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Canadian Coast Guard | Garde côtière canadienne

INTEGRATED INVESTMENT PLAN
2011/12 – 2015/16

1962 - 2012

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Canadian Coast Guard

An honoured past, a committed future

Canada

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Canadian Coast Guard – Investment Plan 2011/12 – 2015/16

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TABLE OF CONTENTS

MESSAGE FROM THE COMMISSIONER

For the past 50 years, the Canadian Coast Guard has been a symbol of service and safety. The women and men we call our own have not only provided years of excellence in service delivery, but have embodied the ideals the Coast Guard has come to represent.

As we are poised to celebrate our 50th Anniversary in 2012, our organization will be planning a series of events to honour our contributions to Canada as a maritime nation. But as we celebrate our past, we must also look to the future. Greater demands for our services, a changing climate in the Arctic, advancements in technology and expectations for a greater presence in the North have all set the tone of what we must strive to become.

Following a period of significant investment in the renewal of our seagoing assets, and in the maintenance of our current fleet, the Canadian Coast Guard has entered a period of fiscal restraint. In the recent Speech from the Throne, the Government of Canada announced that jobs and growth remain its top priority while they focus on eliminating the deficit. As such, the fiscal realities are now bringing additional challenges for the Agency.

However, these challenges also harbour great opportunities. We now need to think and operate more strategically and really focus on where we want to be – not only in the short term, but over the next 10 to 20 years. We will also need to look for better ways of delivering our services effectively and cost-efficiently, and examine whether technology can provide new options for our traditional ways. This is why it is important to ensure that we make the right decisions for our future.

As such, I am very pleased to present the Canadian Coast Guard's *2011-2016 Integrated Investment Plan*. This five-year investment plan is a vital component of Coast Guard's overall strategic vision. The plan outlines how we, as a Special Operating Agency of Fisheries and Oceans Canada, will invest our financial resources to maximize service delivery to our

clients. Our planned investments are reflective of the priorities identified in our annual Business Plan. By using a five-year planning horizon, we are able to provide sustained investments into the Agency's asset base and meet the expectations of our clients.

Through the Economic Action Plan, Coast Guard was provided with funds to address many investment needs that would have otherwise been unattainable. Through this plan, you will see that the agency will maintain a more stringent focus on our investment decisions, and will continue to work with other Fisheries and Oceans Canada sectors in order to align priorities and ensure these types of investments are addressed.

Investment planning is a critical activity that allows Coast Guard to deliver the highest quality of service to Canadians. Through solid, strategic investment planning, we will ensure that our resources are effectively allocated to our highest priorities and those of our clients.

Original signed by **Marc Grégoire**
Commissioner, Canadian Coast Guard

INTRODUCTION

The Canadian Coast Guard's (CCG) Integrated Investment Plan (IIP) lays out the organization's planned investments over the 2011/12 to 2015/16 timeframe. By completing a capability gap analysis, an alternative analysis and a peer review process, the Special Operating Agency (hereinafter referred to as "the Agency") identified and targeted assets to address its most urgent program requirements. For this planning cycle, Coast Guard has identified over $1.8 billion in investments with multiple funding sources in support of continued program delivery.

DID YOU KNOW?

A **Capability Gap Analysis** is an exercise that compares target capabilities and those capabilities made possible with assets currently in place. This allows an organization to identify gaps in its ability to fulfill its mandate.

An **Alternative Analysis** is an exercise that identifies a reasonable suite of options to address capability gaps and establishes a preferred option which will be developed into an investment proposal.

Peer Review is a process of self-assessment that involves qualified individuals from across the country. This group ranks each investment proposal to ensure resources are allocated to the highest priorities.

By focusing on its urgent program requirements, CCG is in a better position to consider alternatives to asset ownership such as acquired services. While this investment planning process ensures that funding is directed to the highest priorities, the current asset reinvestment rate is not high enough to ensure that critical assets can be replaced at the end of their operational life. Coast Guard should leverage alternatives to new assets where possible (e.g. finding other ways to deliver a service rather than investing in infrastructure) to utilize taxpayers' monies efficiently and effectively.

The IIP is intended to be a management tool against which performance can be measured. This plan is an expanded version of the Canadian Coast Guard material found in the Investment Plan for Fisheries and Oceans Canada (DFO) that is submitted to Treasury Board for approval every three years.

Coast Guard's Integrated Investment Plan is divided into four sections:

1. **Investment Planning Context** sets the stage for our proposed investment decisions by focusing on these sub-sections:
   - Who We Are and What We Do
   - The Assets We Use to Support Our Programs
   - Our Investment Requirements
   - Investment Funding Available to CCG
   - How We Make Investment Decisions

2. **Investment Decisions** defines the investment vision of the Canadian Coast Guard for the next five years and beyond in these sub-sections:
   - How We Will Invest Our Resources: 2011/12 to 2015/16
   - Addressing Risks Related to the Investment Plan
   - Measuring Our Performance Relative to the Investment Plan
   - How We Will Invest Our Resources: Looking Beyond 2015/16

3. **Investment Details** provides a full list of our planned investments over the next five years.

4. **Conclusion** assesses the outcomes of this first planning cycle using CCG's Integrated Investment Planning approach.

In addition, there are a number of appendices that contain detailed information to support a full understanding of the decisions included in the plan.

INVESTMENT PLANNING CONTEXT

1

1.1 WHO WE ARE AND WHAT WE DO

The Canadian Coast Guard has a direct and important impact on the lives of Canadians. We help ensure the safe use of Canadian waterways, and we facilitate the smooth functioning of the Canadian economy.

A nationally recognized symbol of safety, Coast Guard serves on three oceans, the St. Lawrence River and Great Lakes, and other major waterways. Often CCG is the only federal presence in many remote, Aboriginal, and Arctic communities. Operating along the longest coastline in the world and in some of its most difficult weather conditions, Coast Guard operates twenty-four hours a day, every day of the year.

The Agency addresses its mandate through the delivery of complementary programs that achieve results for Canadians. CCG's programs are:

Aids to Navigation	Waterways Management
Marine Communication and Traffic Services	Icebreaking Services
Search and Rescue Services	Environmental Response Services
Maritime Security	Fleet Operational Readiness
Shore-Based Asset Readiness	Canadian Coast Guard College

A full description of these programs can be found on the Canadian Coast Guard's website at www.ccg-gcc.gc.ca and in its business plan.

We serve clients in all sectors of the Canadian economy: the general public, shipping industry, commercial shippers, ferry operators, commercial fishers, recreational boaters, coastal communities, ports, channel owners and operators and other government departments and agencies. For example:

- We are mission-ready twenty-four hours a day, seven days a week and operate in almost all conditions. When extreme weather hits and other vessels are being called into port, Coast Guard vessels are often asked to head out to sea to save lives, to break ice to free trapped vessels, or to provide whatever assistance is needed to enable safe passage.
- We are a visible symbol of federal presence and provide the capacity to assert Canadian sovereignty, especially in the Arctic.
- We support on water safety and security by responding to mariners in distress, disasters and emergencies with one of the most effective maritime search and rescue systems in the world, supported by the air assets of the Canadian Forces and the volunteers of the Canadian Coast Guard Auxiliary.

- We contribute to Canada's overall economic prosperity by providing essential support for our country's $160 billion global and domestic marine trade industry. For instance, we maintain and service approximately 17,000 marine aids of all sizes that mark safe passages through our waterways. We also provide essential icebreaking services that enable shipping to move safely and efficiently through ice covered waters in Eastern Canada and the Great Lakes throughout the winter, and in the Arctic throughout the summer. Icebreaking services keep most Canadian ports, especially Montreal, open for business year-round, prevent flooding along the St. Lawrence River, and support ferry operators, fishers, and coastal communities.
- We are the lead federal agency for all ship-source and mystery-source pollution spills in waters over which Canada has jurisdiction, including the capacity to respond to oils spills in the Arctic.
- We support science activities by providing a platform for scientists from DFO and other federal government departments, Environment Canada, Natural Resources Canada and the Natural Sciences and Engineering Research Council of Canada. We facilitate important scientific activities and research such as science surveys essential for determining biomass and stock assessments leading to fisheries allocations; charting to enable safe navigation; freshwater research in the Great Lakes; seabed mapping to help establish Canada's claims under the United Nations Convention on the Law of the Sea; and research to assess the changing ocean conditions and the impacts of climate change.
- We support the security and enforcement activities of DFO with vessels dedicated primarily to fisheries enforcement to ensure an orderly and sustainable fishery that complies with fisheries regulations. We also support the maritime security activities of the Royal Canadian Mounted Police (RCMP) by participating in joint programs on the Great Lakes and St. Lawrence Seaway, as well as maritime security activities of the Department of National Defence, the Canada Border Services Agency, and Public Safety Canada.
- We support other non-military activities of other Canadian government departments such the Department of Foreign Affairs and International Trade, Health Canada, and Transport Canada.

1.2 THE ASSETS WE USE TO SUPPORT OUR PROGRAMS

In order to ensure the delivery of essential services, Coast Guard manages a substantial number of physical and technical assets including a fleet of small and large vessels; helicopters; land assets and other water-based assets, such as fixed and floating aids to navigation and communication towers; a fleet of vehicles, land-based cranes and forklifts; program-specific information systems; and assets and facilities used in support of CCG's training needs at the Coast Guard College. Investment in the asset base is directly related to the overarching requirement of maintaining effective capacity
to deliver core Coast Guard programs and services, driven by:

- the need to adjust to economic, demographic and climate factors (e.g. increased shipping traffic in core areas, increased activity in Canada's Arctic); and,
- the need to take advantage of technological innovation (e.g. migration to electronic aids to navigation).

1.2.1 Description

The Canadian Coast Guard's asset base is made up of 15,211 individual assets with values greater than $10,000. The assets can be divided into two main categories: Program Infrastructure and Fleet.

Program Infrastructure Assets

Coast Guard manages over $1.5 billion in program infrastructure assets that are essential to the delivery of its services. Program Infrastructure assets are divided into the following services:

Program Infrastructure Assets are maintained every day for the benefit of all Canadians as CCG ensures a safe and secure, efficient and environmentally responsible transportation system in Canadian waters.

- **Aids to Navigation Services**: In order to provide access to a reliable navigation system and support a safe, accessible and efficient marine environment, CCG owns several assets that play important roles to deliver this service. The following devices and systems assist mariners in determining their position and course, to warn of dangers or obstructions, or to advise them of the location of the best or preferred route:
  - Short-range fixed and floating marine aids including visual aids (lighthouses and buoys), aural aids (fog horns) and radar aids (reflectors and racons).
  - Long-range electronic positioning systems such as the Differential Global Positioning Systems (DGPS).

- **Waterways Management Services**: Navigability in Canadian waterways is highly influenced by water levels and the bottom condition of shipping channels. The monitoring and maintenance services help ensure safe, economical and efficient movement of ships in Canadian waterways. The program requires assets to manage channel dredging, to perform channel monitoring surveys, to support environmental protection, and to perform lifecycle management operations to commercial channels and the Canso Canal in Nova Scotia. Other assets include ice booms, ice islands, marine structures, and equipment related to water level and depth forecasting.

- **Marine Communications and Traffic Services (MCTS)**: Many assets are required to provide communications and traffic services for the marine community and for the benefit of the public at large. These assets form Coast Guard's communication backbone and are used on a daily basis to transmit information from 22 MCTS centres and 202 remote sites strategically located across Canada. The program manages communications equipment, equipment for surveillance and trade support as well as some real property. Typically, MCTS centres are equipped with the following:
  - Equipment such as communication, messaging, broadcast, and vessel traffic management information systems.
  - Direction Finding System, Digital Select Calling System, and Communication Control System.

- **Environmental Response (ER) Services**: ER assets are used as part of CCG's services to minimize the environmental, socio-economic and public safety impacts of marine pollution incidents in Canadian waters by monitoring, investigating and managing ship-source and mystery-source pollution spills into the marine environment. Assets used in the ER program include vessels, spill containment booms, skimmers, barges and other pollution control equipment.

- **Search and Rescue (SAR) Services**: SAR assets are used to aid in distress monitoring, communication, preparedness and search and rescue activities for on-water SAR situations. The following are SAR assets:
  - Specialized search and rescue equipment for various types of vessels and various types of rescue operations.
  - First aid equipment for rescue specialists.
  - Specialized small craft.

- **Icebreaking Services**: Icebreaking services are provided through and around ice-covered waters in Eastern Canada and the Great Lakes throughout the winter, and during the summer navigation season in the Arctic to ensure safe, economical and efficient movement of ships in Canadian waters. Coast Guard uses icebreakers as well as ice-routing and information (forecasts, warnings) and ice reconnaissance to deliver the program. Icebreaking assets include Heavy Icebreakers, Medium Icebreakers, High and Medium-Endurance Multi-Tasked Vessels, Air Cushion Vehicles, as well as an Icebreaking Operations Data Information System.

- **Lifecycle Asset Management Services (LCAM)**: This program ensures that the capability, reliability, availability and value of Coast Guard's assets are satisfied at minimum life cycle cost, thereby improving the efficiency of all program delivery. In order to deliver the effective lifecycle management services of Coast Guard's asset base, common heavy equipment is needed such as forklifts, vehicles and cranes.

- **Canadian Coast Guard College**: The Canadian Coast Guard College is dedicated to delivering high quality, up-to-date maritime training and services in a progressive, bilingual and client oriented facility. To do so, many assets are used to support all training activities for Coast Guard personnel such as simulators, small craft and environmental response equipment.

Fleet Assets

Coast Guard's fleet consists of 116 vessels, 23 helicopters and approximately 1,000 small craft. These assets are used to support the programs and activities of the Government of Canada, including those of CCG, DFO, and other departments and agencies. All Fleet assets are procured to support Fleet Operational Readiness program activity.

CCG's Fleet includes a wide range of vessels, varying in size from heavy icebreakers that operate in Canada's Arctic and keep the St. Lawrence Waterway open year-round for shipping traffic, to small rigid-hulled inflatables that carry out rescue and patrols on inland waterways.

Fleet assets are divided into four major categories: large vessels, small vessels, small craft and helicopters.

- **Large Vessels**: Coast Guard currently operates a fleet of 39 large vessels divided in 9 classes. The full operational life of large vessels varies from one class to the next and range from 25 to 45 years with proper life-cycle management practices.
- **Small Vessels**: The small vessel fleet consists of 77 vessels within 6 vessel classes. Small vessels have shorter operational life expectancies ranging from 15 to 20 years.
- **Small Craft**: Coast Guard operates approximately 1,000 small craft with operational life expectancies ranging from 10 to 15 years.
- **Helicopters**: Coast Guard's rotary wing aircraft fleet consists of 23 helicopters which have operational life expectancies of 30 years.

Additional details regarding the Coast Guard's asset base are included in Appendix A.

1.3 OUR INVESTMENT REQUIREMENTS

1.3.1 Condition of Assets

Coast Guard has a number of large investments in progress, particularly with regard to its Fleet. These investments will improve the overall condition of the vessel fleet over the next five years and beyond as new assets are delivered and put into service. Since 2005, the Government of Canada has committed $1.4 billion to purchasing new large vessels, including a Polar Icebreaker. These are the first significant investments in the Canadian Coast Guard's large vessel fleet in more than twenty years.

CCG's small vessel fleet has recently benefited from a regular stream of investments and are therefore closer to following an appropriate life-cycle management schedule. The small vessel fleet is much easier to invest in due to the lower cost and complexity of replacement or refurbishment.

Despite these important investments, more are needed if Coast Guard is to achieve a sustainable life-cycle management plan for its assets. Over the past few decades, investments have not kept pace with the aging asset base, leaving CCG with the challenge of replacing and refurbishing an overwhelming number of assets that are at the end of their operational life. Shore-based Program Infrastructure assets are particularly affected by this trend since they have not benefited from increased funding to the same degree as the Fleet.

Coast Guard's asset base has a total historical cost of just under $2.0 billion; however, the estimated replacement cost is over $14.0 billion in constant dollars (the cost if the assets were all replaced in 2010).

The wide discrepancy between the historical acquisition cost and the replacement cost can be explained by the assets' long operational life. Many of CCG's assets have been kept in service through exceptional care and maintenance. As of 2010, 100% of Coast Guard's large vessels are older than fifteen years; with certain vessels entering into service as far back as the 1960s. Raw materials and labour costs have changed significantly since these vessels were built. The cost of modern marine technology (e.g. navigation systems) required for today's new vessels have increased considerably, further increasing CCG's total re-investment cost.

The valuation of Coast Guard's assets and their estimated operational life is illustrated in the following table.

TABLE 1: HISTORIC COST, NET BOOK VALUE, REPLACEMENT COST AND OPERATIONAL LIFE OF CCG ASSETS

Asset Type	# of Assets	Historic Cost ($000)	Accumulated Depreciation ($000)	Net Book Value ($000)	Estimated Replacement Cost [1] ($000)	Estimated Operational Life (years)
Program Infrastructure						
Aids to Navigation	9,030	124,735.8	77,503.8	47,231.9	493,578.5	5 to 40
Waterways Management	21	1,045.2	535.5	509.7	3,907.0	3 to 20
Marine Communications and Traffic Services	2,542	141,698.9	82,237.0	59,461.9	559,996.7	3 to 40
Icebreaking Services	28	3,115.6	2,233.0	882.6	11,720.9	3 to 20
Search and Rescue Services	328	14,991.9	8,477.6	6,514.3	59,906.6	3 to 25
Environmental Response Services	890	43,982.6	38,672.4	5,310.2	173,208.3	3 to 25
Shore-Based Asset Readiness	1,069	46,237.4	34,617.3	11,620.1	182,709.0	3 to 40
Coast Guard College	160	8,024.3	7,814.6	209.6	31,707.0	3 to 20
Fleet						
Vessels [2]	116	1,472,635.0	441,026.0	1,031,609.0	11,887,700.0	15 to 45
Helicopters	23	37,161.0	4,992.0	32,169.0	502,400.0	30
Small Craft and Other Assets	1,004	96,317.0	26,896.0	69,421.0	100,000.0	5 to 10
Total	**15,211**	**1,989,944.5**	**725,005.2**	**1,264,939.3**	**14,006,834.0**	

[1] The Estimated Replacement Cost figures are provided in "constant" dollars and represent the cost of replacing the assets in 2010. Coast Guard is currently developing a new costing methodology to evaluate the replacement costs of its Fleet and Program Infrastructure assets. Figures presented in this table will be revised in the 2012/13 to 2016/17 investment plan.
[2] The large and small vessel distribution by class and size can be found in Appendix A - Table 16.

1.3.2 Result of Previous Investments

1.3.2.1 PROGRAM INFRASTRUCTURE ASSETS

Many of Coast Guard's shore-based Program Infrastructure assets have deteriorated and are falling behind in technology. In 2003, to help alleviate the worsening state of its assets, CCG received $47.3 million in additional investment funds through the National Capital Spending Plan (NCSP). Since 2007, these funds have been distributed between shore-based infrastructure assets and fleet assets with $27.3 million and $20 million allocated per year respectively. This permanent increase in funding has enabled Coast Guard to finally begin addressing the advanced state of deterioration of its shore-based assets.

Since the NCSP's inception in 2003, Coast Guard has planned and implemented multiple refurbishment and replacement projects in an effort to bring its shore-based assets back to baseline condition. Although the total number of deteriorating assets is decreasing, many more assets and site deficiencies need to be addressed if CCG wishes to have a modern and reliable asset base.

The average age and deteriorating physical condition of the asset base will have an impact on their reliability and performance. The cost to operate and maintain the asset base is continually escalating. Effective life-cycle management is further strained by the increasing need to manage both old and new assets with very different technological components. These differences make it difficult for Coast Guard to divest itself of old technologies resulting in the inability to fully realize the benefits and efficiencies afforded by new technologies.

Efforts have been made to prioritize and address assets demonstrating the highest level of risk of failure or service disruption. This has resulted in an overall reduction of all risks including the risk of potential liability. Past investments have also focused on the ability to address gaps with regards to codes and standards, health and safety issues, and ensuring due diligence is performed. Most importantly, Coast Guard has managed to ensure the continued provision of its services.

Despite these investments, shore-based infrastructure continues to age and deteriorate. The total number of assets in "poor condition" continues to decrease; however, a large number of assets remain in need of investment. The continued use of significant strategic investments will be required to enable Coast Guard to effectively operate now and into the future. In order to completely rehabilitate its shore-based assets, in 2010/11 Coast Guard started the process in drafting asset condition reports for Aids to Navigation and MCTS; these reports present a high level assessment of the asset base for the programs. The development of an asset class plan is also under development. These documents will provide both a more comprehensive condition inventory and an effective plan to address any shortcomings.

1.3.2.2 FLEET ASSETS

In order to provide its services and programs to Canadians, both now and in the future, Coast Guard needs a safe, reliable, highly adaptable, cost effective and efficient fleet of vessels and helicopters.

Large Vessels

Due to its age and overall deteriorating condition, Coast Guard's large vessel fleet is struggling to provide its existing mandated services and because many of these vessels are purpose-built, it lacks the flexibility and capacity to adapt to evolving requirements. From the mid-1980s to the mid-2000s, no significant investments were made to the large vessel fleet. As a result, all of these assets passed the halfway point of their recommended operational life with over half of them exceeding their operational life.

The age and condition of the large vessel fleet has resulted in escalating maintenance costs which will continue to increase as vessels age. Between the mid-1980s and mid-2000s, Coast Guard's large vessels spent a total of 27,388 days undergoing maintenance and refit, with breakdowns accounting for approximately seventeen percent or 4,786 days of this total. The reliability of these assets continues to suffer as breakdowns occur and it becomes more difficult to deliver mandated programs.

Facing a peak in the number of breakdowns in 2007/08, Coast Guard became more proactive in scheduling maintenance and planning refits. These efforts resulted in a thirty-two percent decrease in overall breakdown time. Although this is a significant improvement, the long-term sustainability of existing large vessels remains a critical issue. In time, Coast Guard will face the unavoidable reality when no amount of intervention or investment will keep old vessels in operation.

Small Vessels

The small vessel fleet has fared more positively than its large counterpart due to the relative affordability of small vessel investments. Since 1995, thirty-one new Search and Rescue (SAR) Lifeboats were acquired to modernize the Coast Guard's SAR capability. These vessels were acquired through various funding sources, including: Program Integrity; the Lifeboat Replacement Program; the Economic Action Plan (EAP), and Coast Guard's own regular investment funding source.

Fleet Renewal

Since implementing a fleet renewal planning process in 2005 (described in Section 2.4.2), Coast Guard has undertaken a series of major vessel procurement projects to address the Government of Canada's most urgent requirements.

To respond to the deteriorating condition of large vessels and to bridge gaps until new ones can be delivered, CCG needed to conduct costly Vessel Life Extensions (VLE) to keep aged vessels operational. VLEs are not considered to be part of the standard vessel life-cycle management process; they are an emergency instrument meant to prolong the life of a vessel. The preferred life-cycle management practice used with naval and coast guard fleets around the world is to conduct Mid-Life Modernizations (MLM) on vessels half-way through their operational life-cycle. As Coast Guard continues to implement its Fleet Renewal Plan and Integrated Investment Plan, it hopes to minimize and eventually avoid the use of VLEs and return to using much more cost-effective MLMs.

Coast Guard is continuously updating its Fleet Renewal Plan and is working to develop the next iteration of the plan which will cover the 2011 to 2040 period. This document will provide a solid foundation to build the Government of Canada's future multi-capable, adaptable and sustainable civilian fleet: a fleet able to meet the projected demands of clients and Canadians in general.

New vessels have entered or will enter into service as a result of CCG's most recent investments, including:

- *CCGS Mamilossa*, an Air Cushion Vehicle entered into service in the Quebec region in March 2009.
- *CCGS Kelso*, a Near-Shore Fishery Research vessel entered into service in the Central and Arctic region in September 2009.
- *CCGS Viola M. Davidson*, another Near-Shore Fishery Research Vessel entered into service in the Maritimes region in March 2010.
- Awarded the contract for the procurement of nine new Mid-Shore Patrol Vessels, the first of which should be ready for service in 2012.

1.3.2.3 ECONOMIC ACTION PLAN INVESTMENTS

Coast Guard benefited from the Government of Canada's Economic Action Plan in 2009/10 and 2010/11. It received $175 million in additional funding to refit and extend the operational life of some vessels and procure new vessels including the acquisition of new environmental response barges and small craft. In line with all EAP programs, these funds must be entirely expensed prior to the end of the 2010/11 fiscal year.

At the time this document was written, not all EAP projects were completed. The spending profiles presented below are therefore projections and may differ slightly from actual funds expensed.

It is important to note that the funding expensed above and beyond the allocated $175 million threshold will be sourced directly from the Coast Guard's own investment budget. These additional funds were required to offset project management costs and some unexpected costs that arose from the various EAP initiatives.

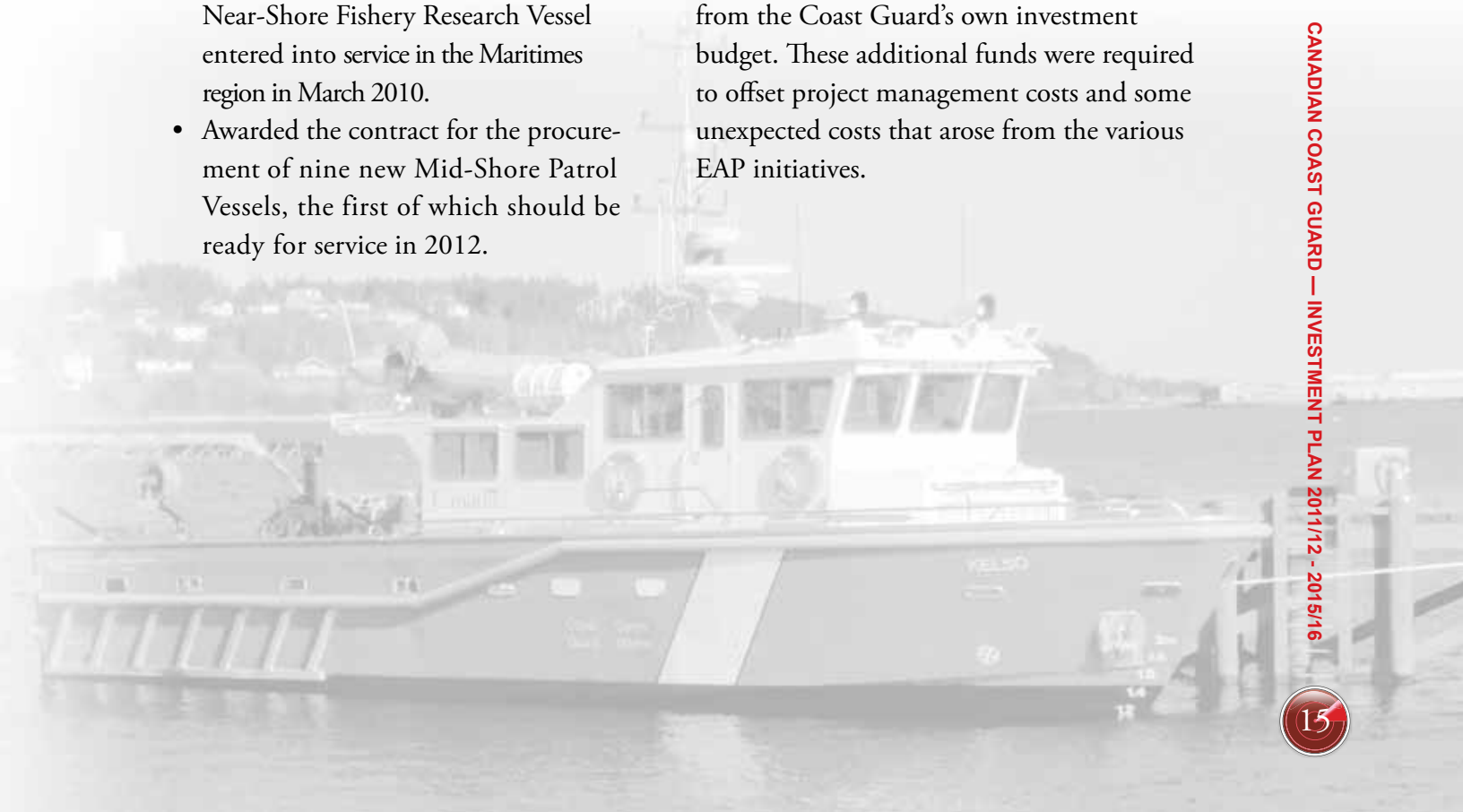


TABLE 2: ECONOMIC ACTION PLAN EXPENDITURE PROFILE (THOUSANDS OF DOLLARS)

Economic Action Plan Spending	2009/10 (actual)	2010/11 (projected)	Total
Vessel Life Extensions			
CCGS Bartlett	18,543	3,448	**21,991**
CCGS Tracy	10,609	3,000	**13,609**
CCGS Limnos	6,906	2,814	**9,720**
CCGS Tanu	350	8,173	**8,523**
CCGS Cape Roger	1,689	9,069	**10,758**
Subtotal Vessel Life Extensions	**38,097**	**26,504**	**64,601**
Other EAP Projects			
Near-Shore Fishery Research Vessels	2,910	23,969	**26,879**
SAR Lifeboats	8,546	11,400	**19,946**
Small Craft	8,258	5,321	**13,579**
Environmental Response Barges	1,425	11,020	**12,445**
Vessel Refit	23,601	15,048	**38,649**
Subtotal Other EAP Projects	**44,740**	**66,758**	**111,498**
Total	**82,837**	**93,262**	**176,099**

The Near-Shore Fishery Research Vessel procurement projects targeted by the Economic Action Plan are not scheduled for completion until 2011/12. As a result, Coast Guard will be funding approximately $7.3 million from its own investment budget, in 2011/12, to ensure these vessels can be brought into service as planned.

1.4 INVESTMENT FUNDING AVAILABLE TO CCG

CCG receives its investment funding through a variety of sources. For this planning cycle, the funding sources include:

- **A-Base Major Capital Funding**
  CCG is provided with an annual Major Capital (Vote 5) Budget for investment in the Agency's infrastructure.

- **External Funding Sources**
  When investment needs arise that exceed the annual Major Capital budget, CCG pursues special project-based funding from Cabinet.

The following table summarizes CCG's funding profile across funding sources for the 2011/12 to 2015/16 planning horizon.

TABLE 3: TOTAL AVAILABLE INVESTMENT BUDGET, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

Funding Sources:

Years	A-Base Funding Source	External Funding Sources	Total Available Budget
2011/12	137,934.3	117,719.2	**255,653.5**
2012/13	123,626.7	192,941.3	**316,568.0**
2013/14	129,530.0	229,880.3	**359,410.3**
2014/15	129,530.0	325,924.5	**455,454.5**
2015/16	129,530.0	260,091.1	**389,621.1**
Total	**650,151.0**	**1,126,556.4**	**1,776,707.4**

The funding sources are explained in more detail over the next few sections.

1.4.1 A-Base Funding Source

Every year, Coast Guard automatically receives a recurring investment budget of $129.4 million as part of its A-Base investment budget. Several irregular adjustments such as loans and monetary carry-forwards cause the annual A-Base budgets to fluctuate slightly from year to year.

Of the total A-Base investment budget allocation, seventy-three percent is committed to six fixed spending envelopes including Vessel Refit, Helicopter Refit, Shore-based Infrastructure Refit, Waterway Channel Restoration, Vessel Maintenance Management (VMM), and Small Craft Replacement. Projects funded through the six fixed funding envelopes are identified and prioritized based on regular lifecycle management practices. Asset condition surveys are completed periodically to allow the Agency to understand the overall state of its asset base and establish its investment needs accordingly.

The remaining balance of non-allocated funds called "Residual for Decision" is available for other investments. Projects seeking funding are selected through a comprehensive project prioritization process. These projects are reprioritized annually through a national peer review exercise in order to select the highest priorities to fund.

Some years, the fixed budget envelopes may not be sufficient to cover all required planned spending; therefore, a portion of the "Residual for Decision" balance may be ear-marked to fulfill this gap. For example, from 2011/12 to 2015/16, a portion of the residual funds were allocated for additional Vessel Refit to address an important refit requirement for Coast Guard's heavy and medium icebreakers.

In addition to the regular budget envelopes, significant budget adjustments impact the first two years of the investment planning cycle. Coast Guard will contribute $14.5 million of its own A-Base budget towards the externally funded Mid-Shore Patrol Vessel procurement project identified in section 1.4.2. The additional funding will allow Coast Guard to procure a ninth vessel.

In 2010/11, Coast Guard gave a $5 million loan to DFO's Real Property Major Capital Centre of Expertise to support the construction of office infrastructure in the Maritimes region. The loan is expected to be repaid over the first two years of the planning cycle.

CCG's regular A-Base budget in 2011/12 is largely committed to maintaining key assets required to deliver program and services, leaving very little funding available for new investment initiatives.

TABLE 4: A-BASE INVESTMENT BUDGET, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

A-Base Budget Envelopes:

Year	Refit - Vessels	Refit - Helicopters	Refit - Shore Based Infra-structure	Waterway Channel Restoration	Vessel Maintenance Management	Small Craft Replacement	Residual for Decicion	Total A-Base
2011/12	62,170.0	5,600.0	25,000.0	3,815.0	6,500.0	5,000.0	21,315.0	**129,400.0**
2012/13	59,650.0	5,600.0	25,000.0	3,815.0	6,500.0	5,000.0	23,835.0	**129,400.0**
2013/14	64,400.0	5,600.0	25,000.0	3,815.0	6,500.0	5,000.0	19,085.0	**129,400.0**
2014/15	64,400.0	5,600.0	25,000.0	3,815.0	6,500.0	5,000.0	19,085.0	**129,400.0**
2015/16	59,400.0	5,600.0	25,000.0	3,815.0	6,500.0	5,000.0	24,085.0	**129,400.0**
Total	**310,020.0**	**28,000.0**	**125,000.0**	**19,075.0**	**32,500.0**	**25,000.0**	**107,405.0**	**647,000.0**

A-Base Budget Adjustments:

Year	Contribution to Vessel Procurement Budget	Loan Repayment from Real Property	Expected Carry-Forward [1]	Capital Salaries Adjustments [2]	Total Available A-Base
2011/12	(6,096.7)	2,500.0	12,000.0	131.0	**137,934.3**
2012/13	(8,403.3)	2,500.0	-	130.0	**123,626.7**
2013/14	-	-	-	130.0	**129,530.0**
2014/15	-	-	-	130.0	**129,530.0**
2015/16	-	-	-	130.0	**129,530.0**
Total	**(14,500.0)**	**5,000.0**	**12,000.0**	**651.0**	**650,151.0**

[1] Carry-forward is estimate base on a mid-year review exercise in November 2010. Actual amount could vary.
[2] Capital Salaries Adjustments exist as a result of collective agreement contract settlements.

The following chart demonstrates how Coast Guard plans to spend its A-Base funds in 2011/12:

Of the remaining "Residual for Decision" envelope in 2011/12 ($21.3 million or 16 percent of the A-base investment budget), a large portion is dedicated to replacing, upgrading or creating important new program infrastructure systems ($13.1 million or 61 percent of the residual budget). Another significant portion of the residual budget is dedicated to critical unplanned and miscellaneous investment requirements ($3.4 million or 16 percent of the residual budget). This leaves Coast Guard with a mere $4.8 million to replace the capacity of its aging small vessel assets and vessel systems. The cost of replacing a Near-Shore Fishery Science Vessel alone is $16 million, which clearly demonstrates the financial challenges currently being faced by Coast Guard.

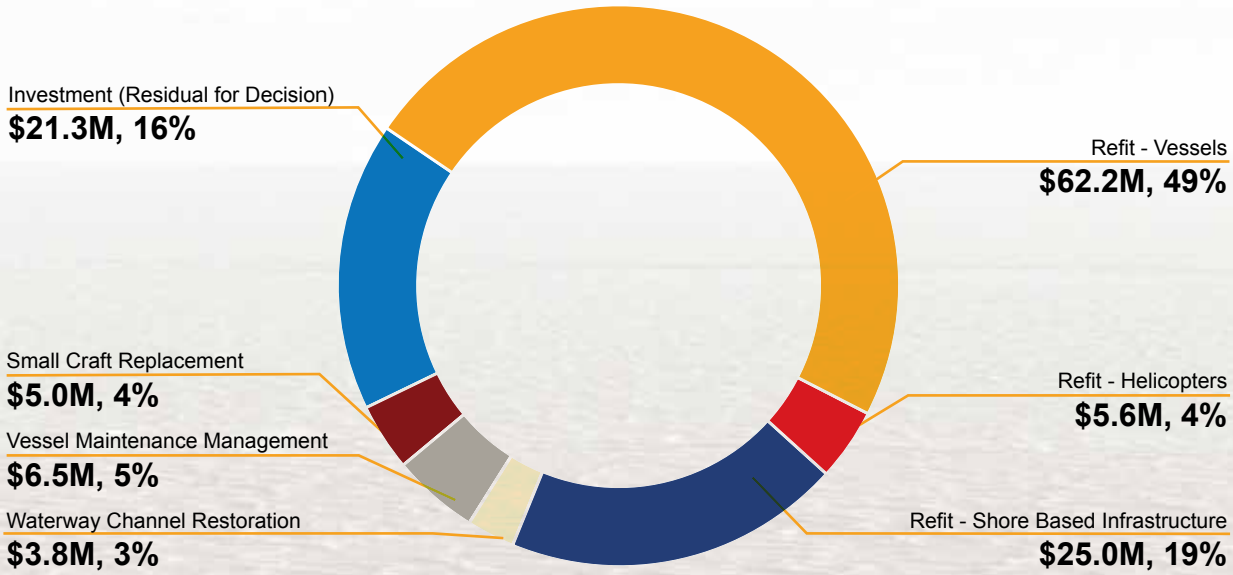
1.4.2 External Funding Sources

The Agency has sought Cabinet approval for additional funding for investments that are not affordable within the major capital funding allocation of the Agency (known as B-Base funds).

The 2010 Federal Budget provided Coast Guard with $2.8 million in additional funding to provide an issuing service for navigational warnings to mariners for two newly created navigational areas (NAVAREAs) in the Arctic, and $27.3 million to acquire a new Air Cushion Vehicle for Pacific region.

Over the planning horizon of this Investment Plan, CCG will receive additional funding of $1.1 billion to renew a portion of its large vessel fleet. Without this external funding, these projects would otherwise have been unaffordable. Table 5 outlines the additional funding that will be managed by the Vessel Procurement sector.

CHART 1: A-BASE INVESTMENT BUDGET USAGE, 2011/12



Note: This chart represents the distribution of CCG's A-Base investment budget of $129.4M for 2011/12 and not to the total planned spending outlined in the Planned Investments Table in section 2.1. The difference between them is a result of annual over-programming, as described in section 2.1.1.

TABLE 5: EXTERNAL FUNDING SOURCES BUDGET, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

External Funding Project Budgets:

Year	Polar Icebreaker	Mid-Shore Patrol Vessels	Offshore Fisheries Science Vessels	Offshore Oceano-graphic Sci-ence Vessels	Air Cushion Vehicle	Arctic NAVAREAs Infrastructure	Total External Funding Sources Budget
2011/12	9,450.0	78,996.0	5,177.2	4,069.5	9,950.0	-	**107,642.7**
2012/13	13,171.5	62,881.9	50,829.0	43,604.6	9,360.0	2,013.6	**181,860.6**
2013/14	76,514.0	11,459.0	76,659.0	59,600.0	4,820.0	813.6	**229,865.6**
2014/15	223,000.0	-	80,389.8	21,500.0	1,020.0	-	**325,909.8**
2015/16	226,000.0	-	23,509.3	10,567.1	-	-	**260,076.4**
TOTAL	**548,135.5**	**153,336.9**	**236,564.3**	**139,341.2**	**25,150.0**	**2,827.2**	**1,105,355.1**

External Funding Budget Adjustments:

Year	A-Base Contribution for Mid-Shore Patrol Vessels	Expected Carry-Forward [1]	Capital Salaries Adjustments	Total Available Externally Funded Budget
2011/12	6,096.7	3,965.0	14.8	**117,719.2**
2012/13	8,403.3	2,662.7	14.7	**192,941.3**
2013/14	-	-	14.7	**229,880.3**
2014/15	-	-	14.7	**325,924.5**
2015/16	-	-	14.7	**260,091.1**
TOTAL	**14,500.0**	**6,627.7**	**73.6**	**1,126,556.4**

[1] Carry-forward is an estimate based on a mid-year review exercise in November 2010. Actual amount could vary.

The funding outlined in Table 5 will be allocated to five Vessel Procurement projects. These strategic investments are described as follows:

- **Mid-Shore Patrol Vessels (MSPV)** – Total estimated cost: $227.0 million
  - Nine new MSPVs are being constructed to replace the existing capacity provided by vessels nearing the end of their operational life. As part of the Fleet Renewal Plan, these are not one-for-one replacements, but rather a number of vessels determined by program requirements and Government of Canada decisions and priorities. Five of the MSPVs will be used primarily to support Fisheries and Oceans Canada conservation and protection programs in the Maritimes, Quebec and Pacific Regions. The other four vessels will be used in a joint program with the Royal Canadian Mounted Police to enhance the maritime security along the Great Lakes and St. Lawrence Seaway system. Construction of the first vessel has begun and it is targeted to be ready for delivery in late 2011 with all remaining vessels to be delivered by 2013.

- **Offshore Oceanographic Science Vessel (OOSV)** – Total estimated cost: $144.4 million
  - The OOSV project was developed to acquire a replacement vessel for the Coast Guard's largest science vessel, *CCGS Hudson*, built in 1963. Its replacement is critical to fulfillment of the Department's science mandate as well as those of other government departments and agencies. The OOSV project is currently in the design phase and delivery of the vessel is anticipated for 2014.

- **Offshore Fishery Science Vessels (OFSV)** – Total estimated cost: $244.0 million
  - The OFSV project was developed to acquire three vessels to replace four aging Coast Guard vessels on the East and West Coasts of Canada that provide a platform for critical scientific research and ecosystem-based management. The OFSV project is currently in the design phase and all three vessels are expected to be delivered by 2015.

- **Polar Icebreaker** – Total estimated cost: $800.0 million
  - Canada's largest and most capable heavy icebreaker, *CCGS Louis S. St-Laurent*, is nearing the end of its operational life and is scheduled to be decommissioned in 2017. The Federal Budget of 2008 provided the funds necessary for the procurement of a new Polar Icebreaker. This new vessel class is being designed with greater icebreaking capabilities, allowing it to operate in more difficult conditions and for longer periods in the Arctic. It will allow Coast Guard to more effectively continue its work to strengthen and protect Canada's sovereign interests in the Arctic. The new Polar Icebreaker is scheduled to be delivered in 2017.

- **Air Cushion Vehicle (ACV)** – Total estimated cost: $27.3 million
  - The new ACV will replace the capacity of *CCGS Penac* at the Sea Island Hovercraft Base in Richmond, British Columbia. It will allow Coast Guard to fulfill its mandate and maintain current levels of service for its Search and Rescue program. A contract for the construction of the ACV was awarded in 2010/11 with delivery expected in summer 2013.

Some of the aforementioned investments have implementation timelines greater than the five-year planning horizon presented in this investment plan. For example, the Polar Icebreaker project was initiated in 2009/10 and will carry on until 2019/20. Therefore, the total vessel procurement budget presented in Table 5 of $1.1 billion reflects only the funds that have been allocated within the next five years.

1.5 HOW WE MAKE INVESTMENT DECISIONS

The new Canadian Coast Guard investment planning format is now in its second year and was necessitated by a new Treasury Board policy which provided the Agency with an additional impetus to review the way it plans its investments. This approach (described in Appendix C) allows for a consolidated view of the Agency's activities and ensures that scarce investment resources are applied to the highest priorities.

The Capability Gap Analysis is a key piece of the Agency's investment planning framework. The analysis identifies the gaps between our current capability and our target capability for service delivery. The analysis was a collaborative effort completed by program analysts in every region of the country. The result is a comprehensive 20-year outlook of capability challenges that will confront the Coast Guard.

In response to the Treasury Board Secretariat (TBS) *Policy on Investment Planning – Assets & Acquired Services*, the Agency's investment planning is anchored in program requirements. This is accomplished by performing a Capability Gap Analysis that identifies program needs in terms of the assets or acquired services available to meet those needs. By focusing on program requirements and assessing the current and future capability to deliver those programs, CCG now looks at alternatives to "one-for-one asset replacement" in a more formal way. This ensures continued innovation in program delivery where it is cost effective.

Greater emphasis has been placed on understanding the condition of CCG's assets. A systematic survey program is in place for both fleet and shore-based assets. These surveys allow the Coast Guard to better understand its maintenance and reinvestment issues, a fundamental component in effective decision making. To date, condition surveys have been completed for fleet assets and are integral in updating the Fleet Renewal Plan. Condition surveys for shore-based assets continue to be refined and will be essential to the remediation of the Agency's critical Program Infrastructure.

In 2009/10, Coast Guard updated its planning approach to include greater integration between its Centres of Expertise (COE); Fleet COE and Equipment and Other Moveable Assets COE. Prior to 2009/10, each COE submitted individual long-term capital plans for inclusion in the Fisheries and Oceans Canada departmental plan. Through this process, the COEs have developed deep, unique and specialized expertise in their respective fields; it is therefore logical to continue using this planning structure. However, in order to encourage closer collaboration between the COEs, Coast Guard now submits a single Integrated Investment Plan. The historic approach of developing two separate plans did not paint an accurate picture of the Coast Guard's true investment profile and made it difficult for COEs to share resources when needed.

Coast Guard's own IIP continues to be developed with the intent of being fully integrated within Fisheries and Oceans Investment Plan, and in order to be submitted for consideration to the Treasury Board Secretariat. The additional value of creating a standalone Coast Guard Integrated Investment Plan has already been proven to be more useful as a management document within CCG than the two separate plans completed in years past, and will ensure that projects in both COEs make the most sense for the Canadian Coast Guard Agency.

A detailed description CCG's Integrated Investment Planning Framework is included in Appendix C.

2.1 HOW WE WILL INVEST OUR RESOURCES: 2011/12 TO 2015/16

Our proposed investments are grouped according to the broad categories of assets in use at CCG; Fleet and Program Infrastructure. Fleet investments are further divided between regular investments and procurement of large vessels because of the magnitude of the investments required to procure new large vessels. The planned investments are summarized in the following table:

TABLE 6: PLANNED INVESTMENTS, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Program Infrastructure						
Refit - Shore Based Infrastructure	**25,000.0**	**25,000.0**	**25,000.0**	**25,000.0**	**25,000.0**	**125,000.0**
Regular Requirement	25,000.0	25,000.0	25,000.0	25,000.0	25,000.0	**125,000.0**
Waterway Channel Restoration	**3,815.0**	**3,815.0**	**3,815.0**	**3,815.0**	**3,090.0**	**18,350.0**
Regular Requirement	3,815.0	3,815.0	3,815.0	3,815.0	3,090.0	**18,350.0**
Systems and Infrastructure	**32,040.2**	**24,818.5**	**22,065.5**	**18,967.1**	**15,762.0**	**113,653.2**
New Investments	16,866.0	7,435.4	4,902.1	1,178.0	4,318.0	**34,699.5**
Replacements	13,274.2	13,769.5	16,349.8	17,789.1	9,679.0	**70,861.6**
Disposal and Other	1,900.0	1,600.0	0.0	0.0	1,765.0	**5,265.0**
Arctic NAVAREAs Infrastructure	0.0	2,013.6	813.6	0.0	0.0	**2,827.1**
Total Program Infrastructure	**60,855.2**	**53,633.5**	**50,880.5**	**47,782.1**	**43,852.0**	**257,003.2**

CONTINUED...

TABLE 6: PLANNED INVESTMENTS, 2011/12 TO 2015/16 (...CONTINUED)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Vessel Fleet						
Refit - Ships	**66,155.0**	**59,650.0**	**64,400.0**	**64,400.0**	**59,400.0**	**314,005.0**
Regular Requirement	62,170.0	59,650.0	64,400.0	64,400.0	59,400.0	**310,020.0**
Unplanned Requirements	3,985.0	0.0	0.0	0.0	0.0	**3,985.0**
Refit - Helicopters	**5,600.0**	**5,600.0**	**5,600.0**	**5,600.0**	**5,600.0**	**28,000.0**
Regular Requirement	5,600.0	5,600.0	5,600.0	5,600.0	5,600.0	**28,000.0**
Vessel Maintenance Management	**6,500.0**	**6,500.0**	**6,500.0**	**6,500.0**	**6,500.0**	**32,500.0**
Regular Requirement	6,500.0	6,500.0	6,500.0	6,500.0	6,500.0	**32,500.0**
Small Craft Replacement	**5,000.0**	**5,000.0**	**5,000.0**	**5,000.0**	**5,000.0**	**25,000.0**
Regular Requirement	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	**25,000.0**
Small Vessel Replacement	**8,971.6**	**2,588.4**	**8,313.4**	**27,923.2**	**39,225.8**	**87,022.4**
Scheduled Replacements	1,663.3	2,588.4	8,313.4	27,923.2	39,225.8	**79,714.1**
Unplanned Requirements	7,308.3	0.0	0.0	0.0	0.0	**7,308.3**
Vessel Systems and Technology Upgrades	**2,200.0**	**2,253.7**	**0.0**	**0.0**	**0.0**	**4,453.7**
Replacements	2,200.0	2,253.7	0.0	0.0	0.0	**4,453.7**
Total Vessel Fleet	**94,426.6**	**81,592.1**	**89,813.4**	**109,423.2**	**115,725.8**	**490,981.1**
Procurement of Large Vessels						
Vessel Procurement	106,143.2	175,858.5	218,363.1	316,409.8	250,576.4	**1,067,351.0**
Project Management	9,268.6	7,383.2	5,189.1	4,000.0	4,000.0	**29,840.9**
Executive Direction & Project Control	5,500.0	5,500.0	5,500.0	5,500.0	5,500.0	**27,500.0**
Total Procurement of Large Vessels	**120,911.8**	**188,741.7**	**229,052.2**	**325,909.8**	**260,076.4**	**1,124,691.9**
Total Planned Spending	**276,193.6**	**323,967.3**	**369,746.1**	**483,115.1**	**419,654.2**	**1,872,676.2**

STRATEGIC PROJECT - POLAR ICEBREAKER

As a strategic Government of Canada asset, this vessel is a large multi-taskable icebreaker to be used solely for sustained operations in the Canadian Arctic Archipelago and adjacent waters for 3 seasons each year. It will deliver icebreaking, safety and navigation services, and support science research, enforcement, security and sovereignty activities. It is able to operate in more difficult ice conditions than the class of heavy icebreakers they replace. Polar Icebreakers will enable operations simultaneously in both the Eastern and Western Arctic.

Implementation of the investments proposed in this Integrated Investment Plan is an important step in the ongoing effort towards addressing the condition of CCG's asset base. The reinvestment in the Asset Base set out in this plan is expected to maintain or improve the condition of capital assets, which will have a direct impact on the quality, reliability, extent of CCG service delivery and the associated ongoing operating and maintenance costs. The Government's investment in renewal of the Canadian Coast Guard fleet and shore-based infrastructure will ensure its continued capability to carry out its mandate of saving lives, supporting maritime security, protecting fisheries, enhancing maritime safety, facilitating marine commerce, enforcing Canadian sovereignty, supporting marine scientific research, and protecting the marine environment.

STRATEGIC PROJECT - OFFSHORE FISHERIES SCIENCE VESSELS

Vessel used to conduct fishing, acoustic surveys of fish and invertebrates, and oceanographic research. Secondary functions include capabilities consistent with the CCG Fleet Operational Readiness Program, such as Search and Rescue and Environmental Response

A detailed listing of proposed investments by category appears in Section 3 – Investment Details. Appendix E also provides more detailed descriptions for representative investments and outlines the investments being made on CCG's behalf by the Real Property COE within DFO. While CCG provides significant strategic input into the decision-making process, the final decisions are made by Real Property and as such are included in Appendix E for information.

2.1.1 Optimizing our Capital Investments

Experience has consistently shown that despite best efforts, external factors often lead to project delays. Experience has also shown that due to the nature of our operations there is a relatively long lead time required in implementing capital projects. As a result of these two factors, along with the desire to minimize capital budget lapses, CCG's Investment Management Board has decided to over-program its A-Base major capital vote.

The level of over-programming is determined by CCG's Investment Management Board (IMB) based on a number of factors including CCG's experience with the various types of planned projects, communication with industry, communication with Public Works and Government Services Canada (PWGSC), and internal capacity to implement the proposed investments. This approach is used to ensure that the Agency is proactive in the management of its capital budget and has priority investments ready to absorb in-year slippage that inevitably occurs on large investment projects. The level of over-programming is revisited annually in light of proposed investments so that the level of over-programming represents a balance between the risk of lapsing funds and the risk of having to delay expenditures to not exceed budget.

Table 7 compares planned expenditures to budgets in order to demonstrate an optimized level of over-programming. It is reflective of Coast Guard's experience over previous planning cycles and the type of projects within each planning year. Over-programming is designed to ensure maximum investment benefits and results for Canadian taxpayers.

TABLE 7: OVER-PROGRAMMING IN THE A-BASE INVESTMENT BUDGET, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

	2011/12	2012/13	2013/14	2014/15	2015/16	TOTAL
Total Available A-Base Budget	137,934.3	123,626.7	129,530.0	129,530.0	129,530.0	**650,151.0**
Total Planned Spending	155,281.8	133,212.0	139,880.3	157,205.3	159,577.8	**745,157.2**
Total Over-Programming	**17,347.5**	**9,585.3**	**10,350.3**	**27,675.3**	**30,047.8**	**95,006.2**
Over-Programming as a % of A-Base Budget	13%	8%	8%	21%	23%	

Over the past few years, Coast Guard was able to manage its major capital budget slippage through a special Treasury Board Secretariat pilot project entitled the Non-Lapsing Appropriations for Capital Management. This project increased CCG's flexibility to better manage its project cash profiles by allowing it to carry-forward any level of slippage from one fiscal year to the next. The pilot project came to an end in 2009/10 but was replaced by a new government-wide Capital Budget Carry Forward procedure.

The new procedure, beginning in 2010/11, allows all government departments to carry-forward up to twenty percent of their year end major capital budgets; a significant increase from the original five percent limit imposed prior to the introduction of the pilot project. The procedure will enable Coast Guard to more effectively manage its cash utilization from one year to the next while ensuring a higher return on investment. Financial risks resulting from external project delays are significantly reduced and the timing is opportune as many high dollar Coast Guard vessel procurement projects are already underway.

2.1.2 Acquired Services

Coast Guard's Investment Planning Framework does not result solely in asset investments. As part of its planning process, CCG considers different delivery options for the delivery of its programs. In some cases, it is determined that acquired services are the best delivery alternative and provide the best value to Canadians as opposed to additional asset acquisitions.

Our planning cycle encompasses five significant examples where investments in acquired services were chosen over investments in assets:

1. Buoy Tendering
2. Ice Reconnaissance
3. Helicopter Operations
4. Channel Surveying
5. Canadian Coast Guard Auxiliary

Buoy Tendering Contracts

Buoy tendering is a program where Coast Guard contracts with private companies to place Aids to Navigation in waterways based on our levels of service. CCG owns the aids and determines where they are to be placed. The Agency has buoy contracts in all regions in varying degrees to complement the buoy service work performed by Coast Guard's fleet. CCG continues to assess the relative cost and effectiveness of external service providers relative to the provision of the service of its own fleet.

Ice Reconnaissance

Ice Reconnaissance is a key activity of the Icebreaking Program. Coast Guard has an Ice Information Services Partnership Agreement with Environment Canada. The Canadian Ice Services provide CCG with essential marine weather and ice information for Canadian navigable waters through the use of Transport Canada's aircrafts which are operated and staffed by Ice Reconnaissance personnel. The information gathered under this service is combined with other CCG ice-routing information such as monitoring of ice conditions, ice jams and flooding to facilitate the informed, safe and timely movement of maritime traffic through and around ice-covered Canadian waters for the benefit of industry and communities.

Helicopter Operations

The Canadian Coast Guard owns a fleet of 23 helicopters, but the Agency contracts with Transport Canada to operate these aircraft. All activities related to the actual operation of the aircraft, with the exception of tasking, are managed by Transport Canada. This includes the provision of pilots and maintenance of aircraft.

Channel Surveying

Channel Surveying is an activity undertaken as part of the Waterways Management Services program in all regions to varying degrees. Coast Guard contracts Public Works and Government Services Canada as well as Canadian Hydrographic Services to survey the main commercial shipping channels on an annual or cyclical basis driven by historical need or events (e.g. a major storm). In addition the program provides information to mariners on available water-depth forecasts and obstructions in the channels so that they may use this information to determine the maximum safe draft for their vessel.

Canadian Coast Guard Auxiliary

In addition to the above acquired services, the Agency also maintains a formal contribution agreement with each of the six Canadian Coast Guard Auxiliary (CCGA) corporations for related costs. The CCGA is organized into six federally incorporated, not-for-profit volunteer organizations that parallel the five Coast Guard regions and one national corporation. The CCGA consists of both individually owned boats and community vessels. The CCGA is one of many SAR partners that support the Agency in marine search and rescue activities and prevention. It is not possible for Coast Guard to cover the entire Canadian coastline and therefore relies on the CCGA to supplement its response efforts.

- The CCG Auxiliary consists of approximately 4,200 members.
- They respond to approximately twenty-five percent of all maritime SAR incidents in Canada, and are credited with saving approximately 1,000 lives each year.
- In 2009, the CCGA responded to 1,749 SAR taskings, participated in 2,224 training exercises, and volunteered over 281,000 hours.

Coast Guard will continue to seek out the most innovative and effective means to deliver its programs through rigorous alternative analysis as a part of the Investment Planning Framework described in Appendix C.

2.2 ADDRESSING RISKS RELATED TO THE INVESTMENT PLAN

2.2.1 Risks to the Successful Implementation of the IIP

Integrated risk management is being used within the Canadian Coast Guard in order to systematically manage all levels of risk that may impede the Agency from achieving its intended results. Implementation of the Risk Management Framework for the Integrated Investment Plan aims to help ensure that risks associated with the plan are well-understood and addressed in a methodical manner consistent with the approach used in addressing risk across all departmental activities. Coast Guard's Vessel Procurement sector is currently developing a tailored risk management framework which will more closely address the peculiar needs of large vessel procurement.

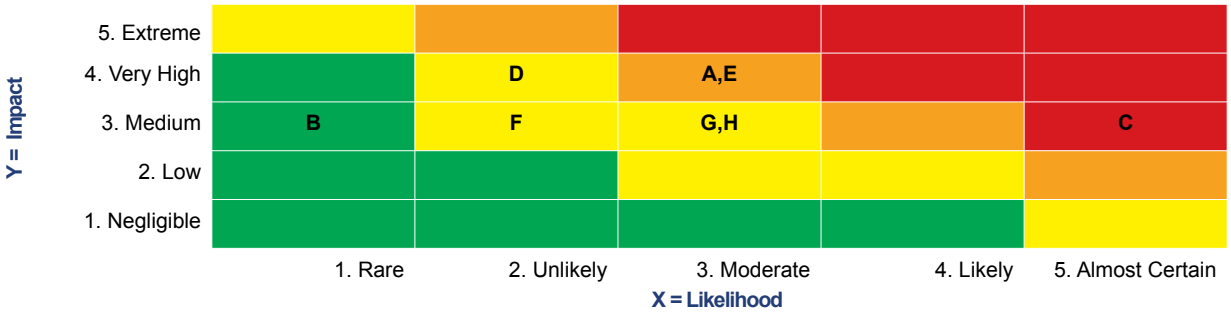
In the current Risk Management Framework, each risk is rated by considering the product of the probability of a risk occurring (scored out of five) and the impact if the risk occurs (also scored out of five). In this way, the most significant risks are highlighted for management attention including ongoing monitoring of the effectiveness of mitigation strategies. The risks identified in association with the Integrated Investment Plan are:

TABLE 8: INTEGRATED INVESTMENT PLAN RISK RATINGS BY IMPACT AND LIKELIHOOD

Risk	Risk Name	Impact (/5)	Likelihood (/5)	Total Risk Rating (/25)
A	Insufficent Investment in Asset Base	4	3	**12**
B	Changing Priorities - Programs	3	1	**3**
C	Changing Priorities - Assets	3	5	**15**
D	Resource Availability - Internal	4	2	**8**
E	Resource Availability - External	4	3	**12**
F	Over-Programming	3	2	**6**
G	Cost Increases	3	3	**9**
H	Procurement Delays	3	3	**9**

The risks involved in successfully implementing the Investment Plan have been plotted on a "Heat Map" (Chart 2) in order to visualize their level of severity:

CHART 2: RISK HEAT MAP



The risks associated with the Integrated Investment Plan are considered to be manageable due in large part to the mitigation measures put in place and as a result of the regular oversight by Coast Guard's Investment Management Board.

Failure to implement key mitigation measures like the updated Fleet Renewal Plan may result in significantly higher risks to the overall investment strategy.

The most significant risks pertaining to the Investment Plan are:

- Insufficient Investment in Asset Base
- Changing Priorities – Assets
- Resource Availability – External

The following subsections provide more detail for each identified risks by describing their respective drivers and mitigation strategies.

2.2.1.1 INSUFFICIENT INVESTMENT IN ASSET BASE

Risk Statement:
There is a risk that insufficient investment into the asset base will cause serious problems for CCG and DFO in meeting their objectives.

Drivers:
There is concern that Coast Guard will be unable to procure and maintain its asset base in a timely fashion in order to deliver mandated services. The Agency moderates the risk of reduced fleet reliability by managing its maintenance and refurbishment programs more aggressively and more carefully, and by making informed acquisition decisions. However, the possibility of assets unexpectedly taken out of service remains a serious risk to CCG and DFO objectives. There is concern that the current recapitalization plan will not replace assets in a timely manner and that the condition of land based assets, such as fixed aids, may even be worsening at a faster rate than fleet assets.

Impact: 4 – Very High
Likelihood: 3 – Moderate

Mitigation Strategy:
This risk is mitigated by the Agency's long-term investment planning efforts, namely the Fleet Renewal Plan and the future Shore-based Infrastructure Renewal Plan. By articulating a concrete, long-term lifecycle management plan for all assets, Coast Guard is able to identify its funding needs (over and above the annual regular investment A-Base allocation) for Vessel Procurement projects.

To date, the combination of regular A-Base and external funding has been effective at sustaining the fleet. Although mitigated, the risk will continue to exist as more assets approach the end of their operational life.

2.2.1.2 CHANGING PRIORITIES – PROGRAMS

Risk Statement:
There is a risk that priorities could change, due to a change in government policy.

Drivers:
Despite the recent global economic downturn, marine traffic is expected to increase in the medium to long term. This traffic, combined with rapid technological advancements in the marine and shipbuilding industries and the impacts of climate change (e.g. fluctuating water levels and extended shipping seasons), are expected to increase the demand for Coast Guard programs; including Icebreaking, Search and Rescue, Environmental Response, and Waterways Management. The Integrated Investment Plan was developed with the understanding that the Agency's expectations and mandate will be relatively stable over time. If priorities change as a result of new government policies,

Coast Guard may need to review the way it prioritizes its investment projects.

Impact: 3 - Medium
Likelihood: 1 – Rare

Mitigation Strategy:
This risk is mitigated primarily by completing an extensive investment planning process every fiscal year; a practice that goes above and beyond the requirements of Treasury Board Secretariat. Regular Investment Management Board meetings (see Appendix B for details on Coast Guard's governance and organization structure) also provide a capacity to respond to program changes, as they occur, over the course of a fiscal year.

2.2.1.3 CHANGING PRIORITIES - ASSETS

Risk Statement:
There is a risk that assets may unexpectedly be unable to support program requirements.

Drivers:
The Integrated Investment Plan was developed with the best possible understanding of its asset conditions. However, priorities could change due to program delivery or health and safety concerns. For example, an existing asset may deteriorate faster than projected and may begin to pose safety risks to workers or the public.

Impact: 3 - Medium
Likelihood: 5 – Almost Certain

Mitigation Strategy:
This risk is mitigated through careful oversight from Investment Management Board. If an asset breaks down and requires additional investments, IMB engages project managers across the country to identify projects that can be deferred to the next fiscal year and allow implementation of the emergency investment.

2.2.1.4 RESOURCE AVAILABILITY – INTERNAL

Risk Statement:
There is a risk that the proposed investments will exceed the Agency's capacity to implement them.

Drivers:
There is a significant amount of expertise inherent in the implementation of the investments found in the Integrated Investment Plan. For example if a large number of projects are launched in parallel and require specific subject matter experts, delays may occur due to the lack of available capacity to deliver the projects.

Impact: 4 – Very High
Likelihood: 2 – Unlikely

Mitigation Strategy:
Historically, Coast Guard's internal capacity to deliver projects has corresponded well with the nature of projects and their need for specific implementation and management skills. The Agency's human resource capacity was taken into account when developing the IIP's project timelines. This risk is further mitigated by the "Practical" prioritization phase of the Investment Planning Framework; where proposed investments are reviewed by a national committee formed of members from all directorates, including those responsible for implementation, to ensure that sufficient internal and external capacity are available.

2.2.1.5 RESOURCE AVAILABILITY – EXTERNAL (SUPPLY LIMITATIONS)

Risk Statement:

There is a risk that the unique nature of Coast Guard's business and the specialized nature of its assets may lead to only a limited number of qualified suppliers able to replace or refurbish them.

Drivers:

The state of the Canadian shipbuilding industry is identified as a primary source of risk to the timely delivery of Coast Guard assets. Any delay in a contractor's ability to execute a project will affect the sequencing of fleet renewal activities. Vessel procurement projects may not be completed as planned due to:

- a slow and cumbersome procurement process;
- a significant lack of marine engineering capacity in Canada in terms of skills and actual shipbuilding capacity;
- few competitors in the industry, putting CCG in a vulnerable financial position by being a "price taker";
- the customized nature of the design, construction, and equipment requirements for many vessels destined for government service;
- price volatility in material, component and construction service supply chains; and
- the difficulty for ship builders in obtaining working capital and accessing credit.

Impact: 4 – Very High
Likelihood: 3 – Moderate

Mitigation Strategy:

Through its two Centres of Expertise, Coast Guard maintains regular contact with industrial partners and plans its investments according to available capacity. This risk is further mitigated by the "Practical" prioritization phase of the Investment Planning Framework; where proposed investments are reviewed by a national committee formed of members from all directorates, including those responsible for implementation, to ensure that sufficient internal and external capacity are available.

Coast Guard is also a participant in the National Shipbuilding Procurement Strategy initiative with the Department of National Defence, Public Works and Government Services Canada, and Industry Canada. This strategy ensures timely and cost-effective procurement of new vessels by creating a sufficient volume of known shipyard work to enable a streamlined national contracting process. This program also facilitates private investment in Canadian shipyards and provides CCG with opportunities to achieve economies of scale and reduce overall project costs.

2.2.1.6 OVER-PROGRAMMING

Risk Statement:

There is a risk that the level of over-programming chosen for the investment period is over-valuated or under-valuated.

Drivers:

Experience has consistently shown that despite best efforts, external factors often lead to project delays. In order to minimize the lapse of investment funds, the Investment Management Board decides on an acceptable level of over- programming based on a number of factors, including the Agency's experience in managing certain types of projects, communications with industry,

communications with Public Works and Government Services Canada (as contracting authority), and internal capacity.

Impact: 3 - Medium
Likelihood: 2 – Unlikely

Mitigation Strategy:
Coast Guard's regular project status monitoring enables the department to proactively manage projects that will not be able to spend their allocation and other projects that are in need of funding. Investment Management Board is then able to track the level of over-programming throughout any given fiscal year to ensure the Agency is in a comfortable financial position. When a risk of lapsing funds occurs, IMB may decide to activate unfunded projects. Conversely if not enough projects are slipping in order to cover the level of over-programming, project managers across the country are engaged to identify activities that can be deferred to future years. Additionally, the new Capital Budget Carry Forward procedure initiated in 2010/11 provides Coast Guard with the ability to manage slippage risks through carry-forwards.

2.2.1.7 COST INCREASES

Risk Statement:
There is a risk that the cost of investments scheduled later in the planning cycle may not match forecasts causing downstream financial pressures.

Drivers:
The estimated costs of investments scheduled later in the planning cycle are forecasted to the best of the Agency's ability, based on extensive costing models, experience and expertise. However, changing resource prices and labour markets mean that final investment costs may not always match forecasts. (Note – this does not apply to cost over-runs that occur once an investment is initiated.)

Impact: 3 - Moderate
Likelihood: 3 – Medium

Mitigation Strategy:
This risk is mitigated primarily by the fact that Coast Guard completes a full investment planning cycle each fiscal year. The value of a proposed investment will be monitored over time and any significant changes will affect the Agency's proposed investment plan. Mitigation will be achieved largely by incorporating revised costs in the Integrated Investment Plan, by reallocating funds between projects, and by amending the Plan.

2.2.1.8 PROCUREMENT

Risk Statement:
There is a risk associated to third party services needed to deliver and implement the Integrated Investment Plan.

Drivers:
The Canadian Coast Guard relies on the assistance of third party groups to address functions critical to the delivery of its programs and services, such as corporate services, and acquisitions and procurement experts. Expediting procurement is a top priority of the federal government; therefore CCG must work closely

with other government departments, including central agencies, to identify more simple and streamlined processes to acquire assets.

Impact: 3 - Moderate
Likelihood: 3 – Medium

Mitigation Strategy:
This risk is mitigated, to the greatest ability possible by performing ongoing consultation and collaboration with Public Works and Government Services Canada. Furthermore, the Agency has an extensive track record of supporting major procurement initiatives with regards to its program infrastructure.

2.2.2 Individual Project Risks

As part of the "Investment Identification and Prioritization" phase of the Integrated Investment Planning Framework (see Appendix C), each investment project is subject to a risk assessment. Each risk dimension described in this section is evaluated for investment projects proposed in the Investment Plan.

2.2.2.1 RISK TO MANDATE OUTCOMES

Risk Statement:
There is a risk that failure to move forward on the replacement of an asset will cause negative impacts on CCG's mandates and outcomes.

Drivers:
- The absence of an asset could prevent a program from delivering on one or more of its services.
- Possible negative impact on a Memorandum of Understanding or obligations under Coast Guard's legislative authority.

2.2.2.2 REPUTATION/IMAGE RISK

Risk Statement:
There is a risk that failure to move forward on the replacement of an asset will cause negative impacts on CCG's reputation and image.

Drivers:
- Negative media attention or public criticism.
- Loss of client trust.
- A major crisis in a client community that was directly caused by the department's action or inaction.

2.2.2.3 ENVIRONMENTAL RISK

Risk Statement:
There is a risk that failure to move forward on the replacement of an asset will cause damage to the environment.

Drivers:
- Environmental issues resulting in major long-term detrimental effects on ability to achieve objectives.
- Environmental issues contained with out-side assistance with some short term effects.
- Environmental issues in the program area that are contained within one to two days.

2.2.2.4 RISK TO ASSET INTEGRITY

Risk Statement:
There is a risk that failure to move forward on the replacement of an asset will cause negative impacts on both its own asset class as well as other assets that depend on its availability.

Drivers:

- A system may be integral to another, for example the Digital Global Positioning System is integral to the implementation of the Automatic Identification System and the Long Range Identification and Tracking system.

2.2.2.5 FINANCIAL RISK

Risk Statement:

There is a risk that failure to move forward on the replacement of an asset will cause increasing demands for financial support.

Drivers:

- Costs to maintain the asset are increasing.
- The availability of parts is becoming scarce or expensive.

2.2.2.6 HEALTH AND SAFETY RISK

Risk Statement:

There is a risk that failure to move forward on the replacement of an asset will cause potential dangers for either our employees or members of the public.

Drivers:

- Asset is causing unsafe work conditions.
- Asset is presenting potential dangers to the public.
- Death, or permanent disability or illness.
- Serious disability or long-term illness.
- Minor health and safety issues for employees or members of the public.

2.2.2.7 REGULATORY RISK

Risk Statement:

There is a risk that failure to move forward on the replacement of an asset will cause Coast Guard to become non-compliant with current regulations.

Drivers:

- New regulations or changes to existing regulations may make CCG non-compliant which could, in some cases, result in penalties such as fines.
- Some operations could be suspended until remedial actions have occurred.

Risk assessments and mitigation measures are completed for each and every Coast Guard investment project identified in the Integrated Investment Plan, as part of an Investment Summary Note. Investment Summary Notes are created by the Centres of Expertise for projects seeking their first level of approval. Similar to the overarching risks of the IIP, these risks are monitored on an ongoing basis by project managers who then report to Coast Guard's Investment Management Board.

2.3 MEASURING OUR PERFORMANCE RELATIVE TO THE INVESTMENT PLAN

Performance management will form a key element of the approach to help ensure that the investment plan achieves its intended results. IIP performance management is conducted under the direction of Coast Guard's Investment Management Board. Investment planning performance will be managed on two levels:

- Project Management Effectiveness
- Investment Planning Results

2.3.1 Project Management Effectiveness

Coast Guard has a strong track record of rigorous monthly project progress reporting. On a monthly basis, IMB reviews the budget, scope, timeline and risks associated with every planned and ongoing investment within the Agency. Projects showing issues on any of these dimensions are required to report to IMB regarding the causes, mitigations and proposed solutions on a project-by-project basis. As such, project issues are identified as early as possible and highlighted to Senior Management for attention, decision and remedial action.

2.3.2 Investment Planning Process Results

On an annual basis, Coast Guard's Integrated Business Management Services branch (IBMS), is responsible for the preparation of the Integrated Investment Plan. The group conducts debriefing sessions with investment planning participants and stakeholders to revise the process as necessary and ensures that it is meeting the Agency's needs.

Process effectiveness is also assessed through targeted performance indicators that are reported to IMB. The measures are designed to inform senior management as to whether the Investment Plan is achieving its intended effects by demonstrating good governance, stewardship, accountability, sound decision-making, and effectiveness of planning activities.

The following table contains a list of performance measures used to assess the investment plan's effectiveness and efficiency:

TABLE 9: INVESTMENT PLANNING PERFORMANCE MEASURES

Dimensions	Measures	Sources
People	• Are the right stakeholders involved? • Is there a clear governance structure? • Is the governance structure transparent and accountable? • Are the necessary resources in place for IIP Management?	• IMB • Centres of Expertise • IBMS • DFO Finance
Process	• Is the planning process straightforward and well understood investment planning participants and stakeholders? • Is there a mechanism in place to identify inefficiencies and promote lessons learned?	• IMB • Centres of Expertise • IBMS
Data/Tools/ Systems	• Is the data useful for decision-making (accurate, reliable, relevant, and timely)? • Does CCG have the necessary tools to support the IP process?	• IMB • Centres of Expertise • IBMS
Investment Planning Effectiveness	• What percentage of investments were made according to plan?	• IMB • Centres of Expertise • IBMS

This two-tier Performance Management Framework is expected to be a significant contributor to the Agency's ongoing successful track record for project delivery and planning. By using this approach, CCG ensures rigorous oversight of the Agency's continued performance and effectiveness in Investment Planning and investment decisions.

2.4 HOW WE WILL INVEST OUR RESOURCES: LOOKING BEYOND 2015/16

The Canadian Coast Guard must ensure that it is in a position to provide mandated services to Canadians now and in the future. Operating in an ever-changing environment, Coast Guard must adopt a forward looking approach to the way it plans to provide its services over the next twenty to thirty years.

2.4.1 Program Infrastructure Assets

While keeping up with the continuous advancements in technology and the needs of its user groups and stakeholders, Coast Guard has demonstrated its ability to implement technically advanced systems over the past ten to fifteen years. However, even as new technologies are introduced, older traditional technologies are sometimes kept in service for a variety of reasons, resulting in some degree of duplication for a very limited number of assets. While Coast Guard is dealing with a limited capital funding envelope, it needs to consider both the need to refurbish and replace its program assets, as well as the need to invest in new emerging technologies.

On one end of the spectrum, some of the more recently acquired assets may only require refurbishment or to be equipped with newer equipment in order allow Coast Guard to continue offering the similar levels of service over time. This would be the case for Communication Control System replacements at Marine Communications and Traffic Services centres across the country for example. On the other hand, many assets will need to be completely replaced in order to respond to emerging services required by stakeholders. Navigational tools for the Automatic Identification System (AIS) are an example of such new assets.

As certain services evolve and even possibly change the way Coast Guard offers its services, some assets will need to be entirely taken out of service since they will no longer respond to the requirements of its users and stakeholders. For example, pursuant to a decision taken by the United States, the Long Range Navigation service (LORAN-C) will no longer be provided in Canada and its infrastructure will be removed.

The Agency will develop a long-term plan for shore-based infrastructure, similar to its Fleet Renewal Plan. This Plan will bring a level of rigour to planning for shore-based infrastructure over a twenty to thirty year planning horizon. This plan is intended to assist the Coast Guard in prioritizing future investment to ensure the reliability and availability of Coast Guard's shore-based assets; including those required in the Arctic. Furthermore, it will address concerns regarding the Agency's ability to provide condition

surveys for all its shore-based assets including aids to navigation and marine communications and traffic services assets. As a result, the capacity to plan and prioritize maintenance, replacement and divestiture activities identified in the department's corporate risk profiles will improve greatly. Another main objective of the Plan will be to establish proper lifecycle management practices to shore-based assets bringing them back to baseline condition over time.

To ensure it is properly prepared for the future, Coast Guard will need to develop and implement the Shore-based Infrastructure Plan by focusing on three important areas:

1. Electronic Navigation (e-navigation)
2. Arctic Navigation
3. Environmental Response

The plan will also need to consider various Shore-based Infrastructure asset categories, including:

- Aids to Navigation
- Operational Navigation Systems
- Marine Telecommunication Systems
- Environmental Response Capacity
- Restoration of the Great Lakes Connecting Channels
- Heavy Equipment at CCG Bases
- National CCG Operational Information Systems

Some progress has already been made through the adoption of the Fixed Aids Management Framework. The aim of the framework is to gradually reduce the number of Complex Aids to Navigation that use old technology and to increase the number of more technologically advanced Simple Aids to Navigation. Coast Guard currently maintains approximately five hundred Complex Aids to Navigation. These aids are more costly to build and to maintain without adding any true benefit with regards to service delivery. By reducing the number of complex assets, the Agency will be able to realize some service delivery efficiencies and will lead to added benefits for Canadians.

2.4.2 Fleet Assets

Long-term planning for CCG's vessel and helicopter fleet is accomplished though the Fleet Renewal Plan (FRP). The FRP is based on seven key principles:

- Canadian Coast Guard vessels and helicopters are Government of Canada assets and comprise the Government of Canada's only national civilian fleet.

- The size and mix of the fleet is determined by program requirements and Government of Canada decisions and priorities.

- The fleet will be multi-tasking to the greatest extent possible.

- The fleet will be built in classes and will comprise the smallest number of classes possible.

- The Plan is based on appropriate life-cycle management to obtain the full expected operational life of the vessels and to improve life-cycle cost.

- Cost estimates for vessels are based on a robust and indicative cost estimating methodology that will have independent validation.

- Implementation of the plan has to be sustainable, affordable and provide value for money.

The FRP addresses the long term fleet requirements, the vessel capabilities and the fleet mix. In developing and updating the plan, Canadian Coast Guard assessed the likely factors that would impact on the type of vessels and helicopters required to deliver programs in the future. Results generated by Coast Guard's annual capability gap analysis also allow the Agency to better understand the long term requirements of its fleet. This is of critical importance because the new large vessels will be in service for up to forty-five years and there is little doubt that over that timeframe, there will be changes to program priorities and requirements. The aim of the Fleet Renewal Plan is not to replace vessels one-for-one, but to replace vessel capacities in a logical and sensible way that takes into consideration a wide range of factors.

The 2010 FRP is also built around the premise that vessels will be multi-tasking rather than single-purpose. This means that future vessels will be designed and equipped to adapt to more than one function over their operational life in order to maximize their use. It will also make it easier to re-assign the vessels geographically if needed.

Currently, Canadian Coast Guard operates and maintains over thirty configurations of vessels and four types of helicopters. Through the FRP, Canadian Coast Guard will continue to reduce the number of vessel classes and helicopter configurations. Ultimately, this will be more cost effective for crew training and maintenance and will consequently increase efficiency by making it easier to reassign vessels and redeploy crews.

The overall objective of the 2010 FRP is to have more capable, multi-tasking vessels built in a standard class structure, for more efficient management, operation and maintenance, with the ability to adapt to changing requirements over the long operational life of the vessels. The Fleet Renewal Plan provides a solid foundation for building the Government of Canada's national civilian fleet for the future. The investments selected in this year's Integrated Investment Plan are aligned with the long-term vision for the Fleet in the Fleet Renewal Plan.

In order to achieve the objectives of the Fleet Renewal Plan, the Canadian Coast Guard will require new, long-term and sustained capital funding, both to extend the life of certain vessels until new ones are delivered, and to purchase new vessels and helicopters. Without such new funding, the Fleet Renewal Plan is unachievable.

INVESTMENT DETAILS

3

3.1 LIST AND DESCRIPTION OF INDIVIDUAL INVESTMENTS

This section provides a project-by-project breakdown of the Planned Investment table (Table 6) presented in Section 2.1. The investments are presented in the same order and are divided by asset categories: Program Infrastructure and Fleet. Large Vessel Procurement investments have been isolated from other Fleet investments to form a third asset category.

3.1.1 Program Infrastructure Investments

The investments outlined below respect Coast Guard's ongoing philosophy of attempting to maintain assets in baseline condition while keeping pace with technological change. These investments will enable the ongoing delivery of programs for the duration of the five-year investment planning horizon.

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (Thousands of Dollars)

	Description	Activity	
Program Infrastructure			
REFIT - SHORE BASED INFRASTRUCTURE			
REGULAR REQUIREMENTS			
Floating Aids Refurbishment / Modernization (Phase II)	Replacement or refurbishment of floating aids to navigation and associated equipment needed to address various codes and standards, health and safety requirements, and due diligence.	ATN	
Floating Aids Refurbishment / Modernization (Phase III)	Replacement, modernization or refurbishment of floating aids to navigation assets. The project will also optimize floating aids through the continued implementation of new technologies and migration to four-season buoys where viable.	ATN	
Major Fixed Aids Sites Refurbishment / Modernization (Phase III)	Replacement, modernization or refurbishment of short range major structures and/or sites supporting shore based fixed aids to navigation.	ATN	
Minor Fixed Aids Sites Refurbishment / Modernization (Phase II)	Replacement, removal, relocation, redesign or refurbishment of many critical short-range fixed aids to navigation and associated site infrastructure in all Coast Guard regions. This project will address high-risk items associated with structural failure and health and safety codes.	ATN	
Minor Fixed Aids Sites Refurbishment / Modernization (Phase III)	Replacement, modernization or refurbishment of short range fixed aids to navigation and/or site infrastructure to address high-risk items associated with structure failure and health and safety codes.	ATN	
Environmental Response Equipment Refurbishment	Refurbishment the Coast Guard's Environmental Response equipment by returning the assets back to baseline condition.	ER	
Heavy Equipment Refurbishment (Phase I)	Refurbishment or replacement of a substantial amount of heavy equipment, located at Coast Guard bases and remote sites, that is used to refurbish, repair and maintain assets and components used by Coast Guard programs.	SBAR	
Arctic Telecommunication Refurbishment	Refurbishment of the Arctic Telecommunications network and infrastructure to return it to baseline condition. The project will replace obsolete medium frequency, high frequency, very high frequency, ultra high frequency, and satellite communications equipment.	MCTS	
MCTS Communication Sites Refurbishment (Phase III)	Refurbishment of existing Marine Communications and Traffic Services sites used by Coast Guard across Canada to baseline condition. The project will replace or refurbish equipment, buildings, trailers, roads, transmission lines, fuel tank systems, spill containment structures, and physical security to meet national and regional standards.	MCTS	
MCTS Communication Towers Refurbishment (Phase II)	Refurbishment of Marine Communications and Traffic Services towers identified as top priorities to baseline condition. These towers were identified in April 2006 as those that do not meet current operational requirements or are at high risk of failure due to erosion and overloading.	MCTS	

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	285,805.0	**99,652.7**	**25,000.0**	**25,000.0**	**25,000.0**	**25,000.0**	**25,000.0**	**61,152.0**
	285,805.0	*99,652.7*	*25,000.0*	*25,000.0*	*25,000.0*	*25,000.0*	*25,000.0*	*61,152.0*
	17,449.0	16,191.2	1,257.8	-	-	-	-	-
	18,028.0	-	2,027.0	3,198.0	3,000.0	2,500.0	4,331.0	2,972.0
	16,360.0	-	3,516.0	3,637.0	3,500.0	2,693.0	3,014.0	-
	18,492.0	17,777.2	714.8	-	-	-	-	-
	17,459.0	-	3,540.0	3,663.0	3,349.0	2,500.0	2,903.0	1,504.0
	50,645.0	-	-	4,117.0	2,684.0	3,500.0	9,152.0	31,192.0
	18,000.0	1,284.6	100.1	100.0	100.0	100.0	100.0	16,215.0
	16,684.0	15,347.7	1,336.3	-	-	-	-	-
	18,145.0	-	2,285.0	2,500.0	2,500.0	2,500.0	2,500.0	5,860.0
	18,698.0	17,932.3	765.7	-	-	-	-	-

CONTINUED...

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Description	Activity	
MCTS Communication Towers Refurbishment (Phase III)	Refurbishment of Marine Communications and Traffic Services towers identified as top priorities to baseline condition. These towers are identified as those that do not meet current operational requirements or are at high risk of failure due to erosion and overloading.	MCTS	
MCTS Communications Systems Refurbishment (Phase II)	Refurbishment of communications systems and associated infrastructure, including medium frequency and high frequency receivers and transmitters, very high frequency direction finding antenna systems and satellite links, radars, ultraviolet photoelectron spectroscopy, and test infrastructure in all regions. The project will also consolidate the Prince Rupert Microwave Network by adding two microwave sites and including four microwave links.	MCTS	
MCTS Continuous Marine Broadcast Refurbishment	Replacement of the existing outdated Continuous Marine Broadcast equipment with up-to-date technology that includes an automated text-to-speech capability and can be integrated into the new Communications Control System.	MCTS	
MCTS Transmitter/Communication Systems Refurbishment (Phase III)	Refurbishment of Marine Communications and Traffic Services transmitters and electronics. The project also includes the creation of Technical Solution centres in each Coast Guard region.	MCTS	
Very High Frequency Radio Refurbishment	Refurbishment of Marine Communications and Traffic Services very high frequency radios, in all regions, to baseline condition. These assets are obsolete or at risk of failure.	MCTS	
WATERWAY CHANNEL RESTORATION			
REGULAR REQUIREMENTS			
Restoration of the Great Lakes Connecting Channels (Phase I)	Restoration of the charted depths and safe design width of the Canadian portion of the channels on the Lower Detroit River (e.g. the Livingstone and Amhertsburg Channels), the Lake St. Clair area (e.g. St. Clair River, South East Bend, and Lake St. Clair channels), and the St. Mary's River. This project will allow ships on the Great Lakes and St. Lawrence Seaway system unrestricted, safe and efficient passage between the upper and lower Great Lakes.	WM	
SYSTEMS AND INFRASTRUCTURE			
NEW INVESTMENTS			
Helicopter Landing Pads at Aids to Navigation Sites	Construction of approximately eighty-six new helicopter landing pads in Newfoundland and Labrador to ensure safe access to existing aids to navigation locations.	ATN	
Business Data Exchange Improvements for Ships	Equip Coast Guard vessels with an improved business data exchange system with ship-to-shore and shore-to-ship capabilities.	FOR	
CCGAPS Improvement and Upgrade Project	Upgrade of the Canadian Coast Guard's Automated Performance Solution. This solution is the most critical business management tool available for Coast Guard vessel reporting activities.	FOR	
Fleet Information Management System Integration	Upgrade and integration of various planning and operational fleet systems in the new architecture. This architecture is the foundation for all the fleet's operational management information systems.	FOR	
Flight Following System	Installation of a Flight Following System on all 23 helicopters and 18 helicopter-capable vessels of Coast Guard's fleet.	FOR	
Vessel Tracking System	Installation of a near-real-time vessel tracking system on 100 Coast Guard small craft and all 116 Coast Guard vessels.	FOR	

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	18,084.0	-	2,675.0	3,000.0	3,000.0	3,000.0	3,000.0	3,409.0
	17,887.0	8,254.7	3,737.3	1,800.0	4,095.0	-	-	-
	4,538.0	-	-	985.0	1,772.0	1,781.0	-	-
	17,727.0	6,301.0	2,000.0	2,000.0	1,000.0	6,426.0	-	-
	17,609.0	16,564.0	1,045.0	-	-	-	-	-
	19,000.0	**650.0**	**3,815.0**	**3,815.0**	**3,815.0**	**3,815.0**	**3,090.0**	**0.0**
	19,000.0	*650.0*	*3,815.0*	*3,815.0*	*3,815.0*	*3,815.0*	*3,090.0*	*0.0*
	19,000.0	650.0	3,815.0	3,815.0	3,815.0	3,815.0	3,090.0	-
	240,233.9	**41,600.0**	**32,040.2**	**24,818.5**	**22,065.5**	**18,967.1**	**15,762.0**	**84,980.0**
	76,190.4	*26,831.7*	*16,866.0*	*7,435.4*	*4,902.1*	*1,178.0*	*4,318.0*	*14,659.0*
	2,567.0	-	-	1,000.0	1,567.0	-	-	-
	4,086.0	1,551.2	1,534.8	1,000.0	-	-	-	-
	3,472.4	1,912.3	1,240.0	320.1	-	-	-	-
	3,450.2	-	-	1,115.3	1,156.9	1,178.0	-	-
	2,803.8	1,354.6	1,449.0	-	-	-	-	-
	3,604.0	1,405.0	2,199.0	-	-	-	-	-

CONTINUED...

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Description	Activity	
Asset Management System "Bridge"	Development and implementation of the information technology infrastructure and application components necessary to integrate the vessel-based asset maintenance information database (MAINTelligence) and the shore-based asset maintenance information database (MAXIMO). This project will provide complete and comprehensive management information regarding the maintenance of both shore-based and vessel Coast Guard assets. It will also enable the Shore-Based Asset Readiness program to better deliver its services.	SBAR	
CCG Operational Network (OpNet)	Development and implementation of a national Canadian Coast Guard Operational Network, including the required information technology processes, documentation, and training. The project will also provide the required hardware equipment and related software to operate all existing Coast Guard operational systems/applications on one standard national network infrastructure.	SBAR	
Configuration Management & Technical Data Management System	Development and implementation of a system to support enhanced material acquisition and lifecycle management through a nationally managed information infrastructure.	SBAR	
MCTS VHF In-Fill Sites in Newfoundland and Labrador Region	Establishment of very high frequency communication coverage in the gap areas of Rigolet and Black Tickle Labrador, and in White Bay Newfoundland.	MCTS	
MCTS VHF In-Fill Sites in the Pacific Region	Establishment of very high frequency communication coverage in the gap areas of Port Renfrew, Berry Point, Bella Coola, Nanaimo and Jervis Inlet.	MCTS	
Automatic Identification System	Implementation of a national very high frequency Automatic Identification System service and a long range vessel identification and tracking service in Canada to enhance marine security and improve the safety of navigation in Canada.	MS	
REPLACEMENTS			
CCG College Training Simulators	Replacement of two Canadian Coast Guard College simulators; the Marine Propulsion Plant simulator and the Blind Pilotage Radar simulator. Both are beyond the normal ten-year industry standard for hardware and software support.	FOR	
iFleet	Upgrade of an existing obsolete system built in 1993. The project will increase the security of the system, ensure the provision of timely information, and ensure compliance with modern Treasury Board policies.	FOR	
MariTime System Upgrade	Upgrade of the current MariTime system in order to link it to a common core of data created for other Fleet systems. The project will improve Coast Guard's ability to plan vessel and human resources through this system.	FOR	
Differential Global Positioning System Replacement	Replacement of electronic equipment and infrastructure at Differential Global Positioning System sites across Canada.	ATN	
MCTS Communications Control System (CCS) Equipment Replacement	Replacement of the Communications Control System equipment at 22 Marine Communications and Traffic Services centres. The project also replaces associated consoles, radio remote control equipment at remote sites, and two simulators at the new technical training facilities required at the Canadian Coast Guard College. This latest digital technology will enable multifunction switching and simultaneous communications on different radio frequencies.	MCTS	
MCTS Information Logging System	Replacement of the outdated Message Data System and automatic message broadcasting system (MDS/NAVTEX) with a new logging system at 22 Marine Communications and Traffic Services centres.	MCTS	

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	1,832.0	576.0	1,256.0	-	-	-	-	-
	7,460.0	-	-	-	-	-	1,865.0	5,595.0
	10,398.0	1,219.8	3,000.0	4,000.0	2,178.2	-	-	-
	6,459.0	-	-	-	-	-	2,077.0	4,382.0
	5,058.0	-	-	-	-	-	376.0	4,682.0
	25,000.0	18,812.8	6,187.2	-	-	-	-	-
	151,474.3	*13,968.3*	*13,274.2*	*13,769.5*	*16,349.8*	*17,789.1*	*9,679.0*	*66,644.0*
	7,249.0	3,183.0	4,065.7	-	-	-	-	-
	4,919.3	4,138.8	780.5	-	-	-	-	-
	4,970.0	-	-	988.5	1,560.8	1,477.6	943.0	-
	30,474.0	-	-	-	1,510.0	1,533.0	5,720.0	21,711.0
	47,789.0	6,346.5	7,653.0	11,652.0	10,917.0	11,220.5	-	-
	4,611.0	300.0	775.0	1,129.0	1,423.0	984.0	-	-

CONTINUED...

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Description	Activity	
MCTS National VTMIS Replacement	Replacement of the National Information System on Marine Navigation (INNAV) by a Vessel Traffic Management Information System (VTMIS) that would integrate all approved capabilities, mandates and data requirements.	MCTS	
Very High Frequency - Direction Finding System	Refurbishment of the very high frequency direction finding system that is obsolete or at risk of failure, in all regions, to baseline condition. The installation of new sites for additional very high frequency direction finding coverage will comprise the scope of a separate project.	MCTS	
DIVESTITURE AND OTHER			
LORAN C Infrastructure Removal	Removal of LORAN C infrastructure no longer required for operational reasons and that pose health and safety hazards to the public and air navigation. These assets represent a liability for the department.	ATN	
Removal of Surplus Infrastructures	Removal of Aids to Navigation and Marine Communication and Traffic Services infrastructure no longer operationally required and that may pose safety and security risks to the public. These assets represent a liability for the department.	ATN	
ARCTIC NAVAREAS INFRASTRUCTURE			
Arctic NAVAREAs Infrastructure	Establish NAVAREAs infrastructure in the arctic. NAVAREAs are established geographical areas within which to coordinate the broadcast of navigational warnings to mariners and communities.	MCTS	
Total Program Infrastructure			

Table 10: Program Infrastructure Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	39,190.0	-	-	-	-	1,156.0	1,174.0	36,860.0
	12,272.0	-	-	-	939.0	1,418.0	1,842.0	8,073.0
	9,742.0	*800.0*	*1,900.0*	*1,600.0*	*0.0*	*0.0*	*1,765.0*	*3,677.0*
	4,300.0	800.0	1,900.0	1,600.0	-	-	-	-
	5,442.0	-	-	-	-	-	1,765.0	3,677.0
	2,827.2	*0.0*	*0.0*	*2,013.6*	*813.6*	*0.0*	*0.0*	*0.0*
	2,827.2	-	-	2,013.6	813.6	-	-	-
	545,038.9	**141,902.7**	**60,855.2**	**53,633.5**	**50,880.5**	**47,782.1**	**43,852.0**	**146,132.0**

3.1.2 Fleet Investments

The Fleet investment list provides a combination of investments designed to ensure the long-term safety and sustainability of the fleet. It includes investments in new small vessels and new vessel systems as well as vessel refits and Vessel Life Extensions to keep vessels in service, up to date and operational. Investments made for the procurement of new large vessels are described in subsequent section 3.1.3.

TABLE 11: VESSEL FLEET INVESTMENTS, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

	Description	Activity	
Vessel Fleet			
REFIT - SHIPS			
REGULAR REQUIREMENTS			
Air Cushion Vehicles Refurbishment (Phase II)	Refurbishment of four Air Cushion Vehicles (Phase II) from the Quebec and Pacific Regions, in order to maintain them in an acceptable operational condition.	FOR	
Air Cushion Vehicles Refurbishment (Phase III)	Refurbishment of Air Cushion Vehicles (Phase III) from the Quebec and Pacific Regions, in order to maintain them in an acceptable operational condition.	FOR	
Icebreakers Refurbishment (Phase II)	Refurbishment of potentially six icebreaker-class vessels (Phase II) in order to maintain them in an acceptable operational condition. The vessels are located in Newfoundland and Labrador, Maritimes and Quebec Regions.	FOR	
Icebreakers Refurbishment (Phase III)	Refurbishment of icebreaker-class vessels (Phase III) in order to maintain them in an acceptable operational condition.	FOR	
Light Icebreakers/Major Navaids Tenders Refurbishment (Phase II)	Refurbishment of at least seven Coast Guard light icebreakers/major Nav Aids tenders (Phase II) to baseline condition. The vessels covered as part of this project are the CCGS Ann Harvey, CCGS Sir Wilfrid Laurier, CCGS Edward Cornwallis, CCGS George R. Pearkes, CCGS Griffon, CCGS Martha L. Black, CCGS Sir William Alexander, and any other vessels that are under the jurisdiction of the light icebreaker/major Nav Aids tenders asset group.	FOR	
Light Icebreakers/Major Navaids Tenders Refurbishment (Phase III)	Refurbishment of Coast Guard light icebreakers/major Nav Aids tenders (Phase III) to baseline condition.	FOR	
Marine Service Vessels Refurbishment (Phase III)	Refurbishment of potentially sixteen marine service vessels (Phase III) in order to maintain them in an acceptable operational condition. The vessels are located in all five Coast Guard regions.	FOR	
Offshore Research Vessels Refurbishment (Phase II)	Refurbishment of at least six offshore research vessels (Phase II) to return the onboard equipment and systems back to baseline condition. The vessels covered as part of this project are the CCGS Teleost, CCGS Alfred Needler, CCGS Wilfred Templeman, CCGS John P. Tully, CCGS W.E. Ricker, CCGS Hudson, and any other vessels that are under the jurisdiction of the offshore research vessel asset group.	FOR	
Offshore Research Vessels Refurbishment (Phase III)	Refurbishment of offshore research vessels (Phase III) to return the onboard equipment and systems back to baseline condition.	FOR	
Patrol Vessels Refurbishment (Phase III)	Refurbishment of potentially twenty-nine patrol vessels (Phase III) in order to maintain them in an acceptable operational condition. The vessels are located in all five Coast Guard regions.	FOR	

Table 11: Vessel Fleet Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	347,656.1	**36,969.0**	**66,155.0**	**59,650.0**	**64,400.0**	**64,400.0**	**59,400.0**	**21,663.8**
	335,744.1	*29,042.0*	*62,170.0*	*59,650.0*	*64,400.0*	*64,400.0*	*59,400.0*	*21,663.8*
	3,289.0	2,437.1	310.0	-	-	-	-	-
	2,400.0	-	-	600.0	600.0	600.0	600.0	679.0
	13,662.5	10,428.7	3,190.0	-	-	-	-	58.8
	13,730.0	-	-	3,380.0	3,350.0	3,500.0	3,500.0	888.3
	8,755.0	6,625.6	2,000.0	1,078.8	-	-	-	-
	5,956.8	-	-	-	1,650.0	2,153.4	2,153.4	5,416.7
	5,846.6	2,371.8	2,000.0	1,700.0	1,300.0	846.6	-	-
	9,134.9	2,734.5	2,100.0	2,620.7	-	-	2,042.7	-
	5,300.0	-	-	-	2,600.0	2,700.0	-	4,865.0
	6,957.9	1,456.2	2,100.0	2,000.0	2,000.0	857.9	-	-

CONTINUED...

Table 11: Vessel Fleet Investments, 2011/12 to 2015/16 (...CONTINUED)

	Description	Activity	
Program Boats Refurbishment (Phase II)	Refurbishment of various SAR Lifeboats, program vessels and associated vessel support shore-based infrastructure (Phase II) to maintain them in an acceptable operational condition. Various other small craft are also included in this project. The vessels are located in all five Coast Guard regions.	FOR	
Program Boats Refurbishment (Phase III)	Refurbishment of various SAR Lifeboats, program vessels and associated vessel support shore-based infrastructure (Phase III) to maintain them in an acceptable operational condition. Various other small craft are also included in this project. The vessels are located in all five Coast Guard regions.	FOR	
Research Vessels Refurbishment (Phase II)	Refurbishment of at least four research vessels and associated vessel support shore-based infrastructure (Phase II) to maintain them in an acceptable operational condition. The vessels covered as part of this project are the CCGS Matthew, CCGS Limnos, CCGS Neocaligus and CCGS Vector. It is possible some of these vessels may be replaced by new acquisitions over the life of this project.	FOR	
Research Vessels Refurbishment (Phase III)	Refurbishment of research vessels and associated vessel support shore-based infrastructure (Phase III) to maintain them in an acceptable operational condition.	FOR	
Capital Refits - Central and Arctic Region	Refurbishment or annual refit of various Canadian Coast Guard vessels in the Central and Arctic region so that the vessels can continue to perform their required missions. This project covers the period of 2011/12 to 2015/16.	FOR	
Capital Refits - Maritimes Region	Refurbishment or annual refit of various Canadian Coast Guard vessels in the Maritimes region so that the vessels can continue to perform their required missions. This project covers the period of 2011/12 to 2015/16.	FOR	
Capital Refits - Newfoundland and Labrador Region	Refurbishment or annual refit of various Canadian Coast Guard vessels in the Newfoundland and Labrador region so that the vessels can continue to perform their required missions. This project covers the period of 2011/12 to 2015/16.	FOR	
Capital Refits - Pacific Region	Refurbishment or annual refit of various Canadian Coast Guard vessels in the Pacific region so that the vessels can continue to perform their required missions. This project covers the period of 2011/12 to 2015/16.	FOR	
Capital Refits - Quebec Region	Refurbishment or annual refit of various Canadian Coast Guard vessels in the Quebec region so that the vessels can continue to perform their required missions. This project covers the period of 2011/12 to 2015/16.	FOR	
UNPLANNED REQUIREMENTS			
CCGS Pierre Radisson Major Refit	Refurbishment of the vessel's propulsion system will ensure that the vessel remains operational and can meet program requirements.	FOR	
REFIT - HELICOPTERS			
REGULAR REQUIREMENTS			
Refit CCG Helicopters 2011 to 2013	Repair and maintenance expenditures to maintain helicopter safety and capability, required to ensure that the helicopter fleet can continue to be operational between 2011 and 2013.	FOR	
Refit CCG Helicopters 2014 to 2016	Repair and maintenance expenditures to maintain helicopter safety and capability, required to ensure that the helicopter fleet can continue to be operational between 2014 and 2016.	FOR	

Table 11: Vessel Fleet Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	8,716.0	2,358.3	1,300.0	1,565.5	1,500.0	-	1,075.1	1,075.1
	4,774.2	-	-	-	-	2,342.1	2,432.1	3,985.6
	4,487.6	629.8	800.0	855.0	800.0	800.0	283.1	421.7
	1,713.6	-	-	-	-	-	1,713.6	4,273.6
	20,088.4	-	4,017.7	4,017.7	4,017.7	4,017.7	4,017.7	-
	40,711.5	-	8,142.3	8,142.3	8,142.3	8,142.3	8,142.3	-
	71,240.9	-	18,414.2	10,894.2	15,644.2	15,644.2	10,644.1	-
	42,573.1	-	8,514.6	8,514.6	8,514.6	8,514.6	8,514.6	-
	66,406.1	-	9,281.2	14,281.2	14,281.2	14,281.2	14,281.3	-
	11,912.0	*7,927.0*	*3,985.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
	11,912.0	7,927.0	3,985.0	-	-	-	-	-
	33,600.0	**0.0**	**5,600.0**	**5,600.0**	**5,600.0**	**5,600.0**	**5,600.0**	**5,600.0**
	33,600.0	*0.0*	*5,600.0*	*5,600.0*	*5,600.0*	*5,600.0*	*5,600.0*	*5,600.0*
	16,800.0	-	5,600.0	5,600.0	5,600.0	-	-	-
	16,800.0	-	-	-	-	5,600.0	5,600.0	5,600.0

CONTINUED...

Table 11: Vessel Fleet Investments, 2011/12 to 2015/16 (...CONTINUED)

	Description	Activity	
VESSEL MAINTENANCE MANAGEMENT			
REGULAR REQUIREMENTS			
Vessel Maintenance Management System 2010 to 2012	Implementation of the Vessel Maintenance Management system will allow Coast Guard to better manage the challenges associated with operating a diverse fleet of vessels between 2010 and 2012	FOR	
Vessel Maintenance Management System 2013 to 2015	Implementation of the Vessel Maintenance Management system will allow Coast Guard to better manage the challenges associated with operating a diverse fleet of vessels between 2013 and 2015	FOR	
SMALL CRAFT REPLACEMENT			
REGULAR REQUIREMENTS			
Small Craft Acquisition Plan 2011 to 2013	Acquisition of approximately 150 small craft to replace the existing capacity between 2011 and 2013. These craft are the highest priority for replacement and represent only a small percentage of the 3,000 small craft currently owned by Coast Guard.	FOR	
Small Craft Acquisition Plan 2014 to 2016	Acquisition of approximately 150 small craft to replace the existing capacity between 2014 and 2016. These craft are the highest priority for replacement and represent only a small percentage of the 3,000 small craft currently owned by Coast Guard.	FOR	
SMALL VESSEL REPLACEMENT			
SCHEDULED REPLACEMENTS			
Acquisition of a Near-Shore Fishery Research Vessel	Acquisition of a vessel to replace the capacity of the CCGS Shamook and can perform the required missions efficiently and effectively.	FOR	
Acquisition of a Specialty Vessel	Acquisition of a vessel to maintain the levels of service required to meet program requirements as a replacement for the CCGS A.H. Chevarie.	FOR	
Acquisition of a Specialty Vessel	Acquisition of a vessel to maintain the levels of service required to meet program requirements as a replacement for the CCGS Otter Bay.	FOR	
Acquisition of ten SAR Lifeboats	Acquisition of ten high endurance SAR Lifeboats. This will continue the transition from various outdated vessel classes to replace the capability of the current 'Arun'-class lifeboats with modern lifeboats.	FOR	
Acquisition of two Channel Survey and Sounding Vessels	Acquisition of two vessels to help ensure that Coast Guard meets its operational requirements and established levels of service in the Quebec region as replacements for the CCGS GC-03 and CCGS F.C.G. Smith.	FOR	
Acquisition of two Mid-Shore Science Vessels	Acquisition of two vessels that can provide the optimal platform to perform the required missions more efficiently and effectively.	FOR	
UNPLANNED REQUIREMENTS			
Acquisition of Near-Shore Fishery Research Vessels	The remaining requirement for two Economic Action Plan projects to acquire three Near-Shore Fishery Research Vessels.	FOR	
VESSEL SYSTEMS AND TECHNOLOGY UPGRADES			
REPLACEMENTS			
Integrated Navigation Systems	Acquisition and installation of Shipboard Universal Automatic Identification Systems, Differential Global Positioning Systems and Electronic Navigational Chart Systems on selected Coast Guard vessels.	FOR	
Total Vessel Fleet			

Table 11: Vessel Fleet Investments, 2011/12 to 2015/16 (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	35,940.5	**3,200.0**	**6,500.0**	**6,500.0**	**6,500.0**	**6,500.0**	**6,500.0**	**0.0**
	35,940.5	*3,200.0*	*6,500.0*	*6,500.0*	*6,500.0*	*6,500.0*	*6,500.0*	*0.0*
	16,440.5	3,200.0	6,500.0	6,500.0	-	-	-	-
	19,500.0	-	-	-	6,500.0	6,500.0	6,500.0	-
	30,000.0	**0.0**	**5,000.0**	**5,000.0**	**5,000.0**	**5,000.0**	**5,000.0**	**5,000.0**
	30,000.0	*0.0*	*5,000.0*	*5,000.0*	*5,000.0*	*5,000.0*	*5,000.0*	*5,000.0*
	15,000.0	-	5,000.0	5,000.0	5,000.0	-	-	-
	15,000.0	-	-	-	-	5,000.0	5,000.0	5,000.0
	221,018.4	**1,715.9**	**8,971.6**	**2,588.4**	**8,313.4**	**27,923.2**	**39,225.8**	**132,280.1**
	213,710.1	*1,715.9*	*1,663.3*	*2,588.4*	*8,313.4*	*27,923.2*	*39,225.8*	*132,280.1*
	19,119.4	-	-	-	-	1,000.0	6,145.8	11,973.6
	4,289.2	1,715.9	1,663.3	910.0	-	-	-	-
	4,599.5	-	-	1,678.4	2,697.9	223.2	-	-
	90,091.5	-	-	-	3,615.5	15,700.0	15,080.0	55,696.0
	28,972.2	-	-	-	2,000.0	10,000.0	10,000.0	6,972.2
	66,638.3	-	-	-	-	1,000.0	8,000.0	57,638.3
	7,308.3	*0.0*	*7,308.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
	7,308.3	-	7,308.3	-	-	-	-	-
	10,233.8	**5,780.1**	**2,200.0**	**2,253.7**	**0.0**	**0.0**	**0.0**	**0.0**
	10,233.8	*5,780.1*	*2,200.0*	*2,253.7*	*0.0*	*0.0*	*0.0*	*0.0*
	10,233.8	5,780.1	2,200.0	2,253.7	-	-	-	-
	678,448.8	**47,665.0**	**94,426.6**	**81,592.1**	**89,813.4**	**109,423.2**	**115,725.8**	**164,543.9**

3.1.3 Large Vessel Procurement Investments

Large Vessel Procurement investments have been isolated from the other Fleet investments due to their order of magnitude and large financial requirements. Together, the investments presented in Section 3.1.2 and the Large Vessel Procurement Investments listed below form a cohesive long-term investment vision for the Canadian Coast Guard fleet.

TABLE 12: PROCUREMENT OF LARGE VESSELS INVESTMENTS, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

	Description	Activity	
Procurement of Large Vessels			
Air Cushion Vehicle	One Air Cushion Vehicle to replace the capacity of the CCGS Penac at the Sea Island Hovercraft Base in Richmond, British Columbia.	FOR	
Mid-Shore Patrol Vessels	Nine Mid-Shore Patrol Vessels to deliver services for Maritime Security and Conservation and Protection programs.	FOR	
Offshore Fishery Science Vessels	Four Offshore Fishery Science Vessels to replace existing capacity provided by the CCGS Alfred Needler, CCGS Wilfred Templeman, CCGS W.E. Ricker and CCGS Teleost.	FOR	
Offshore Oceanographic Science Vessel	One Offshore Oceanographic Science Vessel to replace the capacity of the CCGS Hudson.	FOR	
Polar Icebreaker	One Polar Icebreaker to support the Canadian Coast Guard's icebreaking mandate.	FOR	
Total Procurement of Large Vessels			

Table 12: Procurement of Large Vessels Investments, 2011/12 to 2015/16 (Thousands of Dollars) (...CONTINUED)

	Total Estimated Cost	Previous Years Expenditures	2011/12	2012/13	2013/14	2014/15	2015/16	Future Year Expenditures
	27,250.0	2,100.0	9,950.0	9,360.0	4,820.0	1,020.0	-	-
	227,000.0	54,430.3	89,154.0	73,456.7	9,959.0	-	-	-
	244,000.0	6,867.4	5,745.1	50,829.2	76,659.2	80,389.8	23,509.3	-
	144,400.0	2,481.2	5,147.1	43,604.6	61,100.0	21,500.0	10,567.1	-
	800,000.0	13,879.2	10,915.6	11,491.2	76,514.0	223,000.0	226,000.0	238,200.0
	1,442,650.0	**79,758.1**	**120,911.8**	**188,741.7**	**229,052.2**	**325,909.8**	**260,076.4**	**238,200.0**

3.2 INVESTMENTS BY PROGRAM ACTIVITY ARCHITECTURE

Like all Government of Canada departments and agencies, Coast Guard's assets must be organized in the context of a Program Activity Architecture (PAA). For more information on Coast Guard's PAA, please refer to CCG's annual business plan which can be found on the Agency's website at http://www.ccg-gcc.gc.ca/eng/CCG/Publications.

The planned level of investment in each program activity during the 2011/12 to 2015/16 planning horizon is demonstrated in the following table:

TABLE 13: PLANNED INVESTMENTS BY RELATED PROGRAM ACTIVITY, 2011/12 TO 2015/16 (THOUSANDS OF DOLLARS)

Program Activity	Acronym	Examples of Expenditures	Forecast Expenditure					Total
			2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	
Aids to Navigation	ATN	Refurbishing, modernizing, replacing shore-based and floating aids to navigation	12,955.6	13,098.0	12,926.0	9,226.0	17,733.0	**65,938.6**
Marine Communications and Traffic Services	MCTS	Upgrading communications equipment at MCTS Centres and remote sites	22,272.3	25,079.6	26,459.6	28,485.5	10,969.0	**113,265.9**
Environmental Response Services	ER	Purchasing Environmental Response equipment	0.0	4,117.0	2,684.0	3,500.0	9,152.0	**19,453.0**
Maritime Security	MS	Developing critical vessel surveillance and tracking systems	6,187.2	0.0	0.0	0.0	0.0	**6,187.2**
Waterways Management	WM	Restoring the Canadian portion of the Great Lakes connecting channels	3,815.0	3,815.0	3,815.0	3,815.0	3,090.0	**18,350.0**
Shore-Based Asset Readiness	SBAR	Developing a national Operational Network for CCG systems and applications	4,356.1	4,100.0	2,278.2	100.0	1,965.0	**12,799.3**
Fleet Operational Readiness	FOR	Replacing, refitting, modernizing Fleet vessels and vessel systems	226,607.4	273,757.7	321,583.3	437,988.6	376,745.2	**1,636,682.2**
Total			**276,193.6**	**323,967.3**	**369,746.1**	**483,115.1**	**419,654.2**	**1,872,676.2**

CONCLUSION

The Integrated Investment Plan establishes a solid foundation for all current and future Canadian Coast Guard investment activities. It includes input from across the country to form a unified Coast Guard voice and a clear vision on how scarce resources should be spent.

Over the next five-year planning cycle, Coast Guard will continue to focus the majority of its investment monies on regular activities such as vessel refit, waterway channel restoration, vessel maintenance management and small craft replacement. The remainder of the portfolio will focus primarily in updating CCG's system infrastructure and renewing its small vessel fleet. Important investments to the large vessel fleet will require significant new funds.

The Integrated Investment Plan presents a five-year planning solution that is affordable, productive, financially sustainable, and essential to the Canadian Coast Guard. However, while the Agency attempts to create the most financially sustainable plan possible, the level of investment falls short of creating a complete life-cycle management solution. The current reinvestment rate is not high enough to ensure assets are replaced at the end of their planned operational life. Through the use of its planning and prioritization frameworks as well as the partnership of both Centres of Expertise, Coast Guard is working to minimize its program risks by investing in its highest national priorities.

This document represents the Agency's second year preparing an integrated investment plan. Coast Guard will continue to learn from its experience in preparing and implementing this plan over the course of the 2011/12 to 2015/16 planning cycle. By continuously refining its planning processes, its frameworks and its proven approach to investment decision-making, Coast Guard will succeed in maximizing total value for money and sound stewardship.

APPENDIX A: CCG ASSET BASE DETAILS

Assets by category

A breakdown of the 15,211 assets that form the Coast Guard's asset base is provided in Table 14 by category, program area and level of historic cost.

Please note that this table contains counts of individual assets with acquisition costs of over $10,000. The Agency has significant additional investment requirements for equipment and material across these programs for items whose acquisition cost is less than $10,000 (and therefore which fall below the standard Government of Canada definition of an asset). In particular, the Aids to Navigation program has more than 17,000 individual items that require periodic replacement, resulting in significantly higher investment requirements than are implied by looking only at items valued over $10,000.

TABLE 14: NUMBER OF CAPITAL ASSETS, BY LEVEL OF HISTORIC COST

Asset Type	Historic Cost between $10K & $250K	Historic Cost between $250K & $1M	Historic Cost over $1M	Total Number of Assets
Program Infrastructure				
Aids to Navigation	8,994	24	12	9,030
Waterways Management	21	0	0	21
Marine Communications and Traffic Services	2,468	59	15	2,542
Icebreaking Services	24	4	0	28
Search and Rescue Services	327	1	0	328
Environmental Response Services	878	12	0	890
Life-Cycle Asset Management Services	1,052	15	2	1,069
Coast Guard College	157	1	2	160
Subtotal Program Infrastructure	**13,921**	**116**	**31**	**14,068**
Fleet[1]				
Vessels	2	20	90	112
Air Cushion Vehicles	0	0	4	4
Helicopters	0	6	17	23
Small Craft and Other Assets	932	68	4	1,004
Subtotal Fleet	934	94	115	1,143
Total	**14,855**	**210**	**146**	**15,211**

[1] Only operational assets are included.

Assets by region

The distribution of assets across the country is displayed in Table 15. Coast Guard assets are widely distributed across the country, in accordance with the vast amounts of coastlines and waterways in which the Agency provides services to Canadians. Most major vessels and helicopters are registered in the National Capital Region and assigned to the regions based on operational requirements.

TABLE 15: ASSET COUNT BY TYPE AND REGION

Region	Fleet	Life-Cyle Asset Management	Coast Guard College	Maritime Services	Total
Pacific	291	206	0	2,065	**2,562**
Central and Arctic	186	261	0	6,751	**7,198**
Québec	105	196	0	1,540	**1,841**
Maritimes	192	204	0	772	**1,168**
Newfoundland and Labrador	189	190	0	1,642	**2,021**
National Capital Region	180	12	160	69	**421**
Total	**1,143**	**1,069**	**160**	**12,839**	**15,211**

Additional Information on Fleet Assets

Operational vs. Total Assets

While the Canadian Coast Guard owns a fleet of 129 vessels, its operational fleet is smaller, consisting of only 116 vessels. The remaining 13 vessels are:

- used for training purposes;
- surplus to requirements or past their operational life and awaiting disposal;
- awaiting significant investment (e.g. repairs) before they can be returned to the operational fleet; or
- held in reserve to back-fill any sudden/ emergency vessel failures within the operational fleet.

Vessel Classes and Age Description

Coast Guard operates a fleet 116 vessels belonging to 16 different vessel classes. Of these 39 large vessels are broken down in ten vessel classes (including the new Polar Icebreaker class) and 77 small vessels belong to six vessel classes. In addition to vessels, Coast Guard's fleet is also composed of 23 helicopters. The table below provide the total breakdown of the fleet by class and an overview of each class's age profile.

TABLE 16: COUNT AND AGE OF VESSELS BY VESSEL CLASS, AS OF APRIL 1, 2010

Class	Count	Asset Age		
		Over 25 Years	15 to 25 Years	Under 15 Years
Large Vessels				
Polar Icebreakers	0	0	0	0
Heavy Icebreakers	2	1	1	0
Medium Icebreakers	4	3	1	0
High Endurance Multi-Tasked Vessels	7	1	6	0
Medium Endurance Multi-Tasked Vessels	5	3	2	0
Offshore Patrol Vessels	4	3	1	0
Mid-Shore Patrol Vessels	7	4	3	0
Offshore Oceanographic Science Vessels	2	1	1	0
Offshore Fishery Science Vessels	4	4	0	0
Air Cushion Vehicles	4	1	0	3
Subtotal Large Vessels	**39**	**21**	**15**	**3**
Small Vessels				
Special Navaids Vessels	2	1	1	0
SAR Lifeboats	41	21	10	10
Hydrographic Survey Vessels	5	2	3	0
Channel Survey and Sounding Vessels	2	1	1	0
Near-Shore Fishery Research Vessels	5	1	4	0
Specialty Vessels	22	9	8	5
Subtotal Small Vessels	**77**	**35**	**27**	**15**
Helicopters				
	23	**9**	**13**	**1**
Total	**139**	**65**	**55**	**19**

Approximately forty-seven percent of the operational fleet is over the age of twenty-five years. Another forty percent is between fifteen and twenty-five years old, leaving only fourteen percent of vessels and helicopters under fifteen years of age. According to recommendations made from the shipbuilding industry and Coast Guard's own standards, the operational life of large vessels ranges from twenty-five to fourty-five years, while that of smaller vessels vary from fifteen to twenty years and helicopters are expected to have an operational life of approximately thirty years. Although the overall condition of the small vessel fleet is acceptable due to recent investments, many of the large vessels are close to or well beyond their operational life. As a result, they are in need of replacement and require significant investment.

APPENDIX B: THE CANADIAN COAST GUARD'S ORGANIZATIONAL STRUCTURE AND GOVERNANCE

The Canadian Coast Guard is a national Special Operating Agency of Fisheries and Oceans Canada with its headquarters located in the National Capital Region (NCR) and five regional offices (Newfoundland and Labrador, Maritimes, Quebec, Central and Arctic, and Pacific. The Canadian Coast Guard is a highly decentralized organization, with the vast majority of our employees located in the regions providing front-line services to Canadians.

The Commissioner is the Chief Executive Officer, reporting and accountable to the Deputy Minister of Fisheries and Oceans Canada for the performance of the Canadian Coast Guard. The Commissioner has the full authority of an Associate Deputy Minister, with the exception of Section 33 of the Financial Administration Act, reflecting the intention of Coast Guard to rely on DFO for comptroller functions. In 2010, the Canadian Coast Guard adjusted its organizational structure by adding two key positions both reporting directly to the Commissioner. The Deputy Commissioner, reports directly to the Commissioner. Also reporting to the Commissioner is the Deputy Commissioner, Vessel Procurement, who ensures the effective and efficient delivery of the Agency's investment and procurement activities.

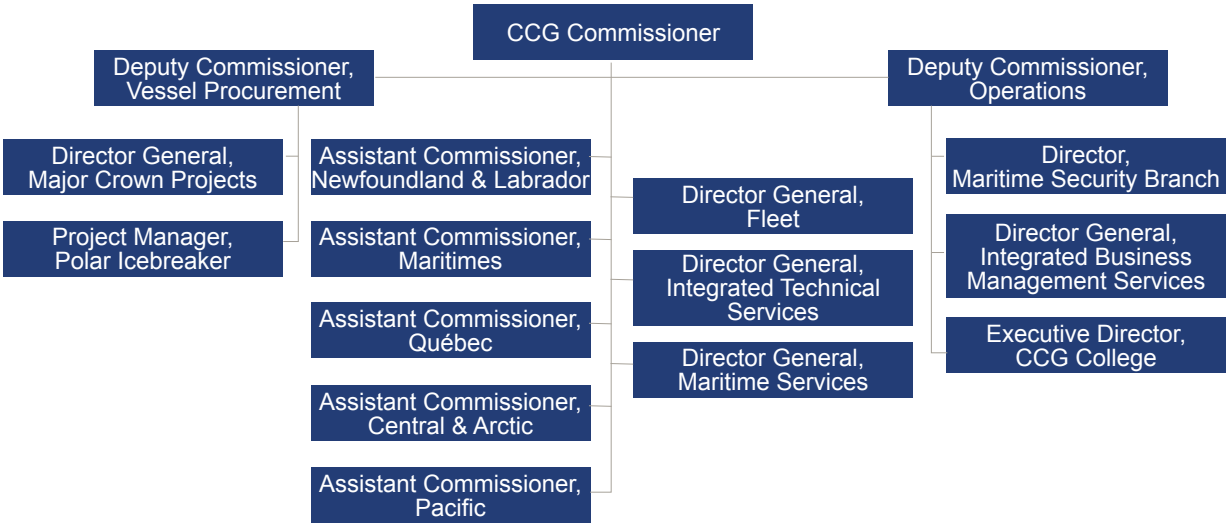
Operational Structure

The Agency's national headquarters is home to five directorates led by Directors General who are responsible for policies, programs, plans and service standards for their functional areas. Maritime Services, Fleet, and Integrated Technical Services directorates report directly to the Commissioner. The Major Crown Projects directorate reports to the Deputy Commissioner of Vessel Procurement while the Integrated Business Management Services directorate reports to the Deputy Commissioner of Operations. Also reporting to the Deputy Commissioner of Operations is a Maritime Security branch which is led by a director in the national capital region.

All five regions are led by Assistant Commissioners, who report directly to the Commissioner and are responsible for directing the delivery of all Coast Guard services their respective region, consistent with national standards, policies and practices. The Canadian Coast Guard College is situated in Sydney, Nova Scotia and is led by an Executive Director, reporting to the Deputy Commissioner of Operations.

The organizational structure is presented in Chart 3.

CHART 3: THE CANADIAN COAST GUARD MANAGEMENT STRUCTURE



Investment Planning Governance Structure

The primary body overseeing the development and implementation of the Investment Plan within Coast Guard is the Investment Management Board (IMB). It is a formal committee structured to facilitate Agency-wide investment planning, prioritization and decision-making. This body's role is to:

a. make investment decisions and produce business strategies regarding the Agency's investment portfolio;

b. review and provide decisions on CCG's Integrated Investment Plan, investment project submissions, Treasury Board submissions involving investment decisions, policy and processes relating to research and development, and other investment matters;

c. monitor ongoing investment projects and approving all reallocations of the Agency's capital investment budgets; and,

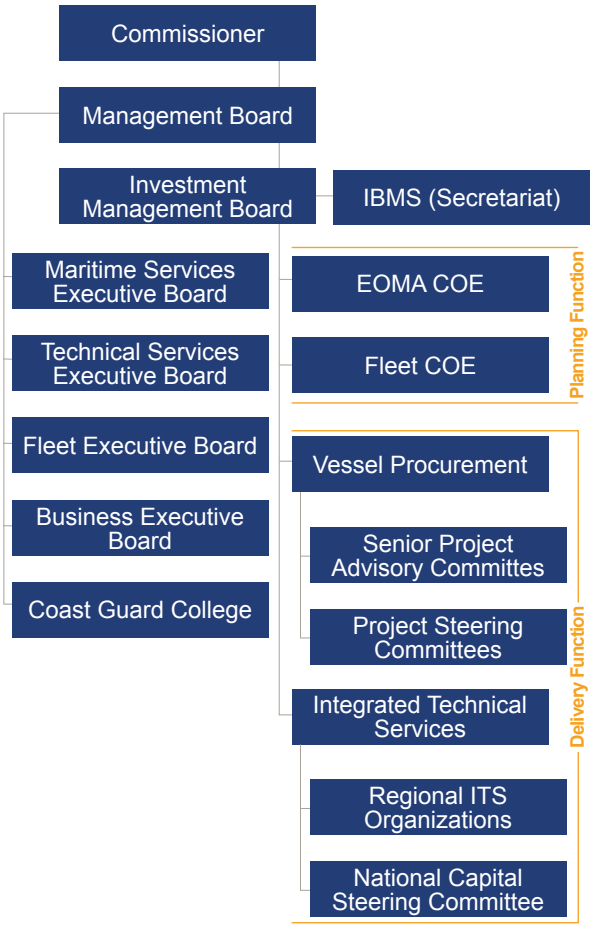
d. provide recommendations for the development of the Real Property and the Information Management & Technology Services Centres of Expertise investment plans to ensure that CCG's highest priorities are addressed and to maximize the value of the department's investments.

The Investment Management Board is chaired by the Commissioner and its membership is composed of:

- the Commissioner – Chair
- the Deputy Commissioner, Vessel Procurement
- the Deputy Commissioner, Operations
- the Assistant Commissioners in the regions
- the Directors General at National Headquarters
- the Executive Director of the Coast Guard College
- the Director General, Real Property (HRCS)
- the Senior Financial Manager
- the Director, Resource Management and Financial Allocations
- the Manager, Resource Management – Secretariat

With these members, Coast Guard is able to manage its investment portfolio effectively and achieve the *vision, mission, goals and objectives* of the department. Investment Management Board plays an important role in the Canadian Coast Guard's overall investment governance structure as shown in the following diagram:

CHART 4: INVESTMENT PLANNING GOVERNANCE STRUCTURE



IMB supports the Agency's Management Board (MB) by assuming primary decision-making responsibility with regards to Coast Guard investments. Management Board is the Agency's senior strategic and operational decision-making body. Chaired by the Commissioner, MB includes the two Deputy Commissioners, the Directors General, the Assistant Commissioners, the Executive Director of the Canadian Coast Guard College and the Executive Director of the National Labour Force Renewal Directorate. The senior human resources advisor, the senior legal advisor, the senior financial advisor, the senior communications advisor from DFO, and the Executive Advisor to the Commissioner are ex officio members of MB.

Management Board is also supported by a number of permanent and temporary sub-committees. For example, each Coast Guard directorate maintains a permanent functional Executive Board which are chaired by the respective Directors General and function as national collaborative boards to provide functional leadership related to their area of expertise. With representation from both headquarters and the regions, Executive Boards provide technical and program-related advice to Management Board to help it make more informed and strategic decisions. Executive Boards then implement any program, policy and administrative direction stemming from these decisions.

Planning Organizations

The Canadian Coast Guard has two Centres of Expertise (COEs) to focus on its specialized planning requirements. The COEs also form part of the overall DFO governance structure for which the Agency has direct responsibility.

- **Equipment and Other Moveable Assets (EOMA) COE**
  The EOMA COE focuses on the Agency's information and operational systems, communications systems and equipment and infrastructure, communication and infrastructure such as radio towers, and radar sites, as well as aids to navigation such as buoys and environmental response equipment in support of CCG's programs. The Director General of Maritime Services is responsible for this COE.

- **Fleet COE**
  The Fleet COE is responsible for the Agency's vessels and helicopters, which are also used by DFO and other government department programs. Fleet assets include ships, ranging in size from large icebreakers to small lifeboats, air cushion vehicles and helicopters. The Canadian Coast Guard is the sole provider of federal government civilian vessels. The Director General of Fleet is responsible for this COE.

These two planning organizations have developed deep, unique and specialized expertise in their respective fields resulting in an overall successful and effective organization structure.

In addition to Coast Guard's two Centres of Expertise, the Agency also relies heavily on other COEs within the department. More information regarding these other COEs can be found in Appendix F.

Implementation Organizations

While the Centres of Expertise are experts in planning for their respective asset bases, they partner with two other Coast Guard groups to execute and implement their planned investments.

- **Vessel Procurement**
  The Vessel Procurement sector, including the Major Crown Projects (MCP) directorate, is responsible for implementing projects related to large vessel procurement.

NEW DEPUTY COMMISSIONER POSITION

In 2010, the Canadian Coast Guard established the position and functions of the Deputy Commissioner of Vessel Procurement. The position has the primary responsibility to design, implement and lead the vessel procurement process for new assets.

- **Integrated Technical Services** The Integrated Technical Services directorate is responsible for the ongoing maintenance of Coast Guard's assets, as well as the implementation of most investment projects not related to large vessel procurement.

These implementation organizations also provide input into the planning process to ensure that projects are feasible and that internal and external capacity exists to deliver proposed investments. A detailed description of the roles and interactions between planning and implementation organizations is included in Appendix C.

Although most projects are implemented by the aforementioned groups, both COEs are sometimes required to implement projects on their own. This is particularly the case when

Coast Guard's internal capacity and expertise resides within their own groups, as opposed to being in the delivery organization. For example, the EOMA COE manages the implementation of the Restoration of the Great Lakes Connecting Channels project while the Fleet COE would realize projects like iFleet and helicopter refits.

Vessel Procurement Governance

The newly created Vessel Procurement sector is led by the Deputy Commissioner, Vessel Procurement and maintains its own internal Fleet Renewal governance structure to maximize the value of its investment to Canadians. This model aligns Coast Guard with other departments and supports the government's commitment to the Canadian shipbuilding industry through a long-term approach to federal procurement.

The Vessel Procurement sector is currently managing five procurement projects: Polar Icebreaker, Mid-Shore Patrol Vessels (MSPV), Offshore Fishery Science Vessels (OFSV), Offshore Oceanographic Science Vessel (OOSV) and Air Cushion Vehicle. Since 2005, the government has announced $1.4 billion in funding for the procurement of these fifteen large vessels.

The procurement projects are assigned Project Management Teams, lead by dedicated Project Managers and reporting to a Project Leader. Project accountability resides in CCG with the Deputy Commissioner, Vessel Procurement and within DFO with the Deputy Minister. Each project is governed in accordance with Treasury Board policies, directives and guidelines; project management principles, and is supported by other participating departments as required.

The Vessel Procurement sector has implemented government processes that are in place to monitor and provide oversight on major crown procurement. Senior Project Advisory Committees (SPAC) have been established for each project, comprised of senior personnel from involved government departments and agencies. The role of each committee is to advise the Project Lead on all aspects of the project and to carry out the procurement review function of the project. The committees meet twice per year as required.

Project Steering Committees (PSC) are established for each project, comprised with internal CCG and DFO stakeholders. Also led by the Project Lead, PSC provides internal project oversight. Meetings are held when required, generally to inform stakeholders of major advancements in the project or changes in project direction.

The Vessel Procurement sector is also updating the Fleet Renewal Plan with an overall objective of having an orderly and affordable long term investment strategy to renew CCG's aging fleet of vessels and helicopters.

Fleet Renewal (Vessel Procurement) governance focuses on ensuring that the highest value to Canadians is delivered by monitoring costs and aligning projects at all stages of the procurement process

Ministerial Level Reporting to Cabinet on the progress against Fleet Renewal Plan.	Advisory Level Internal and external input, general oversight and independent advice on Fleet Renewal	Internal Controls Internal controls to manage costs and requirements, projects and ensure reporting.
• The Minister of Fisheries and Oceans reports to Cabinet every five years on the progress against the Fleet Renewal Plan. The progress report will also provide the results achieved and if required any adjustments within the established funding envelope.	• The Strategic Advisory Council provides general oversight on the Fleet Renewal Plan and reviews proposed operational requirements for each vessel before technical specifications. Comprised of the Deputy Minister of Fisheries and Oceans and departments and agencies that use Coast Guard services and vessels. • CCG will also obtain independent technical advice to challenge the capability requirements for the vessels and/or comment on proposed design solutions.	• A robust cost estimation model is in place and has been verified by independent third-party input. It is used to track financial information for all major vessel procurement projects. • Vessel requirements are subject to ongoing challenge as they are translated into concepts and designs. CCG maintains a multi-disciplinary team approach in completing this validation process. • CCG is restructuring to ensure clear accountability in planning, scheduling, monitoring and cost control of the Fleet Renewal.

Throughout Fleet Renewal and vessel procurement processes, Coast Guard seeks strategic advice and independent expert counsel from central agencies to ensure adherence to Treasury Board policies and requirements. Internal controls and challenge functions targeting project scope, expenditure management and project reporting ensure the best value for money when implementing vessel procurement projects.

The National Shipbuilding Procurement Strategy, currently being implemented will guide future large vessel procurement projects beginning with the Offshore Fishery Science Vessels and Offshore Oceanographic Science Vessels. Two shipyards will be selected to build the large vessels, one for combat ships, and one for non-combat vessels through a fair, transparent and competitive process. The NSPS will result in the signing of formal agreements establishing a long-term relationship between each yard and the Government of Canada. These agreements will allow shipyards to invest in modern equipment and technology and to make productivity improvements thus increasing their ability to deliver federal fleet renewal in a cost effective manner. There will also be opportunities under NSPS for other Canadians shipyards to bid on maintenance and refit work and small vessel construction for the Government of Canada.

Canadian Coast Guard Project Authority Levels

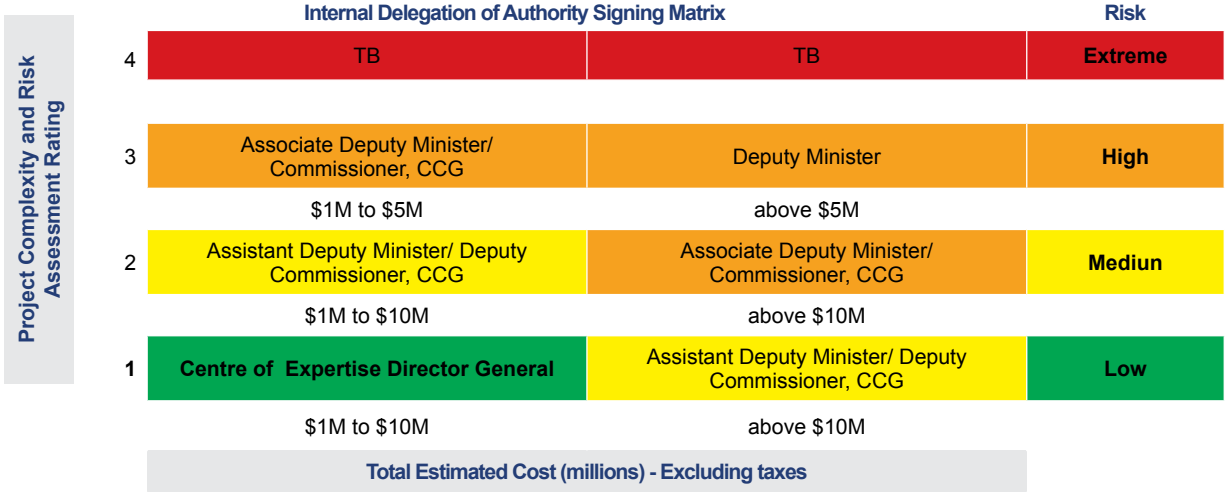
Since 2009/10, Coast Guard has followed a new departmental investment planning framework. Using a Project Complexity & Risk Assessment (PCRA) protocol, the framework requires that all projects be ranked on a scale of one to four by assessing their complexity and risk. A score of four denotes a high level of risk and complexity while a score of one represents the lowest possible value.

Fisheries and Oceans Canada is also ranked as a department, under the Organizational Project Management Capacity Assessment (OPMCA) protocol. Using the same scale of one to four, DFO is ranked to qualify its ability and capacity to manage investment projects. Projects with PCRA scores equal or lower to the Department's OPMCA score are within the Department's approval authority and does not therefore need to receive project approval from the Treasury Board Secretariat. With a long history of successful project management, Fisheries and Oceans Canada is expected to receive a score of three in 2011. This score would mean that the department has the capacity tosuccessfully deliver projects to achieve evolutionary strategic objectives.

With no projects currently projected to be over a score of three in Coast Guard's Integrated Investment Plan, this new framework will provide the Agency with some flexibility for rapid project execution. Furthermore, it will decrease the number of Treasury Board (TB) submissions Coast Guard will need to prepare compared to previous years.

The new authority delegation given to the Agency is displayed in Chart 6. Only projects with PCRA ratings of four or those requiring additional funding will demand Treasury Board approval. The Directors General of Coast Guard's Centres of Expertise, the Deputy Commissioners, the Commissioner and the Deputy Minister all have varying degrees of authority contingent on projects scores.

CHART 6: NEW INTERNAL DELEGATION OF AUTHORITY SIGNING MATRIX



APPENDIX C: CCG INTEGRATED INVESTMENT PLANNING FRAMEWORK DETAILS

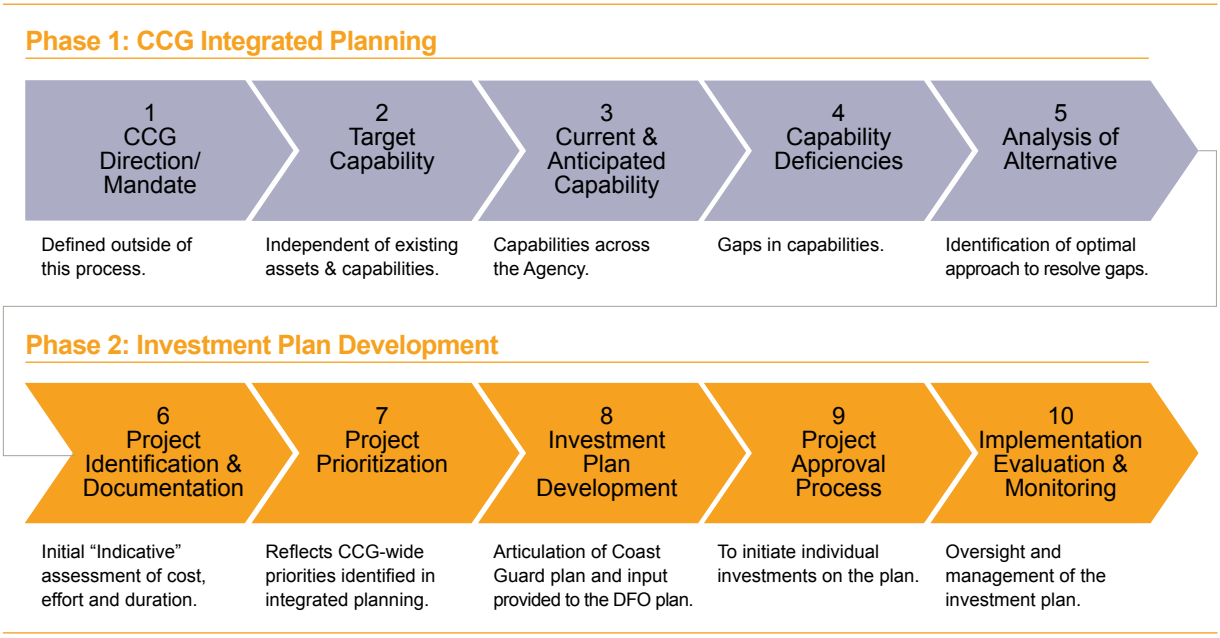
The Integrated Investment Planning Framework was created to guide the Agency through the development of its investment plan. The framework built upon sound planning practices in place in the past to:

- Align Coast Guard with the requirements on the Treasury Board Secretariat *Policy on Investment Planning – Assets and Acquired Services*; and
- Leverage lessons learned from previous planning cycles to improve the level of integration across Coast Guard in the planning process.

This appendix provides a comprehensive overview of the activities required by this ten step framework as it progresses through two main phases.

The following chart depicts the ten steps in Coast Guard's investment planning framework.

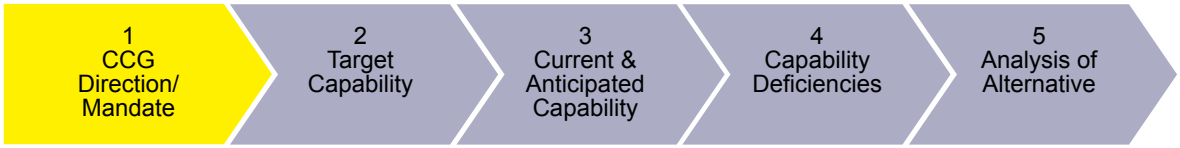
CHART 7: CCG INTEGRATED INVESTMENT PLANNING FRAMEWORK



Each individual step in the framework is described below.

ACTIVITY 1: CCG DIRECTION/MANDATE

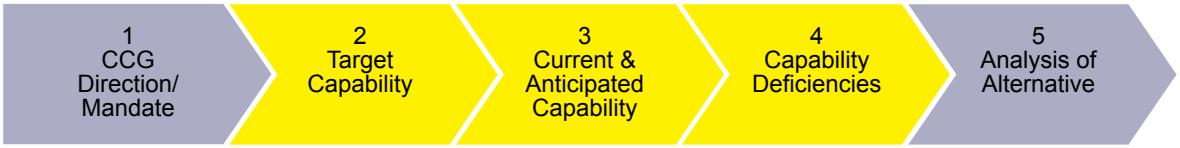
Phase 1: CCG Integrated Planning



The framework begins with CCG's Direction, Mandate, Strategy and Priorities. The articulation of CCG's direction and mandate provides the context for making investment decisions. The direction and mandate are enshrined in other documents such as legislation, the Report on Plans and Priorities and CCG's Business Plans. Changes to the Agency's direction, mandate or priorities should never be introduced in the Investment Plan.

ACTIVITIES 2, 3 AND 4: CAPABILITY GAP ANALYSIS

Phase 1: CCG Integrated Planning



The next three activities in the approach combine to provide a capability-based analysis to serve as the basis for investment decisions. The Capability Gap analysis begins with an articulation of the capabilities that CCG requires to execute its mandate now, and in the future, on a program-by-program basis.

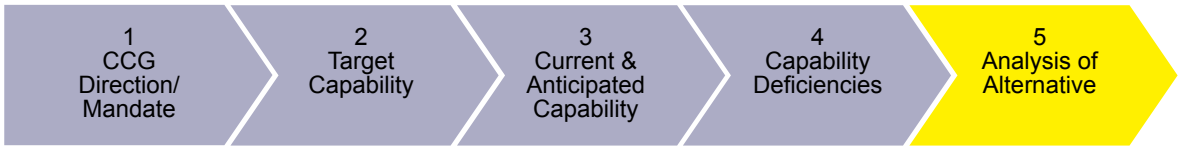
Each program also completes an analysis of current and anticipated capabilities based on:

- the number and condition of existing assets;
- the expected future condition of existing assets;
- already-planned investments to add to the asset base or to extend the life of existing assets; and
- externally acquired services.

The program requirements are compared with current and anticipated capability (from assets and acquired services) to identify any current or future gaps in the Agency's required capabilities. Understanding and articulating the capability gaps of the organization in the short, medium and long term will guide investment as each investment will be expected to address one or more gaps in program capabilities.

ACTIVITY 5: ALTERNATIVE ANALYSIS

Phase 1: CCG Integrated Planning



The alternative analysis is the stage in the process where options to satisfy capability gaps are identified and evaluated. The goal of this activity is to ensure that investment decisions are optimized based on a reasonable suite of options/alternatives such as:

- the replacement of an asset with a different type of asset (technology, configuration, etc.);
- the purchase or lease of an asset;
- a one-for-one replacement of an asset; or,
- having the service provided by an external provider.

The result of the analysis will be a preferred option which will be developed into an investment proposal. As such, the alternative analysis serves as the bridge between capability and program gaps and investment decisions.

ACTIVITY 6: PROJECT IDENTIFICATION & DOCUMENTATION

Phase 2: Investment Plan Development

Once a preferred option is identified to address a capability or program gap, a project proponent is identified and tasked with preparing an Investment Summary Note (ISN) to document sufficient detail about the proposed investment for project prioritization and the allocation of funding. The ISN contains key details about the project:

- Project description and rationale.
- Size and timing of investment required.
- Identification and evaluation of risks of not proceeding with the project.
- Provisional project prioritization score (to be discussed below).

It is at this stage that the Project Complexity and Risk Assessment is first completed for proposed projects.

While ISNs are collected and reviewed together annually as a part of the project prioritization, they can be prepared at any time during the year by their respective project proponents.

ACTIVITY 7: PROJECT PRIORITIZATION

Phase 2: Investment Plan Development

The objective of project prioritization is to determine which investments will be made in light of the scarce resources available to the Agency. Prioritization takes place in three stages:

Stage 1 – "Pure" project prioritization

"Pure" prioritization is completed at the COE level and focuses on articulating the true requirements and priorities of the Agency. The goal of pure prioritization is to rank projects in order of priority in the absence of internal or external constraints.

Project proponents use CCG's Priority Ranking Framework to assign each project a score on eight criteria across three categories that permit the collection of information needed by Investment Management Board to make effective investment decisions. The categories and criteria are:

Category	Criteria
Asset Condition	Asset Condition Survey
Program Requirements	Capability Gap Analysis/Future Program Direction
	Risk to Program
	Government Priority
	Impact on CCG Clients
Administrative Category	Financial Impact of the Project
	Timing/Window of Opportunity
	Cross-Functional Benefit of the Project

Once projects are scored using the Priority Ranking Framework, they are compiled, circulated for comment within CCG, and reviewed on an organization-wide basis.

While the "Pure" prioritization list cannot on its own determine how CCG will spend its capital funds in any given year, it is a valuable tool to articulate the gap between funding levels and funding requirements as well as the Agency's investment priorities.

Note – the Investment Project Priority Ranking Framework is designed to be a Decision Support Tool for CCG management. The purpose of this prioritization framework is to collect the information required to make the best investment decisions for CCG. It is not intended to be a mechanical determinant of project priority or to decide which projects get funded without the application of judgment.

Stage 2 – "Practical" project prioritization

Practical prioritization determines which of the organization's priorities will be funded based on the application of constraints such as internal capacity to deliver the project, contracting lead times and industrial capacity as well as financial constraints. CCG's Integrated Technical Services (ITS) and Vessel Procurement groups are involved

to integrate internal and external capacity to deliver on the proposed investments; Integrated Business Management Services (IBMS) is involved to outline the financial constraints facing the Agency.

Practical prioritization takes place at a cross-functional meeting that includes the key internal stakeholders for CCG's investment plan. The purpose of this meeting is twofold:

- Serve as a peer review within CCG of each COE's proposed investments (including the priority ranking scores assigned to the investment).
- Integrate the input of CCG's project delivery and financial management organizations into the order of priority for the proposed investments.

The result of pure and practical prioritization is a list of proposed investments that can be implemented over the five year planning horizon, but with a focus on the upcoming year. Each investment will be assigned to one of four categories:

- New Starts/ "Tier I" Plan: Projects to be funded out of the current fiscal year's funding envelope.
- "On Deck"/ "Tier II" Plan: Projects that are unable to be funded within the current year's allocation due to lack of funds but not due to lack of capacity – activities that could be executed now if funding was available. Note: may also include future phases of ongoing projects that can be accelerated to avoid slippage.
- Future Starts: High-priority projects identified for implementation in future years (when capacity to implement the projects is available both inside and outside CCG). Investments can be confirmed and scheduled to begin in future years when capacity constraints are no longer applicable.
- External Funding Source: Projects that are not affordable within CCG's investment funding envelope.

Stage 3 – Investment decision

The results of the pure and practical prioritization exercises are presented to CCG's Investment Management Board for review and approval. This is an important step in the process because it allows senior CCG management to provide a final allocation of available funding reflective of the organization's priorities. While each COE works with a notional funding envelope when putting forward their proposed investment list, IMB may shift funding between COEs if high-priority projects are left unfunded on one COE's list.

As a part of this stage in the Investment Plan Development, CCG also works with other Centres of Expertise within DFO to communicate the Agency's requirements and to assist those COEs with their own project prioritization. The affected DFO COEs are Real Property, and Information Management & Information Technology. Representatives from Resource Management & Financial Allocation within Integrated Business Management Services coordinate a review meeting between relevant CCG stakeholders and those COEs to ensure that the proposed CCG-related investments within those COEs are the highest priority of the Agency.

ACTIVITY 8: INVESTMENT PLAN DEVELOPMENT

Phase 2: Investment Plan Development

Once the investment list has been approved by IMB, CCG prepares its Investment Plan documentation. While the Investment Plan only needs to be submitted to TBS every three years, CCG and DFO plan to revise the Investment Plan annually (as previously done with the Long-Term Capital Plan). This approach ensures that the organization is always forward-looking when making investment decisions.

ACTIVITY 9: PROJECT APPROVAL PROCESS

Phase 2: Investment Plan Development

Once investments have been included in the Investment Plan, they are still subject to project approval before implementation. CCG has adopted a risk-based project approval process internally that applies a similar philosophy to the one used by TBS when determining the authorities vested in each department, which implies that no money can be spent on a project before this step.

ACTIVITY 10A: IMPLEMENTATION EVALUATION & MONITORING

Phase 2: Investment Plan Development

CCG has a strong track record of very rigorous monthly project progress reporting. On a monthly basis, CCG's Investment Management Board (described above in Appendix B – CCG Organization Structure and Governance) reviews the budget, scope, timeline and risks associated with every planned and ongoing investment within the Agency. Projects showing issues on any of these dimensions are required to report to IMB regarding the causes, mitigations and proposed solutions on a project-by-project basis. In this way project issues are identified as early as possible and highlighted to Senior Management for attention, decision and remedial action.

In addition to the project-by-project review, the effect of project performance is also evaluated on a regional basis (to help identify any areas that are consistently faced with challenges in project management effectiveness and to develop long-term solutions to issues) and national basis (to provide a holistic view of the budget, timeline and resource impacts on the agency as a whole).

This has proven to be an extremely effective and successful framework for CCG, and is a significant contributor to the Agency's ongoing successful track record for project delivery.

Activity 10b: Annual Integrated Investment Planning Process Review

On an annual basis, the Resource Management and Financial Allocations team will conduct debriefing sessions with Integrated Investment Planning Process participants and stakeholders and revise the process as necessary to ensure that it is meeting the planning needs of the Agency.

APPENDIX D: CAPABILITY GAPS IDENTIFIED IN THE 2011/12 PLANNING CYCLE

The Capability Gap Analysis Process

The Capability Gap Analysis is an annual exercise undertaken by the Canadian Coast Guard in order to identify gaps in the Agency's ability to meet service requirements.

Each Coast Guard program is reviewed by identifying target capabilities and comparing them with existing capabilities. Capability gaps exist when a program's current capability does not meet or exceed its targeted capability. Using a defined rating scale, each gap is scored against its current and future capability (two, five, ten and twenty years from now).

The goal of the exercise is twofold:

- Help ensure that CCG's limited investment dollars are allocated to the highest priorities and clearly linked to its mandate requirements.
- Provide CCG with the necessary time to identify alternatives to address any current and future gaps.

This step of the investment planning framework leads to identifying possible investments, alternatives and mitigation measures to address the Agency's gaps. Although the exercise considers future shifts in service requirements, it is not a vehicle for program expansion, but rather a tool to help prioritize investment projects and lead to making better investment decisions.

Not all capability gaps are addressed in this Investment Plan for a number of reasons, including:

- the priority of the capability gap as related to its impact on service delivery;
- the lack of internal or external capacity to address the gap within the five-year planning cycle;
- the lack of funds available in the five-year planning cycle; and,
- the ability to address the gap in future planning cycles given the amount of lead time available.

The Capability Gap Analysis uses a twenty-year time horizon, meaning that identified gaps may not necessarily impact current service delivery.

Results from the Capability Gap Analysis

The following is a summary, by program activity, of gaps that have been identified during the 2011/12 exercise:

1 AIDS TO NAVIGATION

1.1 Visual, Electronic & Aural Aids

An aids to navigation system is provided where the volume of traffic justifies and the degree of risk requires aids as outlined in the program directives and procedures as well as specified conditions in the CCG Levels of Service document.

Coast Guard Gaps:

- Lack of visual, aural & electronic aids to navigation to support the re-supply of some northern communities and Arctic shipping
- Requirement to increase visual aids to navigation on the Pacific Coast and in commercial channels in Eastern Regions to accommodate higher vessel traffic and larger ship sizes

- Floating aids are aging and as they near the end of their lifecycle, failures may lead to service interruption
- Range structures and other fixed aids are aging and as they near the end of their lifecycle, failures may lead to service interruption;
- Reduced ability to maintain remote aids to navigation sites accessible only by helicopter and lacking safe landing sites
- Some lightstations on the West Coast cannot operate autonomously

Real Property Gaps:

- Deteriorating facilities at the following staffed lightstations: Estevan Point, Ivory Island, Nootka, Triple Island, Port Colborne, Cape Sable and Cape Race

1.2 Electronic Positioning Systems

Differential Global Positioning System (DGPS) broadcast station coverage is provided in Canadian coastal areas south of 60ON., major Canadian waterways, Vessel Traffic Services (VTS) zones and ports. Multiple DGPS broadcast station coverage is also provided in restricted high traffic waterways and harbour approaches which are designated VTS zones with radar coverage.

Coast Guard Gaps:

- Outdated DGPS equipment (hardware and software) requires complete replacement
- Lack of DGPS coverage in the Arctic
- Gaps in DGPS coverage in some shipping areas (as shipping grows, it is expected that the number of gaps will increase)

1.3 Navigational Safety Information

Provide electronic versions of Navigation Safety publications on the Notices to Mariners website. In addition, make available for purchase through chart dealers paper versions of publications.

Coast Guard Gaps:

- Inconsistent data between the Aids Program Information System and the Asset Management System cause discrepancies

2 WATERWAYS MANAGEMENT SERVICES

2.1 Channel Dredging

Provide dredging services in the Canadian portions of the Great Lakes interconnecting Channels (St. Clair, Detroit and St. Mary's Rivers) as required to meet international obligations. As well, provide dredging services on the St. Lawrence River shipping channel on a cost recovery basis.

Coast Guard Gaps:

- Ongoing maintenance dredging is required in main shipping channels
- Some waterways are not deep or wide enough to accommodate larger vessels (such as Post-Panamax)

2.2 Channel Monitoring

Monitor channel bathymetry by surveying commercial shipping channels to identify the bottom conditions, as well as restrictions on or hazards to safe navigation.

Coast Guard Gaps:

- Lack of channel bottom monitoring (surveys) and water depth forecasting services to support Arctic shipping

2.3 Marine Structures

Provide day-to-day management and minor maintenance to identified marine structures. As well, operation and life cycle management of three ice booms and nine ice islands in Quebec

Real Property Gaps:

- On the Fraser River, the Stevenson North jetty and the trifurcation require restoration
- The breakwater at Maugher's Beach in Maritimes region requires restoration

3 CANSO CANAL OPERATIONS

3.1 Canso Canal Operations

Ensure working operation and life-cycle management of the canal located at Canso Causeway, Nova Scotia.

Real Property Gaps:

- A number of structures (including the gear boxes, quanzit hut, administration building and the canal system itself) have deteriorated and require refurbishment / replacement

4 SEARCH AND RESCUE SERVICES (SAR)

4.1 SAR Response

Provide coordination of search and rescue missions in Canadian and International waters to mariners and to others in need of humanitarian aid on a 24/7 and on a risk basis during the local navigation season

Coast Guard Gaps:

- Lack of SAR coverage on the Labrador Coast to respond to increased demand
- Lack of secondary SAR assets on Lake Superior
- SAR search planning accuracy may be reduced as Self-Locating Datum Marker Buoys reach the end of their useful life, resulting in lower SAR effectiveness
- Detection capabilities for SAR targets are not being maximized (e.g. night vision, infra-red)
- Difficult to efficiently coordinate responses to SAR missions with CCGA boats and Inshore Rescue Boats, due to lack of a Class B Automatic Identification System.

Real Property Gaps:

- A number of SAR stations require rehabilitation/rebuild: Saltspring-Ganges, Kingston, Burin, Port Weller, Gimli, Cobourg, Bamfield and Prince Rupert
- There is a need to build new SAR Stations at Powell River and Campbell River

4.2 SAR Response in the Arctic

Provide coordination of search and rescue missions in the Arctic through vessels operating in the North.

Coast Guard Gaps:

- Lack of SAR coverage in the Arctic

4.3 SAR Communications

Provide reliable, interoperable communications systems vital to the overall delivery of SAR services and in the coordination of multi-agency responses of aeronautical or maritime distress or other incidents.

Coast Guard Gaps:

- Lack of modern interoperable computer-based communication systems

5 ENVIRONMENTAL RESPONSE SERVICES

5.1 Pollution Response Asset Base

Plan and provide a preparedness response capacity for response to ship-source and mystery-source marine pollution incidents in waters under Canadian Jurisdiction, with countries sharing contiguous waters with Canada and for the support of other countries under international agreements.

Coast Guard Gaps:

- Will be unable to maintain ER levels of service as aging ER pollution response equipment approaches the end of its operational life
- Lack of sufficient temporary storage capacity for recovered product
- Lack of capability to respond to Hazardous and Noxious Substances spills

5.2 Environmental Response Information Management System

Report on marine pollution incidents and the respective responses associated with each incident using the Marine Pollution Incident Reporting System.

Coast Guard Gaps:

- Unable to ensure consistent quality and accuracy of marine pollution incident information

5.3 Asset Life-cycle Management System

Provide a life-cycle management inventory response capacity management system with the capability to ensure constant state of readiness of environmental response equipment

Coast Guard Gaps:

- Incapable of providing systematic procurement, maintenance and disposal of pollution countermeasures across Canada

6 MARINE COMMUNICATIONS AND TRAFFIC SERVICES

6.1 Marine Communication and Traffic Services (MCTS)

Provide distress and safety communications, conduct vessel screenings of vessels entering Canadian waters, regulate vessel traffic movement in selected Canadian waters and provide marine information in support of activities on a 24/7 basis.

Coast Guard Gaps:

- Unreliable VHF/DF coverage falls below existing levels of service in some areas on both coasts
- Difficulty in facilitating SAR communications with current VHF/DF coverage
- Lack of integration between aging MDS, NAVTEX, radar, VHF/DF and AIS systems within the VTMIS
- MCTS assets are aging and as they near the end of their lifecycle, failures may lead to service interruption
- Unable to perform multifunction switching and simultaneous communications on different radio frequencies with CCS

Real Property Gaps:

- Tofino MCTS centre requires renovations
- Sydney MCTS centre requires expansion

7 ICEBREAKING SERVICES

7.1 Ice-routing and Information

Provide ice information to the marine public through Ice Operation Centres and recommend ice routes, ice charts, ice advisories and advice to support safe navigation around difficult areas of ice on a 24/7 basis.

Coast Guard Gaps:

- Lack of adequate current satellite coverage in southern Canada (only updated every three days)
- Inability to transmit large amounts of ice data to ships in the high Arctic
- May be unable to maintain levels of service as ICE-VU and ICEggs software systems are coming to the end of their useful life

8 MARITIME SECURITY SERVICES

8.1 Maritime Security

The program targets to support the delivery of the Government of Canada's security objectives and operate advanced vessel tracking initiatives capable of performing surveillance and identification of vessels approaching and operating within the Great Lakes and up to 40 nautical miles from Canada's east and west coasts.

Coast Guard Gaps:

- Delayed implementation of an advanced and automated vessel tracking system

9 LIFECYCLE ASSET MANAGEMENT SERVICES

9.1 Common Equipment

The program targets to provide shore-based repair and maintenance support necessary to deliver asset management services.

Coast Guard Gaps:

- Unable to provide adequate shore-based repair and maintenance support due to unreliable heavy equipment

9.2 Common Information Systems

The program targets to be able to capture, store and access information on CCG assets for the effective delivery of life cycle asset management services.

Coast Guard Gaps:

- MAINTelligence is not installed on all vessels and therefore cannot access information from the Asset Management System for all vessels

10 FLEET OPERATIONAL READINESS SERVICES

10.1 Large Vessel and Helicopter Platform

The program targets to provide a sufficient number of reliable, sustainable and multi-tasking class built vessels and helicopters to maintain existing levels of service for CCG programs, DFO programs and to respond to the Government of Canada's on-water and marine related priorities.

Coast Guard Gaps:

- Unable to maintain Fleet levels of service as old vessels and helicopters breakdown or come out of service

13.3 BIO Building Fire Regulations

The program targets to ensure that BIO Building meets fire regulations.

Real Property Gaps:

- BIO Building does not meet fire regulations

13.4 Charlottetown Base Wharf

The program targets to ensure structural integrity of the Charlottetown Base wharf.

Real Property Gaps:

- Unable to ensure structural integrity of the Charlottetown Base wharf

13.5 St. Andrews Biological Stations (SABS) Wharf

The program targets to provide safe loading/unloading truck access on the SABS Wharf.

Real Property Gaps:

- Unsafe loading/unloading truck access at the SABS Wharf

13.6 Emergency Operations Centres

The program targets to provide dedicated Emergency Operations Centre at Shannon Hill as required by the Fleet Safety Manual.

Real Property Gaps:

- Lack of dedicated Emergency Operations Centre at Shannon Hill

13.7 Sable Island

The program targets to ensure that obsolete navigation installations, equipment and building at Sable Island are cleaned up and secured.

Real Property Gaps:

- Existing obsolete navigational installations, equipment and buildings at Sable Island are not cleaned up and secured

14 QUEBEC COMMON INFRASTRUCTURE

14.1 Queen's Wharf

The program targets to provide CCG vessels and operations a fully functional and accessible wharf with 100% loading capacity at the Queen's Wharf.

Real Property Gaps:

- Existing aging wharf is not 100% fully functional and operational offering only limited loading capacity

14.2 Quebec Base Building Systems

The program targets to maintain a modern Quebec Base building systems that meet all safety and security codes, regulations and standards.

Real Property Gaps:

- Existing Quebec Base's building systems are outdated and difficult to maintain

14.3 Quebec Base Accommodations

The program targets to provide adequate accommodation space for Quebec Base staff and operations.

Real Property Gaps:

- Lack of accommodation space for Quebec Base staff and operations

10.2 Refit

The program must maintain vessels and helicopters according to acts, regulations and program requirements.

Coast Guard Gaps:

- Unable to ensure consistent quality and accuracy of marine pollution incident information

10.3 Small Craft Platform

The program is supported by Small Craft assets, which are faster and capable of operating in shallow and restricted waters.

Coast Guard Gaps:

- Renewal activities are insufficient to properly life cycle manage Small Craft assets

10.4 Fleet Information Systems

The program targets to provide Fleet with the means to plan, assign and monitor marine personnel, vessels and helicopters to meet client needs and report on activities.

Coast Guard Gaps:

- Existing tracking mechanism (NavLink) in helicopter lacks shore-based capability
- Voice communication systems do not provide real time position and cannot provide position for small craft
- Lack of electronic data transmission technology with ship-to-shore and shore-to-ship capability

11 CANADIAN COAST GUARD COLLEGE

11.1 Living Accommodations

The College targets to provide a living and learning environment that promotes optimal learning for 256 officer cadets, 36 Marine Communication and Traffic Services Officers and Rescue, Safety and Environmental Response personnel.

Real Property Gaps:

- Inadequate and insufficient living accommodations
- Lack of air conditioning in residential wings of the College

11.2 Simulator Housing

The College targets to provide a living and learning environment that promotes optimal learning.

Coast Guard Gaps:

- Inadequate simulator accommodation space to handle increased training requirements in an interoperable simulated training environment

11.3 Simulator Technology

The College targets to provide a living and learning environment that promotes optimal learning.

Coast Guard Gaps:

- Existing MCTS Station simulator is outdated and does not provide optimal training
- Existing Marine Propulsion Plant and Blind Pilotage Radar training simulators are outdated and do not provide optimal training

11.4 College Infrastructure Systems

The College targets to maintain a modern facility that meets all safety and security codes, regulations and standards.

Real Property Gaps:

- The College's existing electrical and mechanical/control systems are outdated and do not meet codes, regulations and standards

11.5 College Infrastructure

The College targets to maintain a modern facility that meets all safety and security codes, regulations and standards.

Real Property Gaps:

- Roof and shingles at the College do not meet codes, regulations and standards

12. COMMON INFRASTRUCTURE

12.1 St. John's Base Infrastructure

The program targets to a building infrastructure that meets Treasury Board Secretariat standards.

Real Property Gaps:

- Existing St. John's Base does not meet TBS standards

12.2 St. John's Base Building Systems

The program targets to maintain modern base building systems at St. John's Base.

Real Property Gaps:

- Existing St. John's base building systems are outdated and difficult to maintain

12.3 St. John's Operations

The program targets to promote efficient and effective CCG operations in the city of St. John's.

Real Property Gaps:

- Inefficient and ineffective network of multiple CCG operational sites in St. John's

12.4 St. John's Base Accommodation

The program targets to provide adequate accommodation space for St. John's staff and operations.

Real Property Gaps:

- Lack of office accommodation space at St. John's Base

13 MARITIMES COMMON INFRASTRUCTURE

13.1 Bedford Institute of Oceanography (BIO) Building Vessel Access

The program targets to provide safe and unobstructed access to sea wall at the BIO Building for CCG vessels

Real Property Gaps:

- Unsafe and obstructed BIO Building sea wall

13.2 BIO Building Water Treatment

The program targets to provide waste water treatment system at BIO Building that is compliant with Environment Canada.

Real Property Gaps:

- Non-compliant waste water treatment system at BIO Building

14.4 Quebec Base Water Treatment

The program targets to provide waste water treatment system at Quebec Base that is compliant with Environment Canada.

Real Property Gaps:

- Non-compliant waste water treatment system at Quebec Base

14.5 Quebec Base Security Gate

The program targets to provide safe, efficient and quick security access to CCG staff and visitors at vehicle security gate.

Real Property Gaps:

- Existing security gate at Quebec Base is not safe, efficient and quick

15 CENTRAL & ARCTIC COMMON INFRASTRUCTURE

15.1 Mid-shore Patrol Vessel Infrastructure Support

The program targets to maintain infrastructure to support the MSPVs at all bases and non-CCG locations that the Maritime Security Enforcement Team program will be operating from.

Real Property Gaps:

- Lack of seawall access and ship services at some smaller CCG stations
- Lack of access to non department facilities (public/town/private docks)

15.2 Prescott Base

The program targets to provide a safe and reliable facility at Prescott Base that meets all safety and security codes, regulations and standards.

Real Property Gaps:

- Existing Prescott Base's building systems are outdated, difficult to maintain and do not meet all safety and security codes, regulations and standards

15.3 Parry Sound Base

The program targets to provide a safe and reliable facility at Parry Sound Base that meets all safety and security codes, regulations and standards.

Real Property Gaps:

- Existing Parry Sound Base's building systems are outdated, difficult to maintain and do not meet all safety and security codes, regulations and standards

16 PACIFIC COMMON INFRASTRUCTURE

16.1 Information Technology (IT) Network Infrastructure

The program targets to provide a reliable IT Network infrastructure at all major sites.

Real Property Gaps:

- Lack of reliable IT Network infrastructure at major sites outside of Regional headquarters

16.2 Seal Cove Base Facility

The program targets to provide a safe and reliable facility at Seal Cove Base.

Real Property Gaps:

- Lack of a safe and reliable facility at Seal Cove Base

16.3 Victoria Base Facility

The program targets to provide a safe and reliable facility at Victoria Base.

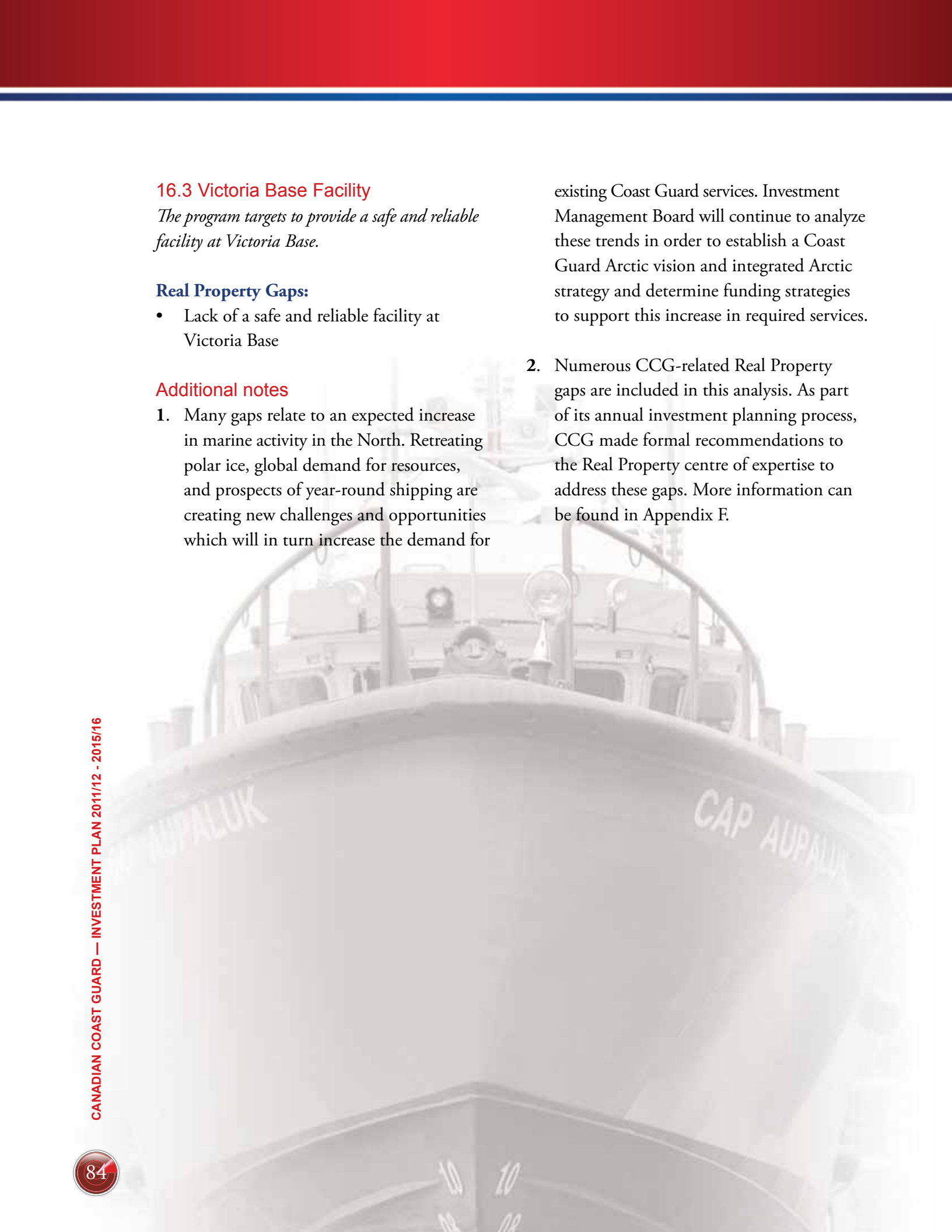
Real Property Gaps:

- Lack of a safe and reliable facility at Victoria Base

Additional notes

1. Many gaps relate to an expected increase in marine activity in the North. Retreating polar ice, global demand for resources, and prospects of year-round shipping are creating new challenges and opportunities which will in turn increase the demand for existing Coast Guard services. Investment Management Board will continue to analyze these trends in order to establish a Coast Guard Arctic vision and integrated Arctic strategy and determine funding strategies to support this increase in required services.

2. Numerous CCG-related Real Property gaps are included in this analysis. As part of its annual investment planning process, CCG made formal recommendations to the Real Property centre of expertise to address these gaps. More information can be found in Appendix F.



APPENDIX E: CCG DETAILED PROJECT DESCRIPTIONS

Selected Investment Descriptions – Program Infrastructure Assets

A-Base Investments

The Equipment and Other Moveable Assets (EOMA) Centre of Expertise will be responsible for thirty investments projects with estimated costs totalling $515.7 million, with only $233.2 million (including over-programming) being expensed during the five-year planning cycle.

Of these investment projects, twenty-six were already identified in previous iterations of the DFO Investment Plan (formerly known as the Long-Term Capital Plan). These total "ongoing" projects consume approximately $225.5 million (including over-programming) of the regular A-Base investment budget from 2011/12 to 2015/16. In this year's investment plan there are five new EOMA projects worth $12.6 million (including over-programming), which will be initiated over the course of this five-year planning cycle.

The following are three examples of EOMA projects included in the 2011/12 to 2015/16 Integrated Investment Plan:

Project Name	COE
Very High Frequency – Direction Finding (VHF/DF) System Refurbishment	EOMA

Project Description

The project will refurbish the existing VHF/DF systems back to baseline condition and provide additional VHF/DF coverage in areas that are not currently covered. The VHF/DF System is among the oldest of Marine Communication and Traffic Services (MCTS) assets, in the range of twenty to thirty years. Some of the technology can no longer be repaired or replaced as some of the components are no longer available, making maintenance on this critical safety system extremely difficult. VHF/DF is essential to address the requirements of the MCTS program, Search and Rescue programs, Conservation and Protection programs, and the Safety and Environmental Response programs.

Total Estimated Cost	Timing
$12.3 million	2013/14 - 2017/18

Project Name	COE
Fixed Aids Sites Refurbishment / Modernization (Phase 3	EOMA

Project Description

This project will replace, remove, relocate, redesign, and/or refurbish many critical short-range fixed aids to navigation and associated site infrastructure in all Coast Guard regions to address high-risk items associated with structure failure. The existing fixed aids are aging, affecting reliability and the ability to meet program requirements. An analysis of the existing infrastructure indicated that a significant percentage of the assets are beyond their life expectancy. The refurbishment of fixed aids sites will include, in many cases, the use of new technology thereby reducing future maintenance costs and maintaining a reliable network of aids to navigation.

Total Estimated Cost	Timing
$17.5 million	2011/12 - 2016/17

Project Name	COE
CCG Operational Network (OpNet)	EOMA

Project Description

This project will create a centralized Coast Guard operational network by integrating approximately 40 different mission critical stand-alone operational systems, currently in use and at risk of failure. The operational network will serve as the backbone for a national standardized CCG operational system for delivering services consistently and efficiently across Canada. Improving Coast Guard's operational systems and applications will take advantage of new technologies and result in greater efficiencies in the delivery of mission-critical functions. The current risks of service interruptions to clients would be minimized and the new centralized network would provide a platform for the next generation of operational applications.

Total Estimated Cost	Timing
$7.5 million	2015/16 - 2018/19

B-Base Investments

The EOMA Centre of Expertise only manages one project projects funded by separate government funds; the Arctic NAVAREAs Infrastructure project.

Project Name	COE
Arctic NAVAREAs Infrastructure	EOMA

Project Description

This project will expand the existing navigation warning services to two new NAVAREAs (NAVigational AREAs) in Canada's Arctic waters. High frequency radio transmitting equipment will be procured to allow the broadcasting of navigational warnings twice daily to Arctic mariners over the Global Maritime Distress and Safety System. The information provided will expand the current coverage in domestic waters on a seasonal basis to cover navigable waters below 76oN in the new NAVAREAs on a year round basis and in the high arctic (above 76oN) during the shipping season. Providing coverage for the new NAVAREAs will contribute to the international goals for Arctic shipping safety in Canadian waters.

Total Estimated Cost	Timing
$2.8 million	2012/13 - 2013/14

Selected Investment Descriptions – Fleet Assets

A-Base Investments

The Fleet Centre of Expertise will be responsible for fourty-two investments projects with estimated costs totalling $730.1 million, with only $512.0 million (including over-programming) being expensed during the five-year planning cycle.

Of these investment projects, forty were already identified in previous iterations of the DFO Investment Plan (formerly known as the Long-Term Capital Plan). These total "ongoing" projects consume approximately $503.9 million (including over-programming) of the regular A-Base investment budget from 2011/12 to 2015/16.

New to this year's plan are two Fleet projects worth $8.1 million (including over-programming), which will be initiated and completed over the course of this five-year planning cycle.

The following are three examples of Fleet projects included in the 2011/12 to 2015/16 Integrated Investment Plan:

Project Name	COE
Acquisition of a Specialty Vessel	Fleet

Project Description

This project will acquire a newly constructed Specialty Vessel in support of the Science program and serve as the primary hydrographical platform for shallow waters in Pacific Region. Many of CCG's vessels in the Specialty Vessel Class were not designed nor configured with today's mission requirements in mind. The obsolescence of some of these vessels requires every-increasing resources to maintain them to particular standards, specifically, the regulations in compliance with the Canada Shipping Act.

The new vessel will be more effective, have state-of-the-art program equipment and "clean" power and ensure support to the ever-increasing emphasis on seabed mapping to support navigational safety, disposal at sea, geosciences hazards identification and habitat classification studies; as well as the growing requirement for the establishment of national and provincial marine conservation areas.

Total Estimated Cost	Timing
$4.6 million	2012/13 - 2014/15

Project Name	COE
Fleet Information Management System Integration Project	Fleet

Project Description

This project proposes to integrate the existing planning and operational Fleet systems into the new recently developed architecture, which is the foundation for all fleet operations management information systems. This project will upgrade and integrate the remaining systems: Fleet Safety and Security System, Seagoing Personnel Certification Exemption Tracking System, the Vessel Tracking System and the Flight Following System.

In addition to the alignment of the systems, all systems containing geospatial information must be integrated with the CCG Fleet Common Operating Picture, also referred to as "COP".

Total Estimated Cost	Timing
$3.5 million	2012/13 - 2014/15

Project Name	COE
SAR Lifeboats Replacement	Fleet

Project Description

This project proposes to acquire ten SAR Lifeboats to be stationed at various regions across Canada. CCG's Fleet of Lifeboats perform a unique blend of missions and play a key role in the delivery of the "near-shore" Search and Rescue (SAR) program across Canada. These vessels operate from stations that are located strategically throughout all five of CCG regions.

The level and breadth of Fleet service demand is expected to expand over the next ten years in almost all activities including near-shore SAR response. The new vessels will be more effective than those which they replace and have "clean" power and modern program equipment and will be better able to meet operational requirements now and into the future.

Total Estimated Cost	Timing
$90.1 million	2013/14 - beyond 2015/16

B-Base Investments

The Fleet Centre of Expertise has five ongoing large vessel procurement investment projects funded by separate government funds.

TABLE 17: VESSEL PROCUREMENT INVESTMENTS PROJECTS, 2011/12 TO 2015/16

Project	Total Estimated Cost	Investment This Planning Cycle	Planned Completion Date
Air Cushion Vehicle	$27.3M	$25.2M	2014/15
Mid-Shore Patrol Vessels	$227.0M	$169.5M	2013/14
Offshore Fishery Science Vessels	$244.0M	$237.1M	2015/16
Offshore Oceanographic Science Vessels	$144.4M	$141.8M	2015/16
Polar Icebreaker	$800.0M	$548.0M	2019/20
Total	**$1,442.7M**	**$1,121.6M**	

Implementation and delivery of these investment projects are managed by Coast Guard's Vessel Procurement branch.

It is important to note that some of investments have implementation timelines which exceed the five-year planning horizon used in this investment plan. For example, the Polar Icebreaker project was initiated in 2009/10 and will only come to an end in 2019/20. The $1.1 billion planned investment figure reflects only expenditures that are planned within the investment planning horizon.

APPENDIX F: CCG-RELATED INVESTMENTS BY OTHER CENTRES OF EXPERTISE

Many Canadian Coast Guard related investments are managed outside the Fleet, and Equipment and Other Moveable Assets Centres of Expertise. CCG depends on important investments made by other COEs within Fisheries and Oceans Canada.

Both Coast Guard Centres of Expertise participate in yearly department-wide prioritization and peer review activities to ensure cohesive departmental planning, explained in detail in the DFO Investment Plan. Furthermore, the Agency ensures that its requirements are truly understood by maintaining strong working relationships with each individual COE throughout the fiscal year.

The Real Property Centre of Expertise:

The Real Property COE is a non Coast Guard entity responsible for planning investments for DFO owned and leased facilities, excluding program infrastructure (e.g., communication towers and equipment, MCTS remote sites, and communication systems infrastructure) and aids to navigation services (e.g., DGPS sites, and fixed aids sites), which are the responsibility of the Equipment and Other Moveable Assets COE.

For the Canadian Coast Guard, this means many lightstations, bases, depots, warehouses, marine structures, lifeboat stations, Marine Communications and Traffic Service Centres, the Canso Canal and other facilities are planned and maintained by the Real Property COE.

These assets are a key enabler in support of the Agency's programs and regulatory requirements. In an effort to promote more effective departmental investment planning, Coast Guard made significant improvements to the way it interacts with the Real Property COE.

A national "project-by-project" peer review exercise, similar to Coast Guard's own Peer Review process, was completed to identify CCG's highest priorities for Real Property investment. Investment Management Board used this information to provide strategic recommendations to the Real Property COE to help maximize the impact of their investments.

An important outcome of the process was the decision to focus a large portion of short to medium term CCG-related investments on regional bases. Deteriorating bases requiring significant investments, such as the Southside Base in Newfoundland and Labrador and Seal Cove Base in the Pacific Region, have been prioritized through this process.

During the 2011/12 to 2015/16 planning cycle, the Real Property COE plans to implement thirty-one separate investments on behalf of Coast Guard totalling $147.5 million. This investment portfolio includes a twelve percent over-planning rate, similar to Coast Guard's own over-programming strategy, which allows Real Property to effectively manage its spending profile while addressing a large number of priorities. They also identified $164.4 million in additional requirements that will remain unfunded until additional funding becomes available.

Examples of three funded projects are described below:

Project Name	COE
Reconstruction of Pier 97 at the Queen's Wharf	Real Property

Project Description

The purpose of this project consists in rebuilding pier 97, part of Queen's Wharf at the Canadian Coast Guard base in Quebec City. This part of the pier is made of steel sheet-piling and concrete, and is in rather poor condition. Based on the deterioration of steel sheet-piling, the operational life of the wharf was reduced to only five to ten years and the carrying capacity of the pier was reduced from 20 kPa to 10 kPa. This project will preserve the pier integrity and reliability for years to come.

Total Estimated Cost	Timing
$16.5 million	2011/12 - 2015/16

Project Name	COE
Southside Base Reconstruction	Real Property

Project Description

This project is put in place to rebuild or renovate all buildings at the Southside Base in St. John's Newfoundland and Labrador. The current base is in dire need of reorganization, rationalization and amalgamation; the 40 year old facility requires extensive repairs to meet functional requirements. This project seeks to demolish the existing base and erect of a new building to accommodate the needs of the region.

Total Estimated Cost	Timing
$40.4 million	2013/14 - beyond 2015/16

Project Name	COE
Campbell River SAR station	Real Property

Project Description

The Campbell River Search and Rescue Station currently has no infrastructure. The store front and accommodations are rented and the workshop is located on leased land from city and is insufficient in size. There is currently damage to the vessel and dock due to environmental conditions and seawall exposure. This project will see a new SAR Station built to accommodate program requirements at Campbell River.

Total Estimated Cost	Timing
$4.5 million	2011/12 - 2013/14

More details for the entire Real Property Investment Plan can be found in the DFO Investment Plan.

Other DFO Centre of Expertise:

In addition to a growing relationship with the Real Property COE, the Canadian Coast Guard continues to interact and consult with the Information Management and Technology Services COE and the Small Craft Harbours COE.

APPENDIX G: ACRONYMS

ACV	Air Cushion Vehicle
AIS	Automatic Identification System
ATN	Aids to Navigation
BIO	Bedford Institute of Oceanography
CCG	Canadian Coast Guard
CCGA	Canadian Coast Guard Auxiliary
CCGAPS	Canadian Coast Guard Automated Performance System
CCGS	Canadian Coast Guard Ship
CCS	Communication Control System
CMTDMS	Configuration Management & Technical Data Management System
COE	Centre of Expertise
DFO	Fisheries and Oceans Canada
DG	Director General
DGPS	Differential Global Positioning System
DM	Deputy Minister
EAP	Economic Action Plan
EOMA	Equipment and Other Movable Assets
ER	Environmental Response
FFS	Flight Following System
FOR	Fleet Operational Readiness
FRP	Fleet Renewal Plan
IBMS	Integrated Business and Management Services
IIP	Integrated Investment Plan
IMB	Investment Management Board
ISN	Investment Summary Note
ITS	Integrated Technical Services
LCAM	Life Cycle Asset Management
LORAN-C	Long Range Navigation (version C)
MB	Management Board
MCP	Major Crown Projects
MCTS	Marine Communication and Traffic Services
MDS	Message Data System
MLM	Mid-Life Modernisation
MSPV	Mid-Shore Patrol Vessel
NAVAREA	Navigational Area
NAVTEX	Navigational Telex
NCR	National Capital Region
NCSP	National Capital Spending Plan
NL	Newfoundland & Labrador
OFSV	Offshore Fishery Science Vessel
OOSV	Offshore Oceanographic Science Vessel
OPMCA	Organizational Project Management Capacity Assessment
OpNet	Operational Network
PAA	Program Activity Architecture
PCRA	Project Complexity and Risk Assessment
PWGSC	Public Works and Government Services Canada
RCMP	Royal Canadian Mounted Police
SABS	St. Andrews Biological Station
SAR	Search and Rescue
TBS	Treasury Board Secretariat
TEC	Total Estimated Cost
VHF	Very High Frequency
VHF/DF	Very High Frequency Direction Finding
VLE	Vessel Life Extension
VMM	Vessel Maintenance Management
VTMIS	Vessel Traffic Management Information System
VTS	Vessel Traffic Services
WM	Waterways Management