the new equipment was more complex. National Defence did not regularly monitor the impacts of postponing repair and maintenance. In addition, National Defence indicated it was likely that, in its long-term Investment Plan for new equipment, it had not allocated sufficient funds for equipment support for the full life cycle of the equipment.

Focus of the audit

7.11 This audit focused on whether National Defence managed equipment support in a cost-effective manner, so that military equipment was available and reliable to meet the Canadian Armed Forces' operations and training requirements. We selected six types of equipment to examine: CC-177 Globemaster III strategic airlift aircraft, CH-148 Cyclone maritime helicopters, CH-147F Chinook medium-to-heavy lift helicopters, CC-130J Hercules aircraft, Victoria-class submarines, and tactical armoured patrol vehicles. In this audit, "cost-effective" is defined as the extent to which National Defence used the most appropriate and efficient means to achieve expected results with due regard to costs relative to alternative design and delivery approaches.

7.12 This audit is important because Canadians rely on National Defence to have equipment that is available and reliable to meet operational and training needs. Support costs need to be managed properly because, over the life of the equipment, they can be more than twice the acquisition costs. The life of equipment would be shortened if the equipment is not adequately maintained, thereby requiring additional investments.

7.13 We did not audit the records of private sector firms. Accordingly, our conclusions do not pertain to private sector practices. We also did not audit the contract award process.

7.14 More details about the audit objective, scope, approach, and criteria are in **About the Audit** at the end of this report (see pages 25–27).

Findings, Recommendations, and Responses

Support for selected military equipment

Overall message

7.15 Overall, for the selected equipment we examined, we found that National Defence did not adequately manage support in a cost-effective manner and paid for a higher level of service than it used. National Defence had made some initial planning assumptions that overestimated equipment use, underestimated support costs, and under-resourced personnel requirements. These assumptions led to higher costs and reduced equipment availability for training and operations. However, National Defence has taken some steps to make improvements, such as renegotiating an equipment support contract to improve its value for money.

7.16 National Defence monitored actual expenditures for maintaining equipment. However, we found that it did not monitor total support costs, including personnel, operating, and maintenance costs, against its estimate of the full costs to support equipment over its life. In addition, in some cases, due to poor quality of its data, management did not have the information that would allow it to properly monitor contractor performance.

7.17 This is important because poor planning decisions can result in paying for unused services and not having the necessary equipment available when it is needed. Managing equipment in a cost-effective manner will better allow National Defence to have available and reliable equipment to meet its future operational and training needs.

Context

7.18 In 2006, National Defence implemented the In-Service Support Contracting Framework as the default approach for equipment support contracts for all new types of equipment. According to this framework, the contractor—the equipment manufacturer—is accountable for providing equipment support, including in-depth maintenance. The contract for support can be for as long as the life of the equipment. Contractor responsibilities included the ownership and management of spare parts, and the management of all subcontractors. The six types of equipment we selected for this audit (Exhibit 7.1) were supported using this framework.

7.19 National Defence expected that using this framework would improve value for money for equipment support because this new approach would cost less than historical contracting approaches or could get more support for the same cost. By 2014, this contracting framework was no longer the default for support contracts. However, existing contracts negotiated under the framework will still be in effect for decades, and our findings apply to any contracting framework or approach.

National Defence did not adequately manage support for selected equipment in a cost-effective manner

What we found

7.20 We found that, based on subsequent events, National Defence had made some initial planning assumptions that overestimated equipment use, underestimated support costs, and under-resourced personnel requirements. Consequently, higher-than-estimated support costs and the lack of personnel contributed to reduced availability and use of the selected equipment we examined.

7.21 National Defence did not optimize value for money with the support contracts for the selected equipment we examined. We found that as a result of these initial planning assumptions, National Defence paid for a higher level of service than it used. The significant fixed costs associated with these contracts reduced funding available for other equipment. However, National Defence has taken some steps to make improvements, such as renegotiating an equipment support contract.

7.22 We also found that National Defence did not estimate the total costs to support the equipment over its expected life. Although National Defence monitored actual expenditures for maintaining equipment, we found that it did not monitor total support costs, including personnel, operating, and maintenance costs, against its estimate of full life-cycle costs. We also found that funds dedicated to support some equipment were spent for other purposes.

7.23 Our analysis supporting this finding presents what we examined and discusses

- planning assumptions,
- life-cycle costs,
- investment planning, and
- use of incremental funds.

Why this finding matters

7.24 This finding matters because without appropriate information and management processes to plan and monitor whether resources were spent in a cost-effective manner, National Defence would be unable to ensure it has enough resources to keep equipment in good working condition and available to meet operational and training needs.

Recommendations

7.25 Our recommendations in these areas of examination appear at paragraphs 7.35, 7.48, and 7.52.

Analysis to support this finding

7.26 **What we examined.** We examined six types of equipment (Exhibit 7.1) to determine whether National Defence had appropriate processes in place to plan and monitor equipment support activities and costs.

7.27 **Planning assumptions.** We found that, based on subsequent events, National Defence had made some initial planning assumptions that overestimated equipment use, underestimated support costs, and under-resourced personnel requirements. Consequently, higher-than-estimated support costs and the lack of personnel contributed to reduced availability and use of the selected equipment we examined (Exhibit 7.2).

7.28 We found that for three of the four aircraft we examined, the number of annual hours flown was considerably less than the original assumption upon which the contract was based. Because National Defence's planned use of equipment was overestimated, and this level was incorporated in the contract and the basis of payment, National Defence paid for a higher level of service than it used. These payments covered the contractor's costs, such as establishing and maintaining an inventory of spare parts and tools, program management, technicians, and engineering services to support the estimated higher level of flying per year than actually occurred.

7.29 For example, under the Chinook helicopter support contract, National Defence pays for a parts and maintenance system designed to support the **expected steady state** of 7,200 hours of flying per year, with a fixed minimum payment of about $75 million per year. In addition, after 3,100 hours flown, there would be an additional cost for each hour flown. In the 2015–16 fiscal year, the helicopters were in the air for 2,492 hours. As a result, National Defence paid for a level of service it did not use. For this contract, there is a start-up period before reaching the expected steady state.

7.30 We also found that National Defence expected to fly the CC-130J Hercules aircraft between 10,000 to 15,500 hours per year. The contractor is required to provide support for 11,900 hours of flying per year. For this, in the 2015–16 fiscal year, the contractor was paid a fixed amount of about $70 million regardless of the amount flown, plus an additional amount for each flying hour. We found that the aircraft flew for an average of about 5,300 hours per year for the past five years. Consequently, National Defence paid for a higher level of service than it used.

Expected steady state—The planned normal operating level of the equipment.

Exhibit 7.2 Some initial planning assumptions for the support of selected equipment were inaccurate

Assumption	Actual situation and impact	Examples
Support costs for new equipment will be the same or less than for the previous equipment.	Support costs were as much as two to three times more than those of previous equipment due to enhanced operational capability and additional contractor responsibilities. ***Impact:*** These costs put pressure on availability of funds to support other types of equipment.	• The support contract to maintain the Cyclone helicopter includes some services that were previously performed by National Defence, such as managing spare parts and warehousing, support, and maintenance for training programs. The contract will be about $5.8 billion to 2038 (plus departmental operating costs), about three times the cost of supporting the 50-year old Sea King helicopter. • The support costs to maintain the CC-130J Hercules aircraft is approximately $18,000 per flying hour compared with $11,000 per flying hour for the previous Hercules model.
Equipment will be delivered on schedule.	Some delivery schedules were significantly delayed. ***Impact:*** These delays resulted in increased costs for such things as extending the life of the previous equipment, and increased personnel costs to support old and new equipment. It also resulted in not having the new equipment for training and operations.	• The Cyclone helicopters' expected delivery date of 2008 was delayed to 2018 for helicopters meeting all stated requirements. This required the reversal of modifications to ships that will house the Cyclone. It also required $2.3 billion more in support costs to align the contract with the revised delivery schedule for an additional 10 years to 2038. The delay will also result in reduced capacity for training and operations. • The expected delivery date of 2014 for tactical armoured patrol vehicles was delayed, and the first vehicles were received in August 2016. This delay required National Defence to retain its older equipment for a longer period, and it did not have this new equipment, with its improved capabilities such as protection and mobility, available for training and operations.
Level of effort for support activities is predictable.	The level of effort for submarine maintenance was significantly more than expected. ***Impact:*** This increased effort led to delays in equipment availability, the need for additional personnel, and higher costs.	• Victoria-class submarines reached a normal operating level in December 2014, 14 years after the first submarine was received. National Defence told us that at the time of the acquisition, it did not know the level of effort required for in-depth maintenance and, as a result, underestimated the cost. When the support contract was awarded, National Defence estimated that in-depth maintenance would take less than one year per submarine, at a cost of $35 million each. Although the in-depth maintenance period was reduced from 6 years to 4 years for each submarine, the most recent one cost $321 million. Higher-than-expected costs led to an increased allocation for submarine support after only 8 years—from $1.7 billion to $2.6 billion.

Exhibit 7.2 Some initial planning assumptions for the support of selected equipment were inaccurate (continued)

Assumption	Actual situation and impact	Examples
Personnel will come from crews operating and servicing existing equipment.	Insufficient personnel were allocated to operate and support the equipment. ***Impact:*** The shortage of personnel reduced the level of equipment usage, availability, and maintenance that could be carried out.	• To support the Chinook helicopter, the Royal Canadian Air Force initially estimated 641 members, was approved for 482, and allocated 403 to operate and support the helicopter. However, as of July 2016, it had filled only 322 positions. There were not enough maintenance personnel, pilots, and crew to support and fly at the level that was originally planned. • For the CC-130J Hercules aircraft, the equipment support contractor stated that National Defence would require 350 maintenance personnel to maintain 17 aircraft; however, as of July 2016, only 251 positions were filled. Furthermore, there were 34 percent fewer pilots than planned.
New equipment will operate as planned or at the same level as previous equipment.	Equipment operated less due to funding and personnel constraints. ***Impact:*** National Defence • paid for a level of service it did not use, • could not meet all operational and training requirements, and • had excess capacity.	• The CC-130J Hercules aircraft, Chinook helicopter, and Globemaster aircraft were flying less than originally planned (Exhibit 7.3). • Submarines were operating less each year than planned.

7.31 National Defence recognized that its assumptions in the equipment support contract for the CC-130J Hercules aircraft were inaccurate and did not optimize value for money. In 2015, as contemplated in the contract with the original equipment manufacturer, Public Services and Procurement Canada renegotiated the pricing and other terms. The contract was amended so that the fixed pricing is now based on three levels of pricing for different ranges of flying hours, thereby allowing some flexibility with the intent to improve its value for money.

7.32 Contracted support costs for the six selected types of equipment are expected to be about $700 million annually. These contracts provided greater cost predictability for future years. However, when faced with budget constraints in the 2013–14 fiscal year, high fixed costs resulted in having to reduce the use of all types of equipment without similar contractual obligations.

7.33 Furthermore, when National Defence purchased a fifth Globemaster aircraft, its stated assumption was that it did not need additional personnel to support five Globemaster aircraft at the same flying level as the original four aircraft. However, we found that acquiring the fifth aircraft increased the need for maintenance, requiring additional overtime to ensure the aircraft were available.

7.34 Consequently, these examples show that inaccurate initial planning assumptions made when establishing these contracts for equipment support led to higher costs and in some cases reduced equipment availability.

7.35 **Recommendation.** National Defence should ensure that future equipment support contracts are based on achievable planning assumptions and allow for adjustments in the contracts based on changing circumstances, where feasible.

National Defence's response. *Agreed. Through National Defence's governance processes, as a project or program matures towards implementation, National Defence will ensure that a challenge function occurs during the Senior Review Board, Defence Capability Board, Programme Management Board, and Investment and Resource Management Committee, in order to ensure sponsors have based their expected outcomes on achievable planning assumptions.*

Further, increased flexibility usually results in a cost premium in a contractual environment, and there is a need to find the right balance between operational flexibility and cost efficiency. Therefore, National Defence, along with Public Services and Procurement Canada and Innovation, Science and Economic Development Canada, launched the Sustainment Initiative in June 2016 with the objective of subjecting all military sustainment programs to a rigorous Sustainment Business Case Analysis. This analysis aims at balancing equipment performance, value

for money, flexibility, and economic benefits. Implementation has started and will continue over the next few years as each applicable contract is analyzed.

7.36 **Life-cycle costs.** Treasury Board policies that were in place at the time the contracts were signed and those in effect today require departments to consider all relevant costs (acquisition, infrastructure, personnel, operating, and maintenance costs) over the expected useful life of equipment, known as life-cycle costs. Departments must therefore consider life-cycle costs and not just the initial acquisition cost. Careful planning and full costing are needed to ensure that adequate funds are available to support the equipment over its expected life.

7.37 We examined whether National Defence considered all life-cycle costs when acquiring the six selected types of equipment. We found that it did not. When National Defence sought acquisition approval for the selected equipment, the full life-cycle costs were not complete. For example, National Defence normally presented support costs for approval based on 20-year estimates instead of the equipment's life expectancy, which can be up to 30 years. In any event, we found estimates for the equipment we examined did not always include personnel, operating, or infrastructure costs. All six types of equipment did not have costs for refitting equipment at a halfway point in its useful life or for replacing lost or damaged equipment. National Defence told us that costs were estimated based on information available at the time.

7.38 For the Cyclone helicopter, we found that National Defence presented operating and maintenance costs that were not complete and not clear. In 2004, the purchase of 28 Cyclone helicopters to replace the Sea King helicopters had an acquisition cost of $1.8 billion. National Defence should have presented full life-cycle costs based on the Cyclone helicopter's 25-year estimated life. However, we found that the estimates National Defence presented did not include personnel or infrastructure costs, nor operating costs beyond 12 years. In 2004, National Defence signed a 20-year support contract for equipment maintenance at a cost of $2.3 billion.

7.39 If National Defence had included all personnel, operating, and maintenance costs over the life of the Cyclone helicopter, we estimate that the total support costs would have been more than three times the acquisition cost of the new helicopter and about three times the operating and maintenance costs of the previous helicopter. Since the expected delivery date for fully operational helicopters was delayed from 2008 to 2018, the support contract was extended to 2038 and increased to $5.8 billion. National Defence has not updated life-cycle costs in its Investment Plan to reflect this extension. As a result, it will be difficult for National Defence to know the additional personnel, operating, and maintenance costs for the new helicopters and to ensure sufficient resources are set aside to meet operational and training requirements.

7.40 We also examined whether once it acquired new equipment, National Defence monitored all its costs, including personnel, operating, and maintenance costs, against its original estimate of full life-cycle costs. We found that while National Defence monitored actual expenditures for maintaining equipment, it did not monitor total support costs, such as personnel and operating costs, against the life-cycle estimates. In the last two years, National Defence has established a costing centre of expertise to improve financial decision making on affordability and to perform cost validation earlier in the equipment approval process.

7.41 In our 2011 audit, we recommended that National Defence develop a means of monitoring overall and equipment-specific total cost information for maintenance and repairs. In response to our recommendation, National Defence stated that by December 2013, it would use its financial and materiel information system, the Defence Resource Management Information System (DRMIS), to record and monitor overall and equipment-specific total cost information for its maintenance and repair activities, such as personnel, contracted services, spare parts, maintenance equipment, and infrastructure costs.

7.42 We found that National Defence did not use DRMIS as the source of information on overall and equipment-specific costs for maintenance and repair. In addition, because DRMIS does not contain full life-cycle cost information, National Defence could not monitor actual costs for personnel, operating, and maintenance to support each type of equipment. This means that National Defence could not ensure estimates and assumptions were realistic. Although National Defence monitored maintenance expenditures by type of equipment, it did not monitor total support costs against original estimates; and it used initial assumptions to make decisions on the acquisition, affordability, and support of the equipment. Our recommendation on life-cycle costs is in paragraph 7.48.

7.43 **Investment planning.** Treasury Board policy requires that a department's investment plan take into account not just the acquisition of assets but their full life-cycle costs, including support costs and acquired services. We found that the most recent National Defence Investment Plan from 2014 did not include full life-cycle costs for the six types of equipment we examined.

7.44 The 2014 Investment Plan focused on the acquisition costs of future equipment purchases. It did not include full life-cycle costs to support all of the equipment we examined, such as ongoing personnel, operating, and maintenance. Contracted maintenance costs were detailed by type of equipment in the plan. However, we found that maintenance costs totalling $3.7 billion for two of the six selected types of equipment were not included in the Investment Plan, and that maintenance costs for three of the six selected types of equipment were understated by roughly $5.0 billion.

7.45 In addition, the 2014 Investment Plan noted that additional operating and maintenance costs were rough estimates and were likely understated. Recently, National Defence started to improve its costing capabilities and investment planning and expects that its 2017 Investment Plan will include details of contracted goods and services greater than $20 million.

7.46 National Defence's internal reports identified a potential funding gap in the National Procurement program that could increase to about $1 billion over the next 10 years without adding resources or restricting operations and training. There were two main reasons for this growing gap. First, support costs for new equipment were significantly higher because the new equipment is more complex. Second, some new equipment had support contracts with significant minimum fixed fees (see paragraphs 7.28 to 7.31).

7.47 Updated full life-cycle costs, including support costs and acquired services in the Investment Plan, are needed to make sure that sufficient funds are set aside to use the equipment as planned, or National Defence will have to significantly reduce its level of operational and training requirements.

7.48 **Recommendation.** National Defence should prepare and regularly update life-cycle cost estimates at key decision points for each type of equipment and monitor actual costs against revised estimates. It should also update its Investment Plan to reflect more complete life-cycle costs.

National Defence's response. *Agreed. National Defence has consistently enhanced its cost-estimating capacity, including the recent establishment of the Centre for Costing in Defence and the institution of a robust training and certification program for cost-estimating specialists. As part of the Defence Policy Review and in support of the development of the 2017 Investment Plan, cost estimates for all planned and ongoing projects are being refreshed and updated to reflect a more complete life-cycle cost estimate. As part of the 2017 Investment Plan development, National Defence expects to deliver a plan that identifies individual acquired goods and services investments over $20 million as well as life-cycle costs on a program basis. The development of these products by the end of 2017 will demonstrate significant progress towards addressing this recommendation. Additionally, National Defence will update and monitor life-cycle costs at key decision points.*

7.49 **Use of incremental funds.** Treasury Board requires that when National Defence is allocated incremental funds from the government's fiscal framework—that is, additional funds for items such as new equipment and operating and maintenance costs—it must use those funds specifically for that purpose. This funding should be tracked separately for the intended equipment and not made available for different equipment. We found that National Defence did not monitor whether it used all of these funds for the intended equipment and in some cases for other

purposes. For example, we found that National Defence was allocated $140 million a year in incremental funding for Globemaster aircraft support, but spent only $79 million in the 2015–16 fiscal year.

7.50 We also found that National Defence was allocated $115 million for support for the Chinook helicopter in the 2014–15 fiscal year and $137 million per year thereafter. At least $5 million from the 2014–15 fiscal year was not spent to support the Chinook and was redistributed to other equipment. We found that National Defence delayed some support activities of its Chinook aircraft to the following year and reallocated a portion of these funds to other activities.

7.51 Since National Defence did not track the additional funds provided for specific equipment, it did not know if they had been used for other purposes. Furthermore, without having full life-cycle costs of assets, including support costs and acquired services, in the Investment Plan, National Defence may not set aside sufficient funds to support the equipment as planned. Otherwise, it will have to significantly reduce the level of operational and training requirements.

7.52 **Recommendation.** National Defence should clarify, in consultation with the Treasury Board of Canada Secretariat and the Department of Finance Canada, the use of incremental funds provided to National Defence, and ensure that these funds are appropriately monitored and used.

National Defence's response. *Agreed. National Defence has been managing in-service support funds through the National Procurement Oversight Committee and related processes known to the Treasury Board of Canada Secretariat and the Department of Finance Canada and deemed acceptable. As part of the ongoing discussions with these central agencies, we will seek to clarify the use of incremental funds from the accrual envelope (fiscal framework) and ensure National Defence processes meet expected management practices.*

Selected equipment was not used as planned due to lack of personnel and funding

What we found

7.53 We found that National Defence did not adequately plan and monitor resource requirements to support the equipment we examined. As a result, National Defence did not use the selected equipment at the originally planned operating and training levels because of delays in equipment delivery and lack of personnel and funding for operations and maintenance. In addition, we found that due to poor quality of its data, management did not have the information that would have allowed it to properly monitor the performance of support contractors.

7.54 Our analysis supporting this finding presents what we examined and discusses

- operating requirements,
- human resource capacity, and
- contract performance measures.

Why this finding matters

7.55 This finding matters because without sufficient financial and human resources for equipment support, National Defence cannot carry out its required operations and training. To realize the benefits of performance-based contracts, sound performance information is required.

Recommendations

7.56 Our recommendations in these areas of examination appear at paragraphs 7.65 and 7.69.

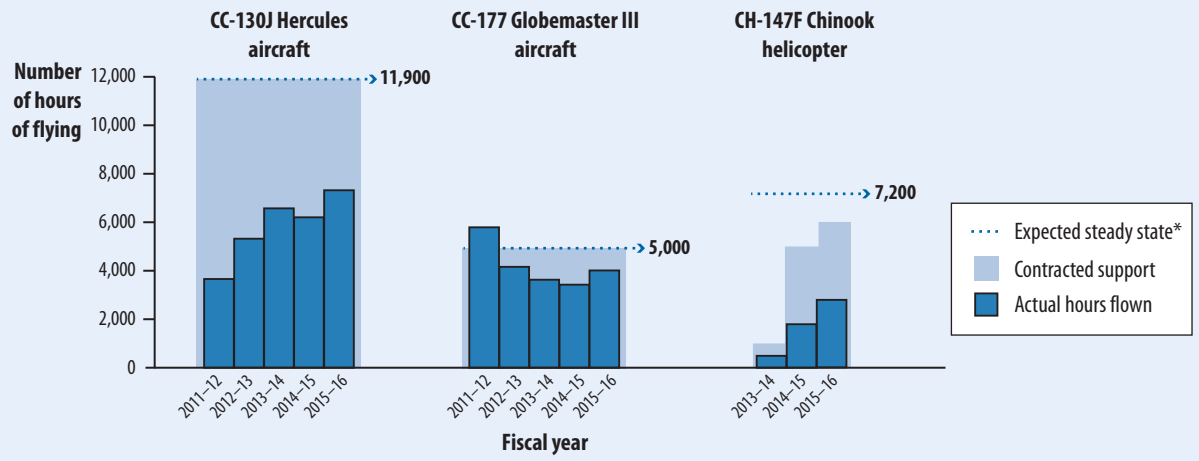
Analysis to support this finding

7.57 **What we examined.** We examined, for the selected equipment, whether National Defence had appropriate processes, information, and performance measures in place to plan and monitor equipment support activities. In our examination of equipment support, we included financial and human resources capacity and contractor performance, to ensure that the equipment was available and reliable to meet operating and training requirements.

7.58 **Operating requirements.** We found that the six types of equipment we examined were not always available for operations and training. The delivery was significantly delayed for two types of equipment, as previously mentioned in Exhibit 7.2, resulting in National Defence not having the equipment for operations and training. In addition, three types of aircraft (Exhibit 7.3) and the Victoria-class submarine (paragraph 7.60) were operating below their original planned usage, which according to National Defence was needed to meet the requirements of the *Canada First* Defence Strategy.

7.59 In certain cases, the contracts reflected a reduced number of flying hours or a start-up period before reaching the expected steady state. We found that actual usage was below original expectations due to a lack of personnel and funding for operations and maintenance. In the 2015–16 fiscal year, actual equipment usages compared with their expected steady states for the CC-130J Hercules aircraft, Globemaster aircraft, and Chinook helicopter were 62 percent, 80 percent, and 39 percent, respectively.

Exhibit 7.3 Three aircraft flew fewer hours than the expected steady state



* The planned normal operating level of the equipment

Source: National Defence documents and equipment support contracts

7.60 The Royal Canadian Navy expected to have three out of four Victoria-class submarines available for operations each year for a total of 420 sea days. We found that in the past five years, the number of sea days for the two or three submarines in operation ranged from 87 to 246 days each year. In the 2015–16 fiscal year, actual equipment usage compared with its expected steady state for the submarine was 59 percent. National Defence told us that this lack of submarine availability was due to delays in performing ongoing support and in-depth maintenance. Not having enough sea days meant reduced training opportunities for the submarine crews.

7.61 We found that for a number of years, the support budgets for the Victoria-class submarines, CC-130J Hercules and Globemaster aircraft, and Chinook helicopter were significantly below what was required to meet operational and training requirements. Reduced funding levels can also affect future years' equipment availability. In the 2014–15 fiscal year, National Defence reduced its planned usage of the Globemaster fleet to 4,000 hours per year, due in part to budget constraints, while the support contract still remained at 5,000 hours and a fifth aircraft was purchased. In accordance with the agreement, support costs are reconciled to actual hours flown at the end of each fiscal year.

7.62 **Human resource capacity.** We found that National Defence, when acquiring the new selected equipment, assumed that personnel would come from crews operating and servicing existing equipment. National Defence identified risks related to not having enough personnel with the right skills to carry out equipment support and to operate the equipment, including enough trained pilots, technicians, weapon system managers, and contracting staff. However, we found that National Defence was unable to resolve these risks and fully staff these positions for a number of

reasons. For example, there were training delays and challenges in recruiting and retaining pilots and technicians. We also found that National Defence had difficulty in training Victoria-class submarine crews given the lack of available time at sea.

7.63 There was also a shortage of personnel at National Defence to negotiate, monitor, and challenge contractor performance.

7.64 The federal government's *Canada First* Defence Strategy stated that the Canadian Armed Forces was to increase its target of Regular Force members to 70,000, partly to support the acquisition of new equipment. However, this target was not implemented. National Defence set its goal at 68,000 and has not reallocated personnel to adequately support new equipment.

7.65 **Recommendation.** National Defence should better define and integrate resource requirements in the initial decision-making process for equipment approval and support. National Defence needs to monitor and manage equipment support risks in a comprehensive and integrated manner to ensure sufficient personnel and funds are aligned with operations and training requirements.

National Defence's response. *Agreed. National Defence is developing a comprehensive human resources strategy, which will provide the governance framework for examining the right balance and mix from each element of the National Defence team (Regular Force, Reserve Force, and civilian members) to support the initial decision. National Defence will continue engaging the Independent Review Panel for Defence Acquisition to ensure a transparent third-party review of the associated risks and management plan. National Defence is also conducting a National Procurement Corporate Account Review, which has as an objective to align resource inputs to deliver the required material readiness to meet directed operational and training tasks.*

7.66 **Contract performance measures.** National Defence used performance-based equipment support contracts to achieve a specific level of equipment availability. The contracts included measures designed to promote contractor performance. We examined whether National Defence managed contractor performance in accordance with contract requirements. We found that, in some cases, due to poor quality of its data, management did not have the information that would allow it to properly measure contractor performance.

7.67 We found that for the selected equipment, performance measures were included in the support contracts. These measures included, for example, the turnaround time for repairs, the availability of spare parts, and the reliability of repairs. For the Chinook helicopter and CC-130J Hercules aircraft, the performance data was poor and unreliable as recorded in National Defence's Defence Resource Management Information System. Additional manual information had to be compiled. For instance,

for the CC-130J Hercules, in many cases the data accuracy was below 50 percent. Consequently, performance measures were not used to assess contractors' performance. In the 2016–17 fiscal year, improvements have been made for certain measures. To realize the benefits of performance-based contracts, sound performance information is required.

7.68 With the Chinook helicopter contract, National Defence could not apply measures designed to promote contractual performance until the helicopter reached 7,100 flying hours in a year. The Chinook has flown fewer than 3,000 hours in each year since it was delivered, well below its normal operating level. Consequently, National Defence has not realized the full benefits from this performance-based contract.

7.69 **Recommendation.** National Defence should improve the data quality in its information system in order to better manage equipment support.

National Defence's response. *Agreed. Several initiatives are in progress that will directly or indirectly improve data quality in the Defence Resource Management Information System (DRMIS). These include, but are not limited to, initiatives such as the Inventory Management Modernization and Rationalization Project, the National Stocktaking Project, and the implementation of materiel accountability action plans.*

Additionally, the Information Management Group will continue to implement the required changes and improvements in functionality in DRMIS to improve the quality of the existing data and incorporate the new desired data in accordance with the priorities established by the Materiel Group.

Integrated resource planning at the departmental level

National Defence made limited progress on integrating its planning and oversight of equipment support

Overall message ➔

7.70 Overall, we found that National Defence, at a departmental level, did not adequately manage the resources used to support military equipment in a cost-effective manner to meet operational and training requirements. We found that National Defence created new oversight bodies and was reviewing its governance and processes to improve resource management. However, we also found that these activities were focused on acquiring the equipment and that the oversight of equipment support activities, such as comparing results achieved with resources used, was limited.

7.71 We also found that while National Defence had established performance measures in support contracts, it did not develop similar measures of its own performance. Furthermore, the information National Defence presented in its annual Departmental Performance Report on equipment availability was not meaningful.

7.72 This is important because accountability to Parliament ensures appropriate control of public resources. Effective governance is needed for National Defence to make fully informed decisions to prioritize spending and ensure it can afford to sustain the equipment for its life cycle to meet operational and training requirements.

7.73 Our analysis supporting this finding presents what we examined and discusses

- integrated resource planning and governance,
- National Defence's performance, and
- reporting on performance.

Context

7.74 Annually, National Defence carries out a business planning and budgeting process. It identifies its priorities and activities, including equipment support, for the upcoming year and estimates the resources needed to carry out these activities. In addition, Treasury Board policy requires public performance reporting to Parliament and Canadians through an annual Departmental Performance Report. In its Departmental Performance Report, National Defence reports on, among other things, the availability of its major equipment.

Recommendations

7.75 Our recommendations in these areas of examination appear at paragraphs 7.84, 7.87, and 7.91.

Analysis to support this finding

7.76 **What we examined.** We examined whether National Defence appropriately managed support at the departmental level to meet operational and training requirements in an affordable manner.

7.77 **Integrated resource planning and governance.** In our 2009 audit Financial Management and Control—National Defence, we found that there were few processes to support integrated resource management decision making. We recommended that National Defence review its senior management committee structure for more strategic oversight and challenge. Furthermore, in response to our 2011 audit, National Defence agreed to review its governance structure for managing its equipment support to ensure adequate and timely departmental oversight.

7.78 In this audit, we found that National Defence had made some improvements. For example, it launched a new contracting approach in June 2016, where it analyzes and challenges business cases when proposing new equipment support contracts or amendments.

7.79 National Defence has created new oversight bodies and has been reviewing its governance and processes to improve resource management at the departmental level. National Defence created an Investment and Resource Management Committee in 2013 to provide advice to the Deputy Minister, to provide oversight on priorities and requirements regarding the *Canada First* Defence Strategy, and to make operational decisions in a more integrated manner. In addition, National Defence initiated a review in October 2014, which was ongoing, to better align funds allocated to the Assistant Deputy Minister (Materiel) for equipment repair and maintenance with the operational tasks and requirements of the Royal Canadian Air Force, the Canadian Army, and the Royal Canadian Navy. National Defence has also conducted a number of independent studies and reviews.

7.80 These studies provided recommendations to streamline governance; however, there are now more processes and additional oversight committees. We also found that these activities were focused on acquiring the equipment. Our concern is that while additional monitoring may make for better decisions, it can also contribute to delays and inefficiencies in making acquisition and equipment support decisions.

7.81 Annual plans for equipment maintenance are developed based on the anticipated level of equipment usage for operations and training. Planning and prioritization of the National Procurement budget under the Assistant Deputy Minister (Materiel) is managed in close collaboration with the three environments. However, we found that integrated resource management and oversight for equipment support activities, such as comparing results achieved with resources used, were still limited.

7.82 Each year, planning for personnel and operating budgets (such as fuel) for equipment support was carried out separately by the three environments of the military and the Assistant Deputy Minister (Materiel), who were responsible for equipment support. In addition, the Military Personnel Command planned for the number of personnel, their recruitment, and the training of operating and maintenance members. While these plans included a three-year view of financial and personnel risks, they did not include a longer-term view on how National Defence will meet its objectives. However, each group then adjusted its plan to reflect available funds and personnel. For more discussion of personnel resource gaps at National Defence, see the 2016 Fall Reports of the Auditor General of Canada, Report 5—Canadian Armed Forces Recruitment and Retention—National Defence.

7.83 Having a more strategic approach that is aligned with the annual resource planning process, involving capital acquisitions, investment planning, and budgeting, would allow National Defence to have a more comprehensive and integrated view to better align resources with operations. It would also help manage the potential funding gap for National Procurement, which was mentioned in paragraph 7.46. Planning in an integrated manner would allow National Defence to provide more predictable, stable resources for operations and maintenance instead of continuing to react to changing circumstances.

7.84 **Recommendation.** National Defence should take action to streamline governance processes and better integrate resource planning for equipment support.

National Defence's response. *Agreed. National Defence has responded to several significant changes in policy and governance, which in turn have had an impact on the approval process. There has been a reduction in the number of Treasury Board submissions being processed while National Defence implemented Government of Canada requirements to put into place more robust checks and balances. The implementation of National Defence's Project Approval Process Renewal initiative will facilitate a more streamlined governance process and enable National Defence to achieve the required rate of file completion. One of the Defence Procurement Strategy's three key objectives is to streamline defence procurement processes. Finally, National Defence is further evolving the processes within the Programme Management Board and the Investment and Resource Management Committee with a goal of further streamlining National Defence's governance.*

7.85 **National Defence's performance.** In response to questions about our 2011 audit, National Defence told the House of Commons Standing Committee on Public Accounts that it would develop performance measures on its maintenance and repair activities in its financial and materiel information system by December 2013.

7.86 We found that while National Defence had established performance measures in support contracts with private sector firms, it did not develop similar measures for its own performance. For instance, it did not measure how long it should take to provide spare parts for equipment through its supply depots.

7.87 **Recommendation.** National Defence should measure its own performance on how well it manages equipment support.

National Defence's response. *Agreed. The implementation of the Departmental Results Framework currently under way will establish equipment support performance measures and associated calculation methodologies, including instructions for performance data entry, validation, and review in information systems. Once the new*

framework is implemented in 2017, National Defence will be in a better position to improve the monitoring of, and reporting on, updated performance measures.

7.88 **Reporting on performance.** Treasury Board policy requires that public performance reporting to Parliament and Canadians be based on sound financial and non-financial performance information to ensure accountability for results and to demonstrate sound stewardship. We examined whether National Defence's reporting on equipment availability in its 2014–15 Departmental Performance Report, under section 4.2.1: Materiel—Portfolio Management, was accurate and complete. This measures the percentage of key types of equipment available to meet operational and training requirements in accordance with the *Canada First* Defence Strategy.

7.89 We found that certain information on equipment availability in National Defence's Departmental Performance Report was not calculated in a complete and consistent manner. For example, National Defence used a different measure for internal purposes than in its Departmental Performance Report. For internal purposes, it measured the actual availability compared with planned availability for each type of equipment. We found that neither the Chinook helicopter nor the CC-130J Hercules aircraft were included in the aggregate calculation for the performance measure of availability reported in the Departmental Performance Report. We also found that each of the Canadian Armed Forces' environments defined fleets (types of equipment) differently. For example, the Royal Canadian Navy split the four submarines into two fleets (one east coast and one west coast), while the Royal Canadian Air Force combined several types of aircraft into one fleet (helicopters and aircraft). We also noted that when aggregating the overall calculation, National Defence included 100 percent availability for the submarines, whereas its internal reports showed that they were available for only 42 percent of their planned sea days.

7.90 Based on these examples, we found that the information on equipment availability provided to Parliament was not consistent or meaningful. Furthermore, information on equipment availability in National Defence's Departmental Performance Report excluded the equipment that was not operated due to insufficient personnel and operating funds.

7.91 **Recommendation.** National Defence should implement a process to measure and report on equipment availability and apply it in a consistent manner for internal and public reporting purposes.

National Defence's response. *Agreed. The implementation of the Departmental Results Framework currently under way will establish equipment availability and serviceability performance measures that ensure consistency in reporting and communicate broader departmental requirements. Once the new framework is implemented in 2017, National Defence will be in a better position to improve the monitoring of, and reporting on, updated performance measures.*

Conclusion

7.92 We concluded that for the six types of equipment examined and at a departmental level, National Defence did not adequately manage the resources used to support military equipment in a cost-effective manner, to meet operational and training requirements. However, National Defence has taken some steps to make improvements, such as renegotiating an equipment support contract to improve its value for money.

7.93 Some initial planning assumptions, for the types of equipment we examined, overestimated equipment use, underestimated support costs, and under-resourced personnel requirements, which led to higher costs and reduced equipment availability. The equipment support contracts had fixed costs (representing large sums of money) resulting in National Defence paying for a higher level of service than it used, thereby reducing funding available for other equipment.

7.94 There is inherent complexity and unpredictability in forecasting equipment support. Today's investment decisions for major equipment will have significant financial impacts for decades to come. National Defence must plan above minimum needs so that it has sufficient equipment available to respond to changing circumstances. Decisions to purchase equipment such as surface combatants and next-generation fighter aircraft will need to carefully consider the equipment's full life-cycle costs to ensure that the equipment are put to their optimal use in a cost-effective manner.

About the Audit

The Office of the Auditor General's responsibility was to conduct an independent examination of National Defence's support of military equipment, to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government's management of resources and programs.

All of the audit work in this report was conducted in accordance with the standards for assurance engagements set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.

As part of our regular audit process, we obtained management's confirmation that the findings in this report are factually based.

Objective

The objective of this audit was to determine whether National Defence managed equipment support in a cost-effective manner, so that military equipment was available and reliable to meet the Canadian Armed Forces' operational and training requirements.

In this audit, "cost-effective" means the extent to which National Defence used the most appropriate and efficient means to achieve expected results with due regard to costs relative to alternative design and delivery approaches.

Scope and approach

The audit examined the management of equipment support, including six selected types of equipment: CC-177 Globemaster III strategic airlift aircraft, CH-148 Cyclone maritime helicopters, CH-147F Chinook medium-to-heavy lift helicopters, CC-130J Hercules aircraft, Victoria-class submarines, and tactical armoured patrol vehicles. We examined the progress made by National Defence on issues raised in our 2011 audit of Maintaining and Repairing Military Equipment. We interviewed officials at National Defence and Public Services and Procurement Canada, as well as Canadian Armed Forces members located in National Defence's headquarters in Ottawa and on Canadian Forces bases in Trenton and Petawawa.

We did not audit the records of private sector firms. We also did not audit the contract award process.

Criteria

Criteria	Sources
To determine whether National Defence managed equipment support in a cost-effective manner, so that military equipment was available and reliable to meet the Canadian Armed Forces' operational and training requirements, we used the following criteria:	
National Defence is appropriately managing support to sustain its military equipment in an affordable, productive, and financially sustainable manner to meet operational and training requirements. In this audit, "appropriately" means making decisions based on a clearly communicated rationale that takes into account risks and government policies and departmental directives.	• Policy on Investment Planning—Assets and Acquired Services, Treasury Board • Policy on Management of Materiel, Treasury Board • Policy on Financial Management Governance, Treasury Board • Policy Framework for Financial Management, Treasury Board • Policy Framework for the Management of Assets and Acquired Services, Treasury Board • Framework for the Management of Risk, Treasury Board • Guide to Integrated Risk Management, Treasury Board of Canada Secretariat
National Defence has taken actions in response to recommendations from the 2011 Fall Report of the Auditor General of Canada, Chapter 5—Maintaining and Repairing Military Equipment—National Defence.	• Policy on Internal Control, Treasury Board • Policy on Financial Management Governance, Treasury Board • Policy on Active Monitoring, Treasury Board
For selected equipment platforms, National Defence has an appropriate process in place to plan, monitor, and report on equipment support activities, costs, and risks to ensure that resources are spent in a cost-effective manner and that equipment is available and reliable for operational and training requirements. In this audit, "appropriate" means making decisions based on a clearly communicated rationale that takes into account risks and government policies and departmental directives.	• Policy on the Management of Projects, Treasury Board • Policy on Management of Materiel, Treasury Board • Policy Framework for Financial Management, Treasury Board • Framework for the Management of Risk, Treasury Board • Guide to Integrated Risk Management, Treasury Board of Canada Secretariat • Guide to Management of Materiel, Treasury Board of Canada Secretariat • An In-Service Support Contracting Framework for Canadian Forces Platforms during the Initial Acquisition Stage, National Defence • Defence Administrative Order and Directive 3022-0, Procurement of In-Service Support for CF Platforms, National Defence • Defence Administrative Order and Directive 3022-1, Management of Procurement of In-Service Support for CF Platforms, National Defence

Criteria	Sources
To determine whether National Defence managed equipment support in a cost-effective manner, so that military equipment was available and reliable to meet the Canadian Armed Forces' operational and training requirements, we used the following criteria: (continued)	
National Defence has information on full life-cycle costs for the selected equipment platforms, which is used to support long-term decision making and manage the affordability of equipment support activities.	• Policy on Management of Materiel, Treasury Board • Policy on Investment Planning—Assets and Acquired Services, Treasury Board • Policy on the Management of Projects, Treasury Board • Contracting Policy, Treasury Board • Guide to Management of Materiel, Treasury Board of Canada Secretariat • Guide to Costing, Treasury Board of Canada Secretariat • Project Approval Directive, National Defence • Equipment Management Team Handbook, National Defence
For selected equipment support contracts, National Defence and Public Services and Procurement Canada have performance measures for availability and reliability and manage contractor performance in accordance with contract requirements, in a cost-effective manner.	• An In-Service Support Contracting Framework for Canadian Forces Platforms during the Initial Acquisition Stage, National Defence • Policy Framework for the Management of Assets and Acquired Services, Treasury Board • Guide for the Development of Results-based Management and Accountability Frameworks, Treasury Board of Canada Secretariat • A Guide to Preparing Treasury Board Submissions, Treasury Board of Canada Secretariat • Policy on Management, Resources, and Results Structures, Treasury Board • In-Service Support: Best Practices of Selected Countries, National Defence

Management reviewed and accepted the suitability of the criteria used in the audit.

Period covered by the audit

The audit covered the period between 1 January 2006 and 30 June 2016. Audit work for this report was completed on 30 September 2016.

Audit team

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List of Recommendations

The following is a list of recommendations found in this report. The number in front of the recommendation indicates the paragraph where it appears in the report. The numbers in parentheses indicate the paragraphs where the topic is discussed.

Recommendation	Response
Support for selected military equipment	
7.35 National Defence should ensure that future equipment support contracts are based on achievable planning assumptions and allow for adjustments in the contracts based on changing circumstances, where feasible. **(7.27–7.34)**	**National Defence's response.** Agreed. Through National Defence's governance processes, as a project or program matures towards implementation, National Defence will ensure that a challenge function occurs during the Senior Review Board, Defence Capability Board, Programme Management Board, and Investment and Resource Management Committee, in order to ensure sponsors have based their expected outcomes on achievable planning assumptions. Further, increased flexibility usually results in a cost premium in a contractual environment, and there is a need to find the right balance between operational flexibility and cost efficiency. Therefore, National Defence, along with Public Services and Procurement Canada and Innovation, Science and Economic Development Canada, launched the Sustainment Initiative in June 2016 with the objective of subjecting all military sustainment programs to a rigorous Sustainment Business Case Analysis. This analysis aims at balancing equipment performance, value for money, flexibility, and economic benefits. Implementation has started and will continue over the next few years as each applicable contract is analyzed.
7.48 National Defence should prepare and regularly update life-cycle cost estimates at key decision points for each type of equipment and monitor actual costs against revised estimates. It should also update its Investment Plan to reflect more complete life-cycle costs. **(7.36–7.47)**	**National Defence's response.** Agreed. National Defence has consistently enhanced its cost-estimating capacity, including the recent establishment of the Centre for Costing in Defence and the institution of a robust training and certification program for cost-estimating specialists. As part of the Defence Policy Review and in support of the development of the 2017 Investment Plan, cost estimates for all planned and ongoing projects are being refreshed and updated to reflect a more complete life-cycle cost estimate. As part of the 2017 Investment Plan development, National Defence expects to deliver a plan that identifies individual acquired goods and services investments over $20 million as well as life-cycle costs on a program basis. The development of these products by the end of 2017 will demonstrate significant progress towards addressing this recommendation. Additionally, National Defence will update and monitor life-cycle costs at key decision points.

Recommendation	Response
7.52 National Defence should clarify, in consultation with the Treasury Board of Canada Secretariat and the Department of Finance Canada, the use of incremental funds provided to National Defence, and ensure that these funds are appropriately monitored and used. **(7.49–7.51)**	**National Defence's response.** Agreed. National Defence has been managing in-service support funds through the National Procurement Oversight Committee and related processes known to the Treasury Board of Canada Secretariat and the Department of Finance Canada and deemed acceptable. As part of the ongoing discussions with these central agencies, we will seek to clarify the use of incremental funds from the accrual envelope (fiscal framework) and ensure National Defence processes meet expected management practices.
7.65 National Defence should better define and integrate resource requirements in the initial decision-making process for equipment approval and support. National Defence needs to monitor and manage equipment support risks in a comprehensive and integrated manner to ensure sufficient personnel and funds are aligned with operations and training requirements. **(7.58–7.64)**	**National Defence's response.** Agreed. National Defence is developing a comprehensive human resources strategy, which will provide the governance framework for examining the right balance and mix from each element of the National Defence team (Regular Force, Reserve Force, and civilian members) to support the initial decision. National Defence will continue engaging the Independent Review Panel for Defence Acquisition to ensure a transparent third-party review of the associated risks and management plan. National Defence is also conducting a National Procurement Corporate Account Review, which has as an objective to align resource inputs to deliver the required material readiness to meet directed operational and training tasks.
7.69 National Defence should improve the data quality in its information system in order to better manage equipment support. **(7.66–7.68)**	**National Defence's response.** Agreed. Several initiatives are in progress that will directly or indirectly improve data quality in the Defence Resource Management Information System (DRMIS). These include, but are not limited to, initiatives such as the Inventory Management Modernization and Rationalization Project, the National Stocktaking Project, and the implementation of materiel accountability action plans. Additionally, the Information Management Group will continue to implement the required changes and improvements in functionality in DRMIS to improve the quality of the existing data and incorporate the new desired data in accordance with the priorities established by the Materiel Group.
Integrated resource planning at the departmental level	
7.84 National Defence should take action to streamline governance processes and better integrate resource planning for equipment support. **(7.77–7.83)**	**National Defence's response.** Agreed. National Defence has responded to several significant changes in policy and governance, which in turn have had an impact on the approval process. There has been a reduction in the number of Treasury Board submissions being processed while National Defence implemented Government of Canada requirements to put into place more robust checks and balances. The implementation of National Defence's Project Approval Process Renewal initiative will facilitate a more streamlined governance process and enable National Defence to achieve the required rate of file completion. One of the Defence Procurement Strategy's three key objectives is to streamline defence procurement processes. Finally, National Defence is further evolving the processes within the Programme Management Board and the Investment and Resource Management Committee with a goal of further streamlining National Defence's governance.

Recommendation	Response
7.87 National Defence should measure its own performance on how well it manages equipment support. **(7.85–7.86)**	**National Defence's response.** Agreed. The implementation of the Departmental Results Framework currently under way will establish equipment support performance measures and associated calculation methodologies, including instructions for performance data entry, validation, and review in information systems. Once the new framework is implemented in 2017, National Defence will be in a better position to improve the monitoring of, and reporting on, updated performance measures.
7.91 National Defence should implement a process to measure and report on equipment availability and apply it in a consistent manner for internal and public reporting purposes. **(7.88–7.90)**	**National Defence's response.** Agreed. The implementation of the Departmental Results Framework currently under way will establish equipment availability and serviceability performance measures that ensure consistency in reporting and communicate broader departmental requirements. Once the new framework is implemented in 2017, National Defence will be in a better position to improve the monitoring of, and reporting on, updated performance measures.