

**An Opaque Window:
An Overview of Some Commitments
Made by the Government of Canada
Regarding the Department of National Defence
and the Canadian Forces;
1 January 2000 – 31 December 2004**

David J. Bercuson, Aaron P. Plamondon, and Ray Szeto

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1600, 530 - 8th Avenue, S.W., Calgary, AB T2P 3S8
www.cdfai.org

Canadian Defence & Foreign Affairs Institute

CONTENTS

I Foreword	i
II Acknowledgements	iv
III List of Acronyms	v
IV Observations and Conclusions: The Need for Transparency and Accountability	1
V Annex: Projects and Commitments	10
A) Command and Control	10
Canadian Forces Joint Operations Group (CF JOG)	
Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR)	
Protected Canadian Military Satellite Communications (CMSC)	
Tactical Command, Control, and Communications System (TCCCS)	
B) New Purchases	25
Mobile Gun System (MGS)	
Maritime Helicopter Project (MHP)	
Joint Support Ship (JSS)	
Light Utility Vehicle Wheeled (LUVW)	
Fixed-Wing Search and Rescue (SAR) Aircraft	
Clothe the Soldier (CTS)	
C) Upgrades of Existing Kit	42
CF-18 Incremental Modernization	
CP-140 Aurora Incremental Modernization (AIM)	
Polaris CC-150 Upgrades	
M113 Tracked APC Life Extension	
D) Administrative Upgrades	58
Achieving Administrative Efficiency	
E) Augmentation of Force Strength	60
JTF-2 Capacity Doubling	
Land Force Reserve Restructure (LFRR)	
Troop Increases	
VI Tables	
1) CTS Sub-projects: Actual and Planned Spending	38/39
2) Clothe the Soldier Sub-projects; Contractual Details	40/41
3) Estimated Cost of CF-18 Modernization	46

FOREWORD

Defence questions were seriously debated in both the 2004 and 2006 federal elections for the first time in a generation. Although national defence was not central in the election of Prime Minister Paul Martin's minority government in June 2004 or the fall of that government in January 2006, the issue did place on the record a number of commitments made by the Liberals in 2004 and the Conservatives in 2006 to revive and reinvigorate the Canadian military.

It is rare in peacetime Canada for matters of national defence to be debated during election campaigns. There is a consensus amongst Canadian historians that defence questions loomed large (during peacetime) only twice during the twentieth century. In the 1911 election, Prime Minister Sir Wilfrid Laurier was forced to defend his establishment, a year earlier, of a distinct Royal Canadian Navy. He did that rather than agree to a large cash contribution to Britain's Royal Navy to help the United Kingdom in its naval arms race against Imperial Germany. In the 1963 election, Prime Minister John Diefenbaker's refusal to fulfill commitments he had made to the United States and NATO to acquire nuclear warheads for three Canadian weapons systems – the BOMARC anti-aircraft missile, the Honest John short-range, ground-to-ground rocket, and the CF-104 strike fighter – was front and centre. Canadian elections through the remainder of the twentieth century were focussed primarily on federal-provincial relations, the social welfare safety net, free trade with the United States and Mexico, budget discipline, and medicare, medicare, medicare. That is not surprising given that Canadians in general know little about their own country's foreign or defence policy, less of its history, and even less about what their military does on a day-to-day basis. Defence and foreign policy have tended to be divisive factors in Canadian history; peacetime governments have usually concluded that there is little to be gained and much to be lost by emphasizing them.

Governments and their political oppositions make promises all the time – promises are the very currency of politics in a democracy. But who is to hold the politicians to account when the promises made are about matters (such as defence) that do not normally command the attention of voters? It is ultimately up to the voters to do so. But how can they, when promises sometimes mysteriously disappear altogether, when pledges are swallowed up within some byzantine bureaucratic process that no one understands, when commitments are repeated using different nomenclature or with different dollar figures attached? How can the public follow and judge a government's performance in an area so complex and little known as national defence if the information picture that is presented to them is so multifaceted, incomplete, or outdated?

Following the 2004 election, the Canadian Defence and Foreign Affairs Institute (CDFAI) decided to investigate these questions to see if it was possible to trace promises made by a government over a fixed period of time. Fundamentally, CDFAI wanted to determine the ease with which pledges made by a government could be judged against subsequent performance. We found it to be an incredibly difficult job.

When measured by the numbers of people who make up the Department of National Defence (DND) and the Canadian Forces (CF), defence is by far the largest branch of the national government. Once, during the crisis years of the Cold War, DND absorbed the single largest slice of federal government spending. That is no longer true.

In 2004, the government devoted some \$13.2 billion (or 1.1 percent of the gross domestic product) to national defence – much too little for some, too large for others. That represented 7.1 percent of the government's expenditures that year. The percentage has remained relatively stable (between 6% and 7% of the federal budget) since the early nineties. Literally thousands of pages of information are published annually by both DND and the Department of Finance (in hard copy or on the internet) which purport to show where that money is spent. A dozen or so organizations, both within the government and in the private sector, attempt to track that spending. In the last ten years or so, the office of the Auditor General, which reports directly to Parliament, has done an admirable job with limited resources. With so much apparent accountability, the public ought to expect transparency. That expectation is not being met.

A privately-funded “think tank” such as CDFAI has very limited resources, far too few to track all the projects ongoing within DND at any one time. Indeed, even the Auditor General of Canada, with all the resources available to that office including wide investigative powers, thorough knowledge of accounting procedures, an annual budget of around \$82.5 million (in 2005–06), and a full time staff of some 570 people, cannot come even close to that objective. Therefore, since CDFAI could not hope to measure but a small portion of those commitments made by “the government” on behalf of DND, CDFAI's first task was to decide what to measure and how to measure it.

The approach taken here was to establish a number of basic parameters within which to select the commitments CDFAI would try to track. In general, those parameters were as follows:

- 1) commitments made from 1 January 2000 to 31 December 2004
- 2) projects scheduled to commence after 1 January 2000
- 3) acquisition or upgrade projects which cost \$100 million or more
- 4) projects that were not purchases but which purported to improve the operational capabilities of the CF or the administrative efficiency of DND which cost \$100 million or more
- 5) commitments made by a minister of the Crown

Only information publicly available was used while researching this report. In the case of the fate of the *Report of the Committee on Administrative Efficiency*, the Office of the Deputy Minister was contacted, but no data was used that might be deemed “confidential” or “background only.” In other words, CDFAI was interested not only in trying to determine the fate of the commitments, but also in the public's ability to find out for itself what happened to promises made without the need to resort even to the *Access to Information Act*.

A very few of the commitments tracked in this report were first mentioned before 1 January 2000. An obvious example is the Maritime Helicopter Project (MHP). It was included here because, although that project was actually launched almost twenty years ago, it was cancelled in 1993, and no official undertaking to revive it was made until after our start date. There are also a number of cases here wherein a project may have

been announced very shortly before our start date, but no substantial work on any part of the contract was initiated until after 1 January 2000.

In this report, we have gathered all the hard data we have acquired in a single annex that follows our observations and conclusions. That is obviously the reverse of what is normally done. However, it occurred to us that many who read this report would rather read our observations before referring to the evidence upon which those observations are based in order to understand, up front, why we have arrived at the conclusions we have. It also allows readers to find our conclusions without having to wade through a mountain of largely arcane data about the projects analyzed (our final conclusions regarding the budget and scheduling status of each project are bolded to enable quick referrals). At one point, we considered placing the entire annex on the CDFAI website and publishing only our observations and conclusions, but we decided that that might defeat the very purpose of this report.

The CDFAI is a charitable educational institute which is, by law, non-partisan. Every effort has been made in this report to be unbiased in reaching conclusions regarding the success or failure of the government to follow through on its commitments. The one overall conclusion that applies to the entire enterprise is that it is extremely difficult for Canadians to know how their defence dollars are being spent because of reporting and tracking systems that are as opaque as they are clear. It is not up to CDFAI to apportion “blame” for that situation. The causes are likely entrenched within several departments of government and shared by both Liberal and Conservative governments going back at least two decades. But it is very important for Canadians to know about it, especially now that the Conservative Party has returned to power with promises of increased military spending. If the new government is committed to greater accountability, as it says and as Canadians appear to want, it ought to address the reporting problems we have identified here. Canadian history has shown that clarity and accountability have not been the monopoly of any government or any political party.

David Bercuson, Aaron P. Plamondon, and Ray Szeto
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ACRONYMS

1 ESU	1 Engineering Support Unit
AAR	Air-to-Air Refuelling
ACMI	Air Combat Manoeuvring Instrumentation
ADCTS	Advanced Distributed Combat Training System
ADM (MAT)	Assistant Deputy Minister (Materiel)
AEHF	Advanced Extremely High Frequency
AFC	Armed Forces Council
AIMP	Aurora Incremental Modernization Project
ALSC	Afloat Logistics Sealift Capability
AMIRS	Advanced Multi-Role Infra-Red Sensor
AMRAAM	Advanced Medium-Range Air-to-Air Missile
AOR	Auxiliary Oiler Replenishment Vessel
APC	Armoured Personnel Carrier
APS	Armour Protection System
ASW	Advanced Anti-submarine Warfare
AWACS	Airborne Warning and Control System
BOMARC	1950s Anti-Aircraft Missile
CAF	Canadian Air Force
CANADACOM	Canada Command
CANSOFCOM	Canadian Special Operations Forces Command
CBTA	Counter Bombardment Target Acquisition Radar
CDS	Chief of the Defence Staff
CEFCOM	Canadian Expeditionary Forces Command
CF	Canadian Forces
CF JHQ	Canadian Forces Joint Headquarters
CF JOG	Canadian Forces Joint Operations Group
CF JSR	Canadian Forces Joint Signals Regiment
CF JSG	Canadian Forces Joint Support Group
CIS	Communications and Information Systems
CJTF HQ	Canadian Joint Task Force Headquarters
CMSC	Canadian Military Satellite Communications
CTS	Clothe the Soldier
DART	Disaster Assistance Response Team
DEWS	Defensive Early Warning System
DND	Department of National Defence
DoD	Department of Defense (U.S.)
DPR	Departmental Performance Report
DRDC	Defence Research and Development Canada
EPA	Effective Project Approval
EW	Electronic Warfare
FOC	Full Operational Capability
HDU	Hose Drum Unit
HF	High Frequency
IFOR	Intervention Force
ILTIS	Small, open, Jeep-like vehicle which is no longer used
ISAF	International Security Assistance Force
ISTAR	Intelligence, Surveillance, Target Acquisition, and Reconnaissance
JNBCD Coy	Joint Nuclear Chemical and Biological Defence Company

JSG HQ	Joint Support Group Headquarters
JSS	Joint Support Ship
JTF-2	Joint Task Force 2
KFOR	Kosovo Force
LAV	Light Armoured Vehicle
LFC2IS	Land Force Command Control and Information System
LFRR	Land Force Reserve Restructure
LOI	Letter of Interest
LUVW	Light Utility Vehicle Wheeled
MACAE	Minister's Advisory Committee on Administrative Efficiency
MGS	Mobile Gun System
MHP	Maritime Helicopter Project
MILSATCOM	Military Satellite Communications
MND	Minister of National Defence
MOU	Memorandum of Understanding
MRT	Multi-role Transport
MRTT	Multi-role Tanker Transport
MTVC	Mobile Tactical Vehicle Cargo
MTVF	Mobile Tactical Vehicle Fitter
MTVL	Mobile Tactical Vehicle Light
MTVR	Mobile Tactical Vehicle Recovery
NATO	North Atlantic Treaty Organization
NDHQ	National Defence Headquarters
NVIS	Night Vision Imagery System
OMS	Operational Mission Simulator
OPI	Office of Primary Interest
PMO	Prime Minister's Office
PPA	Preliminary Project Approval
RFP	Request for Proposals
ROTO	Rotation
RPP	Report on Plans and Priorities
SAAR	Strategic Air-to-Air Refueling
SAR	Search and Rescue
SCIP	Strategic Capability Investment Plan
SCONSAD	Senate Committee on National Security and Defence
SCRR	Special Commission on Reserve Restructure
SMP	Standard Military Pattern
SS	Synopsis Sheet
TAT	Theatre Activation Team
TCCCS	Tactical Command and Control Communications System
TRUMP	Trial Update Modernization Program
UAV	Unmanned Aerial Vehicle
UOR	Unforecasted Operational Requirement
UHF	Ultra High Frequency
VHF	Very High Frequency
VLRCS	Very Long Range Communication System
WLS	Weapon Location Sensors

OBSERVATIONS AND CONCLUSIONS

The Need for Transparency and Accountability

The Canadian military went through a long famine starting under the government of Brian Mulroney following the 1987 *White Paper on Defence*, which laid out plans for the acquisition of a fleet of nuclear-powered submarines to patrol Canada's Arctic waterways. Not only were the submarines not purchased, but spending on national defence began to slip as the Cold War came to an abrupt end in 1989–90, and the government began to turn its full attention to Canada's massive debt and deficit problem.

The downward trend of national defence spending in the final Mulroney years also coincided with the Somalia Affair. That affair undermined popular support for the military at just the time opposition leader Jean Chretien pledged that, if elected, he would cancel a billion dollar contract concluded by the Tory Government for the purchase of new maritime shipboard and search-and-rescue helicopters. Chretien was elected in 1993 and the helicopter contract was cancelled, as he had promised, at a cost of hundreds of millions of dollars in penalties. Shortly after, the new government slashed the size of the CF from 85,000 to 65,000 regulars with commensurate cuts in the reserves, at the same time cutting the defence budget by about 20 percent.

The cuts in force size and national defence expenditures paralleled a sharp increase in demand in the early 1990s for Canadian troops to deploy abroad on operational missions. The post-Cold War period turned out not to be a new era of world peace, but a time of growing conflict within states and along the confrontation lines of the old Cold War. The Canadian brigade that withdrew from Germany in the early 1990s was almost immediately replaced abroad with two battle groups (reinforced battalions) in the middle of a civil war in the Balkans and another in Somalia. Canada joined its NATO partners in the new IFOR (Intervention Force) in Bosnia after the 1995 Dayton Peace Accords, stayed in Bosnia as part of SFOR (the Stabilization Force) until 2003, attacked Serbian troops in Kosovo and Serbia proper in the air war of 1999, and sent troops to join the KFOR (Kosovo Force) after Serbia surrendered. Canadian troops deployed to southern Afghanistan under U.S. command to hunt Taliban and Al Qaeda insurgents in early 2002 as part of the global war against Islamic terrorism after 9/11. Canadians went back to Afghanistan as part of the NATO-led ISAF (International Security Assistance Force) in the Afghan capital of Kabul in the fall of 2003 and then, in the spring of 2005, initiated plans to deploy a provincial reconstruction team, a battle group, and a brigade headquarters in the Kandahar region.

In the past fifteen years, more Canadian troops went to more places, took part in more shooting wars, and gained more operational experience than they had over the entire stretch of the Cold War (after the July 1953 armistice in Korea). Essentially, a military and a defence establishment that had trained, prepared, procured, enlisted, and waited for the outbreak of the Third World War on the north German Plain was tested by real war as it had not been tested since a Canadian brigade fought for two-and-a-half years in the bloody hills of Korea. The military, the DND, and the government – let alone the Canadian people – were not ready for the test. For the most part, the increase in the operational tempo at a time of growing scarcity within the defence establishment through the period of roughly 1994 to 1999 began to “hollow out” the Canadian military. It was only in 1999 that the government finally began to

understand that the result of its policy of relying primarily on “soft power” to pursue Canadian interests abroad was to make Canada increasingly irrelevant in the international arena. When Canadians were traumatized by the events of 9/11, the growing gaps in Canadian military capability suddenly became a matter of increasing public debate. Advocates for increased defence spending started to be heard within the government caucus in both the Commons and the Senate, in the opposition ranks, and from the Auditor General’s office. Military leaders became more outspoken in their assertions that the military was starving. Liberal ministers of national defence Art Eggleton and John McCallum publicly pressed their government to arrest the decline of the military and to rebuild it. Private groups ranging from the Canadian Council of Chief Executives to the Council on Canadian Security in the Twenty-first Century (CCS 21) added their voices. Canadians began to take heed. Poll after poll showed growing support for enhancing the military, though medicare, education, and social spending always took pride of place on any Canadian wish list.

The government began to listen. New pledges were made to restore and even increase military spending, to recruit back up to establishment levels, to retire Cold War legacy equipment, and to rebuild the CF to meet the challenges of twenty-first century warfare. Budgets were increased marginally in 2002, 2003, and 2004, and a major five-year commitment to add more than \$5 billion was made in 2005. Along with these overall promises, plans were revealed and commitments made for new projects, new equipment, and new roles and tasks. The question is, were those promises and commitments kept?

Promises that governments make to act in certain ways or do certain things regarding issues that are at the forefront of voters’ concerns (for example, to reduce waiting times for medical procedures) are usually closely tracked by the media, by concerned groups (e.g., Canadian Friends of Medicare and the Canadian Medical Association), and by opposition political parties. Canadians usually get enough information about those issues to be able to judge for themselves whether or not promises are being kept. It is important that Canadians be able to familiarize themselves with government promises and with the process of implementing those promises so that they can make informed decisions about whether or not the government is keeping them. In other words, transparency in accountability allows the public to judge responsibility. If there is little or no transparency in the accountability process, if that process is in any way opaque, then the public will have difficulty in judging responsibility. If information is unavailable, or if the available information is inconsistent, or difficult to understand, or only conveys part of a picture, or does not clearly show why circumstances have changed from year to year in the effort to fulfill a promise, public confusion is inevitable.

This is especially true when the promises are made in an area to which the public usually pays relatively little attention – national defence. In the case of national defence, confusion is compounded by the unfamiliarity of the capabilities discussed and the highly specialized and technical nature of the promises. Are “average” Canadian voters even supposed to be able to judge how a promise to improve aerial surveillance of Canadian coasts might be kept? It would be highly unusual if they did! Sometimes this problem is exacerbated by changing nomenclature – a “light utility aircraft” in one budget year becomes a “twin engine, search and rescue aircraft” in another. If the change in nomenclature is unannounced, how is anyone outside DND going to know?

Most of the pledges made by the government over the last few years can be broken down into six categories:

- projects to improve what the military terms “Command and Control”
- upgrades or life extensions of existing equipment
- new equipment
- changes in administrative procedures or structures
- changes to training procedures or structures
- augmentation of the CF in general or of existing formations in the CF

There are eighteen such projects tracked in this report (nineteen if the CF-18 upgrade and the Advanced Distributive Training System designed to accompany the upgrade are considered as two projects). The number of actual, ongoing DND or CF projects exceeding \$100 million (one of the benchmarks for this study) is well in excess of this. Interested persons can examine the CF’s *Strategic Capability Investment Plan*, now available on the DND website, to get some idea of the scope of all those projects. This study examines only those eighteen which were judged to be most important for the effective operation and modernization of the CF or the DND.

The projects studied are listed below in the order in which they are discussed:

1. Canadian Forces Joint Operations Group (CF JOG)
2. Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR)
3. Protected Canadian Military Satellite Communications (CMSC)
4. Tactical Command, Control, and Communications System (TCCCS)
5. Mobile Gun System (MGS)
6. Maritime Helicopter Project (MHP)
7. Joint Support Ship (JSS)
8. Light Utility Vehicle Wheeled (LUVW)
9. Fixed-Wing Search and Rescue Aircraft (SAR)
10. Clothe the Soldier (CTS)
11. CF-18 Incremental Modernization
12. CP-140 Aurora Incremental Modernization (AIM)
13. Polaris CC-150 Upgrades
14. M113 Tracked APC Life Extension
15. Achieving Administrative Efficiency
16. JTF-2 Capacity Doubling
17. Land Force Reserve Restructure (LFRR)
18. Troop Increases

The DND is singularly different from virtually all other federal government departments. It not only dwarfs all others in the number of its “employees,” it is also engaged in a constant and extremely complex process of purchasing equipment, almost always in conjunction with the Department of Public Works, and it owns or manages major tracts of land and a large number of building complexes across the nation. Even in so-called times of peace, it is in a constant state of flux. The end of the Cold War actually exacerbated the usual day-to-day challenges of running the department. Although there were policy debates at the highest levels of DND and the CF during the Cold War, everyone knew who the enemy was likely to be, where the next war was likely to be fought, and what assets Canada would have to deploy in the event of war. Little thought was given to the evolution of strategy, operations, or even tactics. The United States called the tune for most of the Western Alliances’ foreign and defence policies, and there was little need for Canada’s military to develop a vision of its own. So, for the most part, it didn’t. Thus, when Canadian soldiers began to face real-war scenarios in the Balkans and elsewhere, doctrine, equipment, and training often proved inadequate. The Canadian military learned that it would have to become a learning organization almost overnight. It would have to develop a strategic vision that would fit Canada’s needs and its resources, and it would have to apply that vision from top to bottom.

In the last half of the 1990s, the CF and the DND suddenly began to plan. Leadership that was already burdened with managing a shrinking military and beset by growing demands was also thrust into the business of both forecasting and preparing for the “future force.” As the administrative tempo increased and as planning became a major drain on person power and resources, clarity inevitably suffered.

It is difficult to know if the routine business of the CF and the DND was transparent during the Cold War, when even minute details of the performance of this or that system could be closely-guarded secrets. What is apparent now is that it is very difficult to find out how much progress is being made on projects that are costing taxpayers hundreds of millions of dollars not because of secrecy, but because the reporting process has become so opaque. At a point when almost everything that anyone wants to know that is not a national secret is available on the internet – including much CF and DND business – it is difficult to find clear, concise, up-to-date, and easily understood *publicly available* information about the progress of government defence commitments. Although parliamentary committees, the Auditor General of Canada, the Chief of the Defence Staff (CDS), and the DND all make periodic reports available to the Canadian public, the volume, flow, and form of the information provided often confuses the picture as much as it clarifies it, owing to a number of factors:

- Projects will often change in name over the course of time with little or no explanation for differing nomenclature. In other words, a project may be called one thing in one reporting period and another in a subsequent period.
- Projects and sub-projects are often bundled or unbundled with other projects or sub-projects with little or no explanation as to why this has been done.
- It is very difficult for a non-expert to understand the difference between the different stages of a project, what stage the project is in, when the project was initiated, when the project is expected to be completed, or even what “completed” might mean.

- The DND, which is responsible for the overall administration of Canada's defence, does not appear to operate or report on projects in any "normal" or "common sense" way that most Canadians would readily understand.
- Important information is often reported without any explanation regarding, for example, why a project falls behind schedule or when a cost overrun is identified.

Overall, of the eighteen commitments examined in this study, it was hard to gain a complete picture of the progress of the commitments from publicly available information in the following twelve cases: ISTAR, Protected Canadian Military Satellite Communications Project, Mobile Gun System, Joint Support Ships, Fixed-Wing Search and Rescue Aircraft, Clothe the Soldier, CF-18 Incremental Modernization Project, CP 140 Aurora Incremental Modernization, Polaris CC-150 Upgrade, Achieving Administrative Efficiency Report, JTF-2 Capacity Doubling, and Troop Increases. There may be valid security reasons why information is scarce regarding the doubling of JTF-2, but not for the others.

The reporting system is difficult to understand, let alone justify. There is no reason why information regarding how defence tax dollars are being spent cannot be presented to the public in a consistent, cogent, and comprehensible way that can be easily accessed and easily understood. Doing so would serve two purposes. First, it would allow the public to judge the government's performance on following through with its own commitments by measuring the government against its own yardstick. Second, it would end the constant public confusion as to which promises have already been made and are merely being repeated for political purposes, and which are truly new. It is clear from the information presented in this report that commitments are constantly repeated by the government, sometimes in the guise of new announcements. It is often the case that new promises and old commitments cannot even be sorted out by reference to federal budget documents or DND reports such as the *Report on Plans and Priorities* because of reasons outlined above.

There are many examples of this practice, but surely one of the most egregious concerns the commitment made in 2003 to procure new search-and-rescue aircraft. From the first mention of this project in the 2003–04 *Chief of the Defence Staff Annual Report*, it has been unclear whether or not this project is linked to, is the same as, or is completely different from, plans to purchase (1) small, fixed-transport aircraft for special operations purposes, or (2) small transport aircraft primarily for Arctic use to replace the venerable Twin Otter that is now over forty years old. It would seem that a more appropriate requirement for special operations – and one that was discussed at one point within DND – is a small, rotary-wing aircraft (i.e., a helicopter).

It may be said that during the Cold War there was some need to protect information about procurement, especially about specifications or performance of new weapons systems. That is quite simply no longer the case, if it ever was. The public's right to know and its ability to understand must be paramount if democratic decisions are to be made on the basis of reality rather than rumour.

There is only one satisfactory way that the DND, the CF, and the other government departments involved in national defence can be made to clarify both defence spending and promised improvements to both DND and the CF that do not necessarily involve spending. That is to statutorily increase the responsibility, the authority, and the ability of both the Auditor General and the appropriate parliamentary committees to investigate, or otherwise

seek information about, what is going on in Canadian defence. That would mean a greatly expanded staff in the Auditor General's office, with individuals with specific expertise in defence issues taken on. It could, in fact, mean a special branch of that office that would deal only with defence matters. And there is need also for greater independence of the parliamentary committees that deal with defence so as to give them a virtual oversight role over defence administration. They need more personnel, more resources, and more leeway in what they examine and from whom they can seek information. At the same time, the *Chief of the Defence Staff Annual Report* should be transformed from what it is now – essentially a public relations document – into a report more akin to a chief executive officer reporting to a board of directors. For example, segments such as the “Status on Major Equipment Programs” are currently included in years 2000–03, but then absent in 2004, and then included again in 2005. Ensuring regularity in what the CDS Annual Reports cover would increase clarity and accountability.

If steps such as these are taken, it will be incumbent on DND and the CF to invest as much time in developing clear and simple reporting methods as it does on any of its other key functions. Whatever is done, the reporting process is a mess. Until it is cleaned up, no one outside a charmed circle (generally within the offices of the Vice Chief of the Defence Staff, the Deputy Minister of National Defence, and a few other places within National Defence Headquarters) will have any really clear idea of what is happening within the defence establishment, when, at what cost, and whether or not it is happening on time and on budget.

The problem of communication aside, this study supports the conclusions reached by others, inside and outside government, about the state of the Canadian procurement system. On the basis of information gathered almost exclusively from the government's own public sources, only one of the thirteen projects involving procurement of new equipment or upgrades of existing equipment appeared to be on time at the end of 2004. This was the TCCCS radio. Although parts of the CF-18 upgrade process are proceeding well, the Advanced Distributed Combat Training System, which is directly linked to the CF-18 upgrade project, is some two years behind schedule. Delays in the ADCTS will force air force pilot trainees to unnecessarily put additional hours on the CF-18 airframes. The remainder of the thirteen projects were behind schedule, some by as much as three years. With information publicly available, it was simply not possible to determine progress in three cases: the Joint Support Ships, the Mobile Gun System, and the Fixed-Wing SAR Aircraft. Although the Maritime Helicopter Project is now finally progressing, there has been no determination of the court case brought against the government by Agusta/Westland. If that case goes against the government, it is unlikely that the government will be forced to cancel the new contract and re-open the bidding process, but very likely that many hundreds more millions of dollars in fines and legal and court costs will be added to the project. Some phases of the CP 140 Modernization Project are on schedule, while some are behind. Although the M113 upgrade is behind schedule (and over budget), there has still been no indication in the past eighteen months of what the army will do with the vehicles when they are ready. Although the LUVW (G-Wagon) has now replaced the much-maligned ILTIS in the field, the final deliveries are behind schedule. Field experience after 2004 in Afghanistan made necessary a significant modification in the installation of an open gun turret atop some of the vehicles. There is, as of this writing, no indication when the American Army will put the MGS into

production. There have been major weight problems in the development of that system. The Canadian MGS deliveries are an “add-on” to the U.S. production order.

On the policy side, there is a dearth of public information on the fate of the recommendations of the Minister’s Committee on Achieving Administrative Efficiency, handed down in October 2003. There is no effective end date in sight for the completion of those recommendations. If that initiative has now been rolled into the larger enterprise of CF transformation (and the re-alignment of Canadian command responsibilities), someone in authority ought to say so. It is unclear what progress had been made to fulfill the promise first made in 2000 to expand Army Reserves to 18,500. That promise has now been superseded by a Conservative pledge made in the most recent election to increase the reserves by 10,000.

As to budgets, four of the fourteen new purchase or upgrade projects examined were over budget – the Light Utility Vehicle Wheeled, the CF-18 upgrade, the M113 upgrade, and the conversion of two CC-150 Polaris aircraft to air-to-air tankers. In the case of seven other of these projects, there wasn’t enough public information to come to any conclusion about cost overruns. In only two of the fourteen is it clear that budgets have not been exceeded – the TCCCS radio and the post-2000 iteration of the Maritime Helicopter Project. Nevertheless the department’s own information reveals that the TCCCS radio, as it has been delivered to the Land Force, will not meet the newly evolving CF transformation requirement that army, navy, and air force must be able to “talk” to each other at a tactical level. It is obvious that this now crucial requirement was not foreseen during the early stages of the TCCCS product development.

The inability to forecast a requirement – or the disappearance of one – is obvious in the case of the M113 upgrade. The Canadian army is about to become an all-wheel, medium-weight fighting force and will have virtually no need for the upgraded APCs. Over \$300 million has been completely wasted. Why has this happened? Because the Canadian procurement cycle has grown consistently and agonizingly long, as former CDS General Paul Manson concluded in a paper presented to the Canadian Institute of Strategic Studies in July 2005. There must be a faster cycle of “concept-to-fielding” when incorporating brand new technology because of the high risk of rapid equipment obsolescence. The traditional manner of equipment acquisition in the CF is one that begins with a definition of all-encompassing requirements and concludes with a massive total system design and build. By the end of the prolonged multi-year procurement process, the resultant product can be on the verge of obsolescence owing to new emerging technologies. The experience of both industry and the defence establishment shows clearly that the better approach to procurement where information technology is involved is one characterized by compact iterative cycles of modular definition of requirements and rapid prototyping. Given the highly progressive nature of modern computer technology, the modular approach makes it possible to readily adopt new emerging technologies from the commercial sector in the military product.

The length of the normal Canadian procurement cycle has been commented upon elsewhere and often. In some cases – the Maritime Helicopter Project, for example – delay was the result of direct political intervention in the procurement process. In other cases – in this case, the Mobile Gun System – buying a product that is still under development elsewhere puts the Canadian military at the mercy of foreign technologies, processes, and

political decisions. It is hard to see what alternative there is to the latter course save for made-in-Canada solutions that will, in most cases, prove to be just as lengthy, even more expensive, and even more subject to political intervention. This is not to say that the lengthy procurement cycle cannot be shortened, just that there are no easy solutions.

When the CF absolutely must have a piece of kit for operational purposes, they have recently demonstrated that they can acquire it very quickly. In late 2005, DND spent close to \$250 million dollars to acquire fifty Nyala mine-hardened vehicles, Sperwer UAVs, and M777A1 towed 155mm artillery pieces for use in the Kandahar area of Afghanistan. These were direct, sole-source purchases of needed equipment, unique in design and capability and not available from elsewhere. The DND is also now using a newly conceived method of arriving at desired overall requirements in a single page, saving both time and money in the definition phase of a new project purchase. In mid-November 2005, such a specification was used for a new, medium-lift aircraft to replace the military's oldest CC-130 Hercules aircraft. At this time (February 2006), the C-130J Airlifter may be the only aircraft that can meet the stated requirements.

This research project was not undertaken as an in-depth analysis of Canadian procurement problems, their causes and solutions; however, some reasons for difficulties in some of the projects examined seem obvious, for example:

- lack of expertise in project management within DND and the CF
- insufficient personnel assigned to Project Offices
- unpredictable capital acquisition budgets
- lack of centralized, strategic vision in procurement

A lack of military expertise in project management within DND and the CF: There is little or no incentive within the existing career advancement system in the CF for individuals to specialize in procurement or project management. The system of regular postings exacerbates the problem by breaking up teams that have gained either general project experience and/or experience working together. This system may have been suitable in a day and age when less technology and lower cost were the rule, but it is unsuitable now. Experts are needed, and they must be military experts using civilian management techniques to solve military problems.

Insufficient personnel assigned to Project Offices: Despite repeated complaints about an over-bureaucratized military, there are, quite simply, too few people staffing project offices overseeing projects ranging from the hundreds of millions to billions of dollars. This creates systematic bottlenecks. Some rational means must be used to determine how many personnel are required to shepherd a project, and when that number is met, it must be maintained or adjusted as needed for the project, and not for any other purpose.

Unpredictable capital acquisition budgets: This combined with constant shifting of budgets owing to extraneous factors, both political and administrative, wreak havoc with rational project planning. A sane capital acquisition process simply must reduce these eventualities as much as is humanly possible.

A lack of centralized strategic vision in procurement: Procurement must be driven from the top down, with rationales based on a strategic vision for the entire CF.

Some of the above concerns are now being addressed. Even though the Defence Policy Statement released on 19 April 2005 did not discuss the procurement problem, both the former Minister of National Defence, Mr. Graham, and the Chief of the Defence Staff subsequently acknowledged the tremendous importance of “fixing” the system. Some fixes have been implemented – the Strategic Capability Investment Plan (SCIP), first published in 2003, was created by the military itself as a joint “wish list” on which to base future planning for capital acquisitions. The idea behind SCIP is that desired CF capabilities based on defence policy should drive future acquisitions instead of trying to anticipate future threats. SCIP is intended to evolve into an overall Defence Capability Plan that will form the basis of long-range acquisition planning for both what is needed and what is not. At this early stage in the life of the new government, it is difficult to know how that process may evolve.

Fixing the procurement process may help bridge the information gap that this study has revealed, or it may not. There doesn't seem to be much belief in government that there is a necessary connection between rationalizing procurement and fully informing the public about what is going on in a clear and comprehensive way. But there is! There is no better watchdog over the public purse than the public itself. Therefore, the provision of clear information as to what commitments have been made regarding the nation's defences, how long they will take, how much they will cost, and how much progress is being made towards their fulfillment, is as important a task as fixing procurement or streamlining the operations of National Defence Headquarters.

ANNEX: PROJECTS AND COMMITMENTS

A) COMMAND AND CONTROL COMMITMENTS

Canadian Forces Joint Operations Group (CF JOG) Project

1) Contact used during principal information gathering

Public Affairs Officer, Canadian Forces Joint Operations Group

2) History

The idea for a joint operations group resulted from Canada's participation in the Gulf War (1991), where a need for a deployable joint command and control capability became clear.

First mention found

In November 1997, a CF working group was formed to examine joint command and control issues. In December 1998, the Armed Forces Council (AFC) approved the working group's recommendations, and a Defence Services Program Project was subsequently initiated. In November 1999, AFC agreed that the creation of a deployable organization capable of commanding and controlling joint operations was in the best interests of the CF. To this end, a formal review was conducted within the context of *Strategy 2020* of the role and structure of the First Canadian Division Headquarters and Signal Regiment and the 79 Communications Regiment.

First commitment found

“NEW FORMATION – OTTAWA – The Honourable Art Eggleton, Minister of National Defence, announced today the creation of the Canadian Forces Joint Operations Group (CF JOG) in Kingston.” (DND *Backgrounder* BG-00.013 – 18 May 2000)

Commitments repeated:

- Minister Eggleton, DND *News Room*-00.055 – 1 June 2000
- General Henault, CDS, appearance before the Senate Committee on National Security and Defence, 3 December 2001
- General Henault, CDS, at the opening ceremony of the National Security Studies Course, Canadian Forces College, 8 January 2002
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 21 February 2002

3) Other pertinent information

By definition, a formation is a military organization of two or more units working together under a single commander. The Kingston-based CF JOG, built largely upon the former First Canadian Division Headquarters and Signal Regiment and the 79 Communication Regiment, will have two assigned units – the Canadian Forces Joint Headquarters (CF JHQ) and the Canadian Forces Joint Signal Regiment (CF JSR). Both former units were officially “stood down” at a June 2000 ceremony also marking the official creation of the new formation. With its integrated naval, army, and air force

expertise, the 800-strong CF JOG is intended to provide a rapidly deployable command and control capability to meet domestic and international commitments.

Mission

The mission of the CF JOG is to provide a rapidly deployable, operational-level command and control capability for the CF in order to meet complex domestic and international commitments. Essentially, it is the link between the military's strategic and tactical components.

Tasks

The CF JHQ consists of a deployable core staff about 128 strong that provides an operational-level command and control capability. This core staff can expand to whatever size is required to deliver the appropriate level of command and control to any domestic or international CF operation. The CF JHQ is also responsible for the following activities:

- *Theatre Activation*
To support the deployment and employment of CF personnel into a new area of operations, a theatre activation team (TAT) deploys for forty to sixty days to prepare for the arrival of the Canadian contingent. Theatre activation team personnel – members of the CF JHQ – are always on forty-eight hours' notice to move.
- *Disaster Assistance Response Team (DART) Headquarters*
The CF JHQ maintains a headquarters unit of about twenty personnel for the disaster assistance response team (DART). The DART HQ is also at forty-eight hours' notice to move.
- *Deployable Headquarters*
The CF JHQ can deploy a headquarters element to provide the senior Canadian commander with a command-and-control function suitable for executing a complex domestic operation or capable of fitting into an allied, coalition, or multinational force chain of command.
- *Canadian Forces Joint Signal Regiment*
Using state-of-the-art communications technology, the CF JSR provides signals support to the CF JHQ in addition to Communications and Information Systems (CIS) support to CF operations. These tasks include: establishing and maintaining radio, telephone, and satellite communication networks; installing and upgrading computer systems and software applications for deployed operations; heavy cabling, including fibre optic communications networks for CF installations in Canada and around the world; signals support for the DART; CIS training for the CF; and logistics and personnel services support for the CF JHQ.
- *Canadian Forces Joint Support Group (CF JSG)*
Formed in June 2003, the CF JSG comprises Joint Support Group Headquarters (JSG HQ) in Kingston, and 1 Engineering Support Unit (1 ESU) in Moncton, NB. The JSG HQ co-ordinates doctrine, liaison, training, and contract administration for all aspects of mission support, and 1 ESU delivers specialist military engineering services to the CF and other government departments in Canada and around the world. The CF JSG also has elements configured to provide the support functions

of general support engineering, health services, logistics, land equipment management, military police, and personnel administration and support.

Budget

The CF JOG operates with a budget of approximately \$9.6 million per annum, including operations and management, civilian pay, reserve pay, and miscellaneous requirements, as follows:

Joint Headquarters	\$3.2 million
Joint Signal Regiment	\$5.4 million
Joint Nuclear Biological and Chemical Defence Coy	\$1.0 million

NB: CF JOG qualifies for this study because its cost will eventually reach the \$100 million level, and it is a significant new structure within the NDHQ (National Defence Headquarters) command architecture.

Expected timeframe/Project status

The project has been launched and CF JOG is operational, as General Ray Henault, CDS, noted at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 21 February 2002:

With the creation of the Canadian Forces Joint Operations Group, we now have the modern, rapidly deployable, and robust command and control and signals capability we require for the changing security environment. The Canadian Forces Joint Operations Group has proved its mettle and its usefulness in operations in Ethiopia and Eritrea and, more recently, in Macedonia.

Official word from the CF JOG headquarters on current status

Through exercises and participation in real-life operations, the CF JOG has been able to test its capability and readiness, focus its development, and refine both aspects to produce a formation that has unique capabilities within the CF with real readiness for deployment. The demonstrated capability of the CF JOG, when considered as a whole, fully satisfied the requirements of full operational capability (FOC).

The Armed Forces Council endorsed the declaration of the CF JOG as FOC without reservation on 21 May 2003. The CF JOG was officially declared FOC in June 2003.

In operations such as ECLIPSE (Eritrea), FORAGE (Macedonia), APOLLO (Southwest Asia), ATHENA (Afghanistan), and HALO (Haiti) and exercises, the CF JOG has proven and expanded its capability to provide effective command and control architectures and staff procedures in both the secure and non-secure information technology environment.

A truly joint organization designed to work at the operational level with expertise in navy, army, and air force operations, the CF JOG greatly enhances CF interoperability. It gives the CF a significant operational command and control capability, offers a single source of CIS support to all CF operations, and provides a rapid-reaction capability second to none. The mandate to provide, on short notice, a highly skilled, trained, and deployable Canadian Joint Task Force Headquarters (CJTF HQ) at anytime and anywhere in the world makes the organization unique.

The CF JOG is an evolving entity and is, in many ways, much changed from the project charter that defined it. Mission close-out has been added to the core tasks

of the CF JOG, the Disaster Assistance Response Team (DART) is being enhanced to facilitate deployment in cold weather operations, and operational command and control for Non-Combatant Evacuation Operations has been added to CF JOG defence tasks. Further, with the addition of the Joint Nuclear Chemical and Biological Defence Company (JNBCD Coy), the CF JOG has had to expand its governance structure.

With the CF JOG assuming a prominent role in theatre activation for the Canadian contribution to the NATO-led International Security and Assistance Force (ISAF), it is evident that the concentration of effort on support to deployed operations is not likely to diminish in the immediate future.

The JOG's work to date illustrates that the CF JOG has satisfied the intent of the project charter. (DND website, various on-line reports)

4. Conclusion

From available information, the project was stood up rapidly and is achieving its desired goal. As of early 2006, it is difficult to know what role, if any, the CF JOG will play in the transformed CF command structure and, if it continues to exist, whether it will be attached to any or all of the CF's three new commands: Canada Command (CANADACOM), Canadian Expeditionary Force Command (CEFCOM), or Canadian Special Operations Forces Command (CANSOFCOM). **Nevertheless, this project was on schedule and on budget at the end of 2004.**

* * *

Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) Project

1) Contacts used during principal information gathering

No single specific contact was used. Information was gathered from a variety of publicly available sources, including those provided directly by DND or the CF.

2) History

The ISTAR Project is designed to provide enhancements to existing intelligence-gathering assets in communications, command and control, and sensors. The ISTAR is an omnibus project that includes the acquisition of Unmanned Aerial Vehicles (UAVs) and Counter Bombardment, Target Acquisition Radar (CBTA). It will also transform or enhance existing sensor platforms to improve electronic warfare capabilities, geomantic support, and tactical meteorology. The Land Force Command Control and Information System (LFC2IS) and the Tactical Command and Control Communications System (TCCCS radios) will provide the framework upon which the ISTAR capability will be developed.

First mention found

First mention of the ISTAR project is found in the 1998 report of the CDS, General Maurice Baril, who notes that "work will begin on upgrading intelligence, surveillance, target acquisition, and reconnaissance."

First commitment found

(On UAVs) General Henault, CDS, appearing before the Senate Committee on National Security and Defence, 3 December 2001.

Commitments repeated:

- CDS Annual Reports, 2000–03.
- Minister of National Defence John McCallum, 17 January 2003, announced the signing of a contract valued at \$3,745,000 for the Quebec region between the Department of Defence Research and Development Canada (DRDC)/Valcartier and DMR Consulting. He stated that he was pleased to announce the agreement to develop this leading edge technology for the CF. Getting relevant information quickly into the hands of commanders and their staff members is key to effective military operations. ISTAR is a significant breakthrough in information technology developed at DRDC Valcartier.
- MND McCallum, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003.
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003.
- Treasury Board approval of definition phase activity on 3 April 2003.
- Departmental Performance Reports, 2003–04.
- Reports on Plans and Priorities, 2003–05.
- Finance Minister Ralph Goodale, 2005 Federal Budget.
- MND Bill Graham, at a conference on Canada in Afghanistan: Assessing the 3-D Approach; Waterloo, ON, 13 May 2005.
- Strategic Capabilities Investment Plan 2003

3) Other pertinent information

Elements of ISTAR fall under the Technology Demonstration Program of Defence Research and Development Canada (DRDC). It will allow for the creation, analysis, fusion, and transmission of critical information to military command in emergency situations. The DMR company will lead the innovative project, in co-operation with CGI Quebec, Thales Canada, Lockheed Martin Canada, Oerlikon, and xwave.

The ISTAR project will follow an omnibus approach using three component groupings, each contributing substantially to ISTAR's overall capability, as follows:

- *Datalink and Communications*
The communications component will enhance the tactical communications network to support the LFC2IS as a whole and, specifically, the LF ISTAR command and control system components.
- *Command and Control*
The command and control component will acquire a deployable, tactical ISTAR analysis and co-ordination capability and implement a common suite of information sharing, analysis, planning, sensor management, and data fusion computer technology in all ISTAR processing elements.

- *Sensors*

The sensor component will:

- acquire a responsive, beyond line-of-sight tactical reconnaissance sensor capability in the form of unmanned aerial vehicles (UAV);
- acquire a tactically deployable, hostile weapon-locating-sensor system (known as Weapon Location Sensors [WLS]) that can rapidly detect and locate the source of hostile rocket, artillery, and mortar fire;
- transform the existing Electronic Warfare (EW) sensors into modular, scalable, multi-task, task-tailored, mobile EW Teams with the capability to operate against modern signals of interest and maintain a technological advantage over all EW threats; and
- enhance existing sensors (LAV 3, Coyote, Low Level Air Defence, and Tactical Meteorology Systems) so they can be integrated into the automated collection, analysis, and dissemination system.

Projected non-recurring expenditures for the “definition phase” (\$ thousands)

current estimated total cost	\$46,444
expended as of 31 March 2004	\$ 6,230
planned spending 2004–05	\$19,271
future years’ requirement	\$20,943

(2004–05 Report on Plans and Priorities)

Estimated total cost over the life of the project

The following is an excerpt from the speech by the Honourable John McCallum, MND, at the Annual General Meeting of the Conference of Defence Associations; Ottawa; 27 February 2003: “ISTAR is projected to cost \$600–700 million over ten years.” Current estimated project budget (as per the Project Office, 1 July 2005): \$628,979,000. The funds currently approved are for the definition phase¹ of the ISTAR omnibus project, which includes all development and definition work required for the sub-projects.

UAV portion of ISTAR project

The decision of the Canadian government to deploy troops to Afghanistan, announced in March 2003, created what the military refers to as an Unforecasted Operational Requirement (a UOR) for a UAV capability for the mission. A competitive procurement process was held. On 7 August 2003, MND John McCallum announced that the DND had signed a \$33.8 million contract for the Sperwer UAV for reconnaissance during Canada’s mission in Afghanistan. The contract went to Oerlikon Contraves, Inc., St. Jean, QC, with SAGEM SA, France, as the subcontractor. At the time, there was an understanding within the CF high command that the Sperwer could become a permanent

¹ The “definition phase” is the initial phase of a project. It is often long and very complicated. In essence, it is the phase when the desired end product is described in detail. This will include the minimum standard of operational performance required by the CF. It will include analysis of existing and available technology, examination of items “on the shelf,” evaluation of the desirability of an “off the shelf” purchase, budget projections, logistical support requirements, industrial benefits, etc. (in other words, all the information the cabinet is likely to require in order to make a decision to formally launch a project). The launch ends the definition phase.

part of the ISTAR system if it met the longer term requirement. As of February 2006, new Sperwers were purchased and are in use by Canadian troops in the Kandahar area of operational responsibility in Afghanistan.

Information on the Sperwer

Canada fast-tracked the purchase of four Sperwer drones in 2003 and immediately deployed them to Afghanistan to be the eyes of ground troops stationed in Kabul. Within three months, two Sperwer remote-controlled drones slammed into trees, one crashed into a field, and another was damaged when its parachute failed to open. All were repaired. The CF attributed the thin air in the operational area and the harsh desert conditions for the crashes. At the time, the Sperwer was also used by the French, Dutch, Swedish, Greek, and German armed forces. This was the very first operational deployment of UAVs by Canadian forces.

Other UAV purchases

In April 2004, the CF purchased the Silver Fox mini-UAV system produced by Advanced Ceramics Research of Tuscon, Arizona. Thales Systems, Canada, is the prime contractor. The purchase was made to acquire the UAV for a two-year period of combined concept development and experimentation. The cost of \$649,000 included training and service support. The system was delivered in the summer of 2004 for evaluation by the three environments (army, navy, and air force). The army has finished experimenting with it and has defined what the requirements are for their mini-UAV. The navy and the air force are still experimenting and will likely continue to do so until the summer of 2006. This vehicle was not purchased to provide an operational capability; it was more an “option analysis” tool. The mini-UAV project listed on the RPP scheduled for March 2008 is the project that is planned to bring an operational capability into the CF.

Expected timeframe/Project status

ISTAR is a very long term, multi-phased project that is still in the definition phase (with the exception of the 2003 purchase of the Sperwer). The unexpected requirement to purchase the Sperwer UAV for operations in Afghanistan diverted ISTAR project staff temporarily and may result in an estimated delay of an entire year in all previously projected timelines.

Milestones achieved:

- Treasury Board preliminary project approval; 3 April 2003
- MND approval UAV UOR; July 2003
- contract award UAV UOR; 1 August 2003
- TB project approval in arrears UAV UOR; October 2004
- Communications and data link component TB approval SS (EPA); June 2005
- Command and Control (C2) TB approval SS (EPA); June 2005

Milestones remaining at the end of 2004:

- UAV (balance of project) Treasury Board submission SS (EPA); March 2005
- EW sensors, TB approval SS (EPA) phase 1; October 2005
- in service sensors enhancement, TB approval SS (EPA); March 2006

- CBTA sensor component, TB submission SS (EPA); October 2007
- Mini UAV; March 2008
- delivery of all ISTAR sub-projects; 2012–13
- project completion; March 2014

(DND 2004–05 *Report on Plans and Priorities*)

Leading and participating departments and agencies:

- lead department; DND
- contracting authority; Public Works and Government Services Canada
- participating departments and agencies; Industry Canada and its regional agencies

4. Conclusion

ISTAR will give the CF much needed up-to-date capabilities for the age of network-centric warfare. It is in the early stages of the definition phase. The need to divert staff in order to finalize the purchase of the Sperwer created a delay of up to a year, even at this early stage of development. This indicates an acute need for additional trained and/or experienced project management personnel within the CF and the DND. **From information publicly available, it is not possible to conclude whether or not this project was on schedule or on budget at the end of 2004.**

* * *

Protected Canadian Military Satellite Communications (CMSC) Project

1) Contacts used during principal information gathering

J.L. (Jim) Newbery, Deputy Project Leader – Operational Information Systems (Communication and Intelligence), acting project manager – Protected Military Satellite Communication, DND

NB: This project is not to be confused with the Very Long Range Communication System (VLRCS) project initiated in 1991 and included in the April 2002 *Report of the Auditor General*.

2) History

The CMSC project is intended to give the CF the capacity to conduct surveillance of space and provide data on space objects of interest to Canada. A successor to the satellite phase of the VLRCS (see above), its goal is to provide the CF with a guaranteed and secure military satellite communications capability to support the command and control requirements of deployed forces around the world. The CMSC project is intended to provide the full spectrum of Military Satellite Communications (MILSATCOM) capabilities.

Four independent projects currently comprise the CMSC Project:

- “protected MILSATCOM” (the core project)
- ultra high frequency MILSATCOM terminals
- global broadcast service capability
- advance mobile MILSATCOM (AMS) capability

In addition, this project will enhance the Canadian Forces' interoperability with key allies, particularly the United States.

First commitment found

On 25 August 1999, the Treasury Board granted Preliminary Project Approval to the Ultra High Frequency MILSATCOM Terminals portion of the CMSC project, with expenditure authority for the implementation of phase I at an estimated cost of \$252 million. It also granted approval for the DND to enter into a MILSATCOM Memorandum of Understanding (MOU) with the United States DoD. The MOU was signed 16 November 1999.

Commitments repeated:

- General Henault, CDS, appearing before the Senate Committee on National Security and Defence, 3 December 2001
- General Henault, CDS, at the opening ceremony of the National Security Studies Course, Canadian Forces College, 8 January 2002
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 21 February 2002
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003
- CDS Annual Reports, 2000–02 (2003 makes no mention of the project; 2004, the most recent, does not have a section on “Status of Major Equipment Programs,” as was the case in previous reports)
- DND Departmental Performance Reports, 2000–04
- DND Reports on Plans and Priorities, 2000–05
- Strategic Capabilities Investment Plan 2003

3) Other pertinent information

The DND and the CF require global communications that are secure, guaranteed, and directly interoperable with Canada's allies. The aim of the CMSC Project is to overcome current CF interoperability and global command and control limitations. Upon completion, this project will enable long range communications to deployed forces and facilitate their interoperability with allies.

The project will be implemented in two phases. Under phase I, an MOU with the United States DoD will guarantee Canadian participation in their Advanced Extremely High Frequency (AEHF) Communications System. Definition studies for the Ultra High Frequency MILSATCOM Terminals (terminal segment) will also be completed in phase I. Under phase II, the terminals will be procured, installed, and tested.

On 18 November 2003, the Treasury Board granted effective project approval for the second phase of the project, with expenditure authority for the implementation of phase II at an estimated cost of \$300 million (this is in addition to the phase I cost, approved in 1999, of \$252 million [see above]). Currently the projected costs of phases I and II are \$552 million.

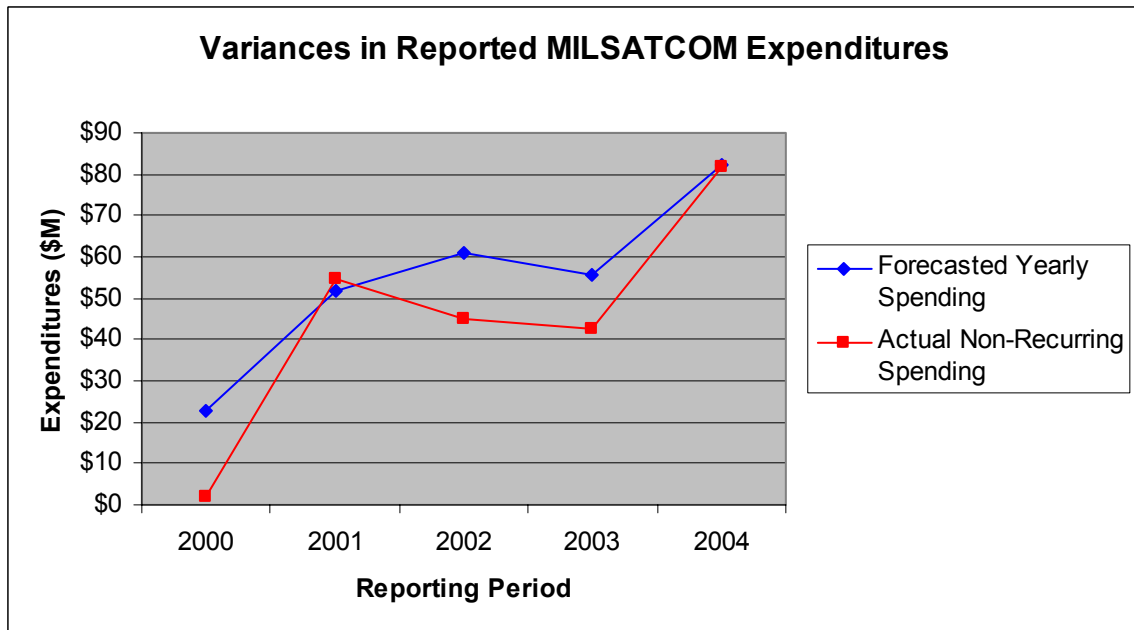
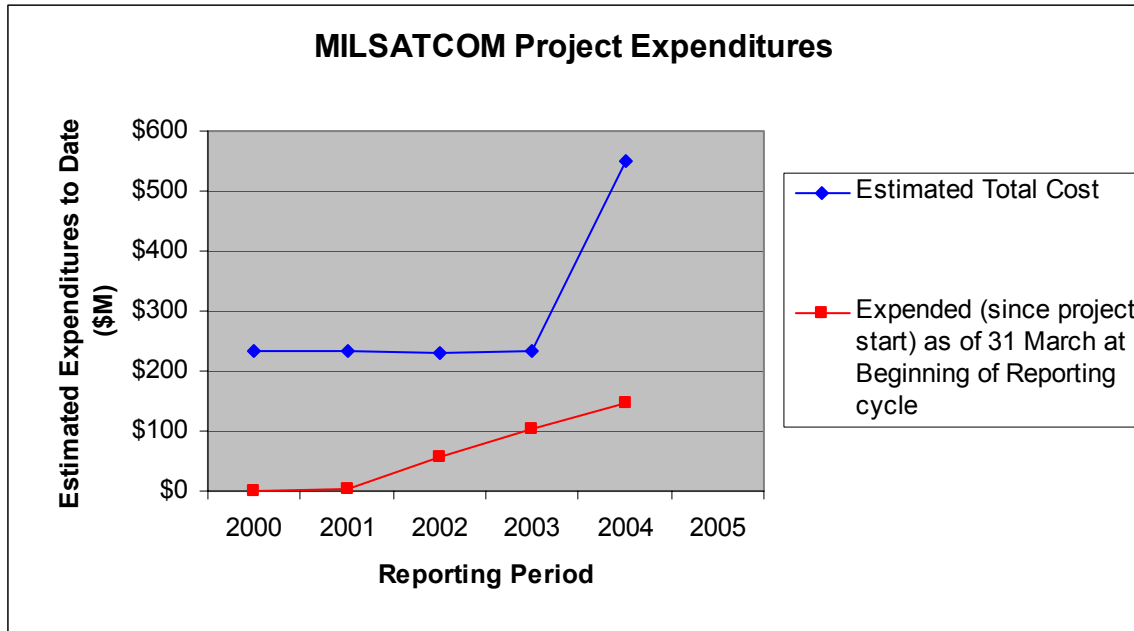
Leading and participating departments and agencies:

- lead department; DND
- contracting authority; Public Works and Government Services Canada
- participating departments and agencies; Industry Canada and its regional agencies

Prime contractor and major sub-contractors:

- prime contractor; United States DoD
- major sub-contractors; TBD

The current budget is \$552 million. Approximately \$227 million has been expended as of 31 March 2005. **The project is on budget.**



Expected timeframe/Project status

Like many current multi-year projects, CMSC is a very long and multi-phased operation that will stretch well into the next decade. Currently the only phase of the project that is

ongoing is the acquisition of the Ultra High Frequency MILSATCOM Terminals that will be used to receive, process, and relay information gathered by the satellite.

Milestones achieved

Phase I of the project is complete.

Milestones remaining

According to the Project Office, the next major milestone (as of February 2006) will be the initial delivery of terminals in mid-2009 followed by initial operational capability in early 2010. In comparing milestones set out in the department's 2002–03 and 2003–04 RPPs, it appears that a delay of at least two years has developed within the project. No explanation for that delay could be found in the documents examined, although this schedule is at the mercy of U.S. project timetabling.

Major milestones:

- preliminary project approval; 25 August 1999
- effective project approval; fall 2003
- initial terminal delivery; spring 2005
- initial satellite delivery; summer 2006
- terminal delivery completed; spring 2007
- project completed; summer 2009

(DND 2002–03 *Report on Plans and Priorities*)

Major milestones:

- preliminary project approval; 25 August 1999
- effective project approval; fall 2003
- initial terminal delivery; summer 2007
- initial satellite delivery; summer 2008
- terminal delivery completed; spring 2009
- project completed; summer 2011

(DND 2003–04 *Report on Plans and Priorities*)

4. Conclusion

Information published by the department indicates that a delay of some two years has transpired. There is no indication in the publicly available documents as to why this has occurred. It is all too typical that an obvious delay will be discovered when comparing milestones set out in DND Reports on Plans and Priorities from one year to the next without any explanation given in the reports as to why this happened. **This project was behind schedule at the end of 2004, though it was on budget.**

* * *

Tactical Command, Control, and Communications System (TCCCS) Project

1) Contacts used during principal information gathering

No single specific contact was used. Information was gathered from a variety of publicly available sources, including those provided directly by DND or the CF.

2) History

The objective of this estimated nine-year, \$2 billion project was to replace the Land Forces' obsolete legacy tactical communications systems with secure, survivable, responsive, and easily maintained battlefield communications.

First commitment found

The TCCCS was first mentioned as a requirement in the late 1990s. The DND's online information can be found as early as the 1998–99 fiscal year.

Commitments repeated:

- DND Reports on Plans and Priorities, 2001–05
- DND 2003 *Department Planning Report* (DPR)

3) Other pertinent information

Leading and participating departments and agencies:

- lead department; DND
- contracting authority; Public Works and Government Services Canada
- participating departments and agencies; Industry Canada and its regional agencies

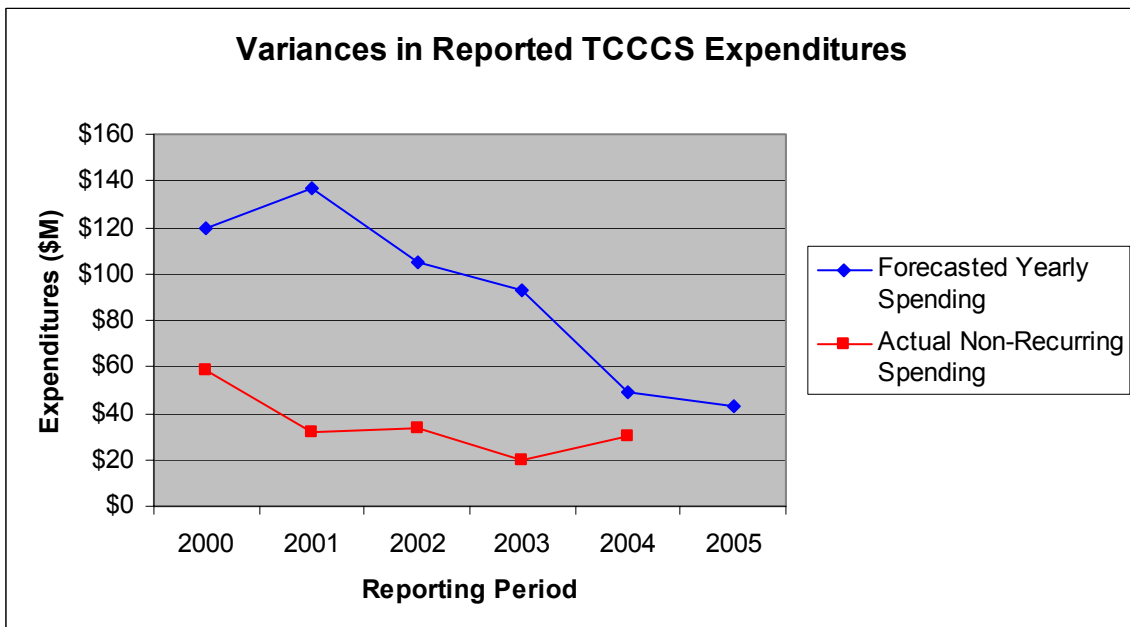
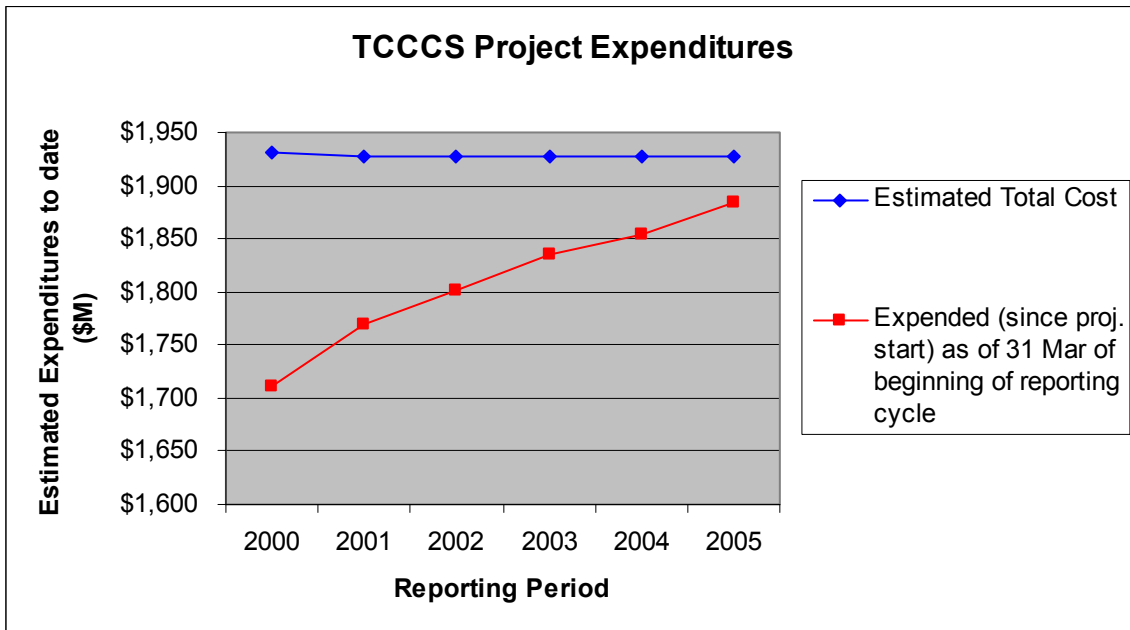
Prime and major sub-contractors:

Prime contractor;	Computing Devices Canada, Calgary, AB
Major sub-contractors;	Canadian Marconi Company, Saint Laurent, QC
	Computer Sciences Canada, Inc., Kanata, ON
	EDS Defence, Hampshire, United Kingdom
	ATCO/Frontec Logistics Corp., Calgary, AB
	Harris Corp., Rochester, NY, U.S.
	KB Electronics, Bedford, NS
	Logican Technologies, Inc., Edmonton, AB
	Motorola, Scottsdale, AZ, U.S.
	Prior Data Sciences, Ltd., Halifax, NS
	Racal-Tacticom, Ltd., Reading, UK
	TRW, Fairfax, VA, U.S.

Expected timeframe/Project status:

- project initiated; early 1970s
- project definition approved; 1988
- received preliminary approval from the Treasury Board for ~\$1.9 billion; 1988
- Request for Proposals issued by TCCCS PMO; 27 October 1989
- Treasury Board approved project; April 1991
- principle contract signed for \$1.4 billion; 18 April 1991
- system design review; June 1992
- contract amended to match CF structure reductions; March 1996
- delivery and fielding of components commences; 1996
- schedule change amendment delays project completion to March 2002; Nov. 1998

- initial implementation target; September 2000
- estimate for distribution completion (1999); September 2001
- contract amendment delayed project completion until June 2004; September 2001
- project completion estimate (1999); March 2002
- Iris system contract lapsed; December 2002
- complete system delivery to DND; November 2003
- completion extended to June 2005 to support infrastructure creation; April 2004
- Iris system contract closure; February 2005
- TCCCS project completed; July 2005



The project took several years longer than the original 2002 completion date estimated in 1999. The DND claims this was due to the contractor's inability to maintain equipment qualification and delivery schedules. Several extensions were made to the contract completion date, the most recent extension (to July 2005) to allow for the creation of supporting infrastructure and contract closure procedures (RPPs 2005–06). It appears that a decrease in capital spending in fiscal year 2003–04 was attributable to difficulties in contract negotiations which led to temporary suspension of payments for the Tactical Command, Control, and Communication System.

Summary of principle project issues

1) *Definition requirements changed due to budget changes:* The 1994 *Report of the Auditor General* expressed concern that DND had to change the TCCCS requirements several times prior to government approval in order to respond to budget changes. For example, the original intent to implement TCCCS in three phases was changed owing to inadequate funding. In a 2002–03 Canadian Forces College paper, Major Yung Jin Hou observed that phase I (the replacement of legacy equipment) was eventually merged with phase II (the replacement of wide area communication equipment) owing to the inability to fund all three phases. Only a few of the phase III elements (for example, the introduction of automated information systems) were maintained.

2) *Definition work occurred during the implementation phase:* The 1994 *Report of the Auditor General* noted that detailed project definition work was being conducted during the implementation phase of the TCCCS project.

3) *Premature commitment of contingency funds:* It was noted in the 1994 *Report of the Auditor General* that 70 percent of the \$170 million TCCCS contingency fund was committed by the Project Office, while the most complex segment of the project, the software design, was only 10 percent complete and eight months behind schedule. The audit team also expressed concern that the Project Office would need to be maintained at least a year beyond the original plan and at a cost of almost \$1 million per month.

4) *Project did not include integrated logistical support:* The 1994 audit observed that the project did not include integrated logistics support for the initial implementation period. The audit team expressed concern that this oversight would mean extra expenditures for the government.

5) *Project will not supply enough radios to fully equip Land Forces:* The 1994 *Report of the Auditor General* observed that the supply of radios within the TCCCS project was regarded by DND as the minimum requirement. The report expressed concern that the project would not fully equip all Land Forces, and cost overruns would therefore need to be funded through reductions in integrated logistic support or from other offsets.

6) *Training and operations plans were impacted significantly by delays in implementation:* The 1998 *Report of the Auditor General* observed that the TCCCS project had incurred a one-year delay in implementation from September 2000 to September 2001, but without a corresponding change in the overall budget. This delay was expected to significantly affect training and operations plans. Contract amendments were required to ensure better project control mechanisms and to redefine timetables.

7) *The \$174 million very long range communication system (VLRCS) was mismanaged owing to poor requirement definition when it was incorporated into the TCCCS project:* A subcomponent of the TCCCS project, VLRCS was contracted in 1991 to modernize and extend the range and capability of communication systems among deployed units by using satellite communications. It was completed in 1997–98 at a cost of \$174 million, but it was placed in storage because DND was already using an alternate commercial system. The following was noted in the 2002 *Report of the Auditor General*:

The initial decision to incorporate the VLRCS requirement in the TCCCS project before a concept of operations was developed and before design and definition were completed resulted in numerous changes to the requirement and to the concept of employment. Changes continued until 1995. It appears that the Information Management Group never defined the capability it required. This is part of the reason why proof-of-concept studies are still being worked on today.

8) *Umbrella management of the overall project combined with a lack of separate project review and approval made oversight and review of individual portions of the project difficult:* Among observations made by the 2002 *Report of the Auditor General* was the following:

Managing TCCCS as an umbrella project rather than an omnibus project created a project structure that made departmental oversight and review of individual parts difficult. If TCCCS had been managed as an omnibus project, preliminary approval would have been granted for the overall project; then separate approval would have been required for each major component.

9) *The system as a whole had difficulties passing final field qualification tests:* Major Hou's 2002–03 Canadian Forces College paper noted that some of the complex features had not proven reliable in field operations, particularly the end-to-end transmission of message traffic and the instability of the system as a whole. These technical problems created delays on subsequent information system initiatives, such as the LFC2IS.

10) *The “concept-to-fielding” cycle for TCCCS was too slow owing to total system design.*

11) *An insufficient number of radios were ordered:* In a December 2004 appearance before the Standing Senate Committee on National Security and Defence, the Deputy Commander of Land Forces Central Area indicated a widening technology gap between regular and reserve soldiers. The principle example used was the “insufficient” number of radios to enable formed units to conduct proper training for domestic operations. He specifically mentioned the need to augment units with equipment either from the area training centre or from the regular force brigades.

4. Conclusions

In February 2006, a press report from the Kandahar area of operations indicated that Canadian troops were experiencing major difficulties using the TCCCS in rough, hilly terrain. As a result, DND purchased \$9 million of Falcon satellite radios and dishes from a U.S. company to be mounted on the Canadian vehicles, sometimes with cord and duct tape, to enable communications with home base.

Despite setbacks that delayed the project, the TCCCS system is now currently in service with the Canadian army. Even though the system was successfully delivered and difficulties encountered were relative to the complexity of technological development and

outside funding stalls, it now turns out that TCCCS may actually have been ill-conceived owing to its inability to communicate with the systems of the navy and the air force. This is surely a serious matter, given the new CF transformation emphasis on joint operations. This fault lies with the long-term nature of the replacement project itself – CF needs shifted dramatically over time. However, the quality of the product is such that the British Ministry of Defence has awarded a \$2.4 billion communications infrastructure project to General Dynamics Canada (formerly CDC) based on its work with TCCCS. Financially, the project's projected total cost was not exceeded in the time frame examined. **At the end of 2004, the project was behind schedule, though it was on budget.**

* * *

B) NEW PURCHASE COMMITMENTS

Mobile Gun System (MGS) Project

1) Contacts used during principal information gathering

No single contact was used. Information was gathered from a variety of publicly available sources.

2) History

The Stryker Mobile Gun System (MGS) is a variant of the Light Armoured Vehicle III family manufactured by General Dynamics Land Systems headquartered in London, Ontario. The 8x8 wheeled vehicle, which mounts a 105mm cannon, is intended to fulfill a direct fire role for the Canadian army. The MGS is not a tank and is not designed to replace a tank. Sixty-six vehicles are being ordered at a cost of \$700 million. The order itself is to be tagged onto the American order for the vehicles. As of January 2006, the MGS is still being tested by the United States Army and is not in production. A number of problems have plagued development. The most serious is that, as of February 2006, the MGS still does not fit whole into the C-130J Airlifter, a United States Army requirement. As of this writing, the United States Army has not altered that requirement, although an announcement was made on 21 September 2005 by U.S. Army Secretary Francis Harvey formally dropping the C-130J requirement for the United States' still-in-development Future Combat System vehicles. That announcement may signal a similar dropping of the requirement for the MGS, either by specifying that the system need not fit the C-130J as long as it fits the C-17, or that it may be disassembled in some way for transport in the C-130J.

First mention found (first commitment)

29 October 2003 – Minister of National Defence John McCallum and Lieutenant-General Rick Hillier, Chief of the Land Staff, announced that the Government of Canada had approved the acquisition of a MGS for the CF.

Commitments repeated:

- Finance Minister Ralph Goodale, 2004 budget, 23 March 2004
- Prime Minister Paul Martin, 14 April 2004
- Defence Minister David Pratt, contract announcement, 15 April 2004
- General Dynamics media release, 19 April 2004
- Strategic Capabilities Investment Plan 2003

3. Other pertinent information

Public Works and Government Services Canada, the contracting authority, is currently working with the DND and the Treasury Board to determine the appropriate procurement process. Funding for this initiative is built into the existing fiscal framework. At the time of Minister Pratt's announcement (15 April 2004), the cost of this project was forecast as approximately \$700 million.

Expected timeframe/Project status

According to the department's 2005–06 *RPP*, the project is still in the “definition phase.” Timing for these phases is designed to coincide with the U.S. Stryker MGS production schedule to ensure economy of scale costs for both the vehicles and spare parts.

The projected schedule reported in the 2005–06 *RPP* is as follows:

- Treasury Board preliminary project approval; March 2004
- U.S. Army authorizes “low-rate initial production” of the MGS in order to continue evaluating the system; October 2004
- DND awards General Dynamics Land Systems a \$5 million contract to perform engineering feasibility studies on the MGS; October 2004
- contract negotiations complete for sixteen trial vehicles and long lead time items; June 2005
- TB gives effective project approval; March 2006
- delivery of sixteen trial vehicles; August 2006
- implementation – initial operational capability; July 2007
- implementation – full operational capability; December 2009
- project completion; December 2010

4. Conclusion

The MGS is still in pre-production and experimentation in the United States. It will not be available until a test version has been accepted and approved for full production. Until then, any scheduled timeframes issued by the Government of Canada are subject to revision. At one point, it was envisaged that the United States Army would receive their first sixteen *production* vehicles in February 2006. That cannot now happen owing to ongoing problems with the size and weight of the complete vehicle (body and gun). It follows that the Canadian army will not receive its first *trial* vehicles in August 2006. If this project is delayed further in the United States, there is some risk that the U.S. might decide not to proceed with it, with significant consequences to a key element of the Canadian army's transformation strategy. Other countries, France, for instance, do manufacture wheeled-gun systems, but they are more in the nature of self-propelled artillery designed for indirect fire, and do not replicate the direct-fire capability of the MGS. **It must remain a matter of conjecture whether or not the ordering of equipment that is still years away from production at the time of ordering is a good idea. Canada cannot possibly acquire the MGS until the US Army is satisfied with it and it goes into production. When that might happen is still uncertain.**

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Maritime Helicopter (MHP) Project

1) Contacts used during principal information gathering

No single contact was used. Information was gathered from a variety of publicly available sources.

2) History

The Maritime Helicopter Project (MHP) dates to 1986 when the government launched a process aimed at replacing the Sea King helicopters then in use aboard Canadian naval vessels. The Sea King fleet was acquired in the 1960s. A contract was signed in 1992 with EH Industries (a British-Italian consortium) to purchase forty-three EH 101 helicopters; fifteen for search and rescue and twenty-eight for shipboard use. The contract was cancelled in 1993 and the government eventually paid some \$500 million in cancellation fees, most of it to two prime contractors.

First mention found

The revival of the Sea King replacement program was first mentioned in the 1994 *Defence White Paper*:

Canada's maritime forces will be adequately equipped to carry out their new array of tasks. There is an urgent need for robust and capable new shipborne helicopters. The Sea Kings are rapidly approaching the end of their operational life. Work will, therefore, begin immediately to identify options and plans to put into service new affordable replacement helicopters by the end of the decade.

First commitment found

At a press conference on 16 August 2000, Minister of National Defence Art Eggleton and Minister of Public Works and Government Services Alfonso Gagliano announced that the government had given the DND approval to proceed to acquire a suitable replacement for the Sea King helicopter.

Commitments repeated:

- CDS Annual Reports, 2000–04
- Reports on Plans and Priorities, 2000–05
- Departmental Performance Reports, 2001–04
- MND John McCallum, December 2002
- General Henault, CDS, at the opening ceremony of the National Security Studies Course at the Canadian Forces College, 8 January 2002
- Defence Minister David Pratt, December 2003
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003
- *Strategic Capabilities Investment Plan*, 2003
- Governor-General Adrienne Clarkson, *Speech from the Throne*, February 2004
- Minister of Finance Ralph Goodale, March 2004 budget
- Prime Minister Paul Martin, 14 April 2004

3) Other pertinent information

In 2001, the procurement strategy was announced: the airframe and mission system would be contracted separately, and each contract would include long-term maintenance services. The entire cost of the project was estimated at \$2.9 billion, and the winning bid would be the one evaluated “lowest cost compliant,” in the words of Assistant Deputy Minister (Materiel) Alan Williams, the senior government official responsible for the MHP.

In December 2002, in an effort to expedite the procurement, the government announced that the competition process would be merged. The helicopter would be acquired by means of a single contract for the airframe and mission systems, comprising the procurement of twenty-eight fully integrated maritime helicopters, a simulation and training suite, integrated logistics support, and a twenty-year, in-service support contract. With inflation factored in, the new project cost was set at \$3.2 billion, not including the long-term maintenance contract.

A request for proposals went out 17 December 2003. The announcement was made by Minister of National Defence David Pratt and Minister of Public Works and Government Services Stephen Owen, with the winner to be announced in the summer of 2004 (*News Room-03.138* – 17 December 2003). There were, at that point, two bidders: Agusta/Westland and Sikorsky had been deemed compliant and thus eligible to submit bids. The deadline for submissions was set for 14 May 2004.

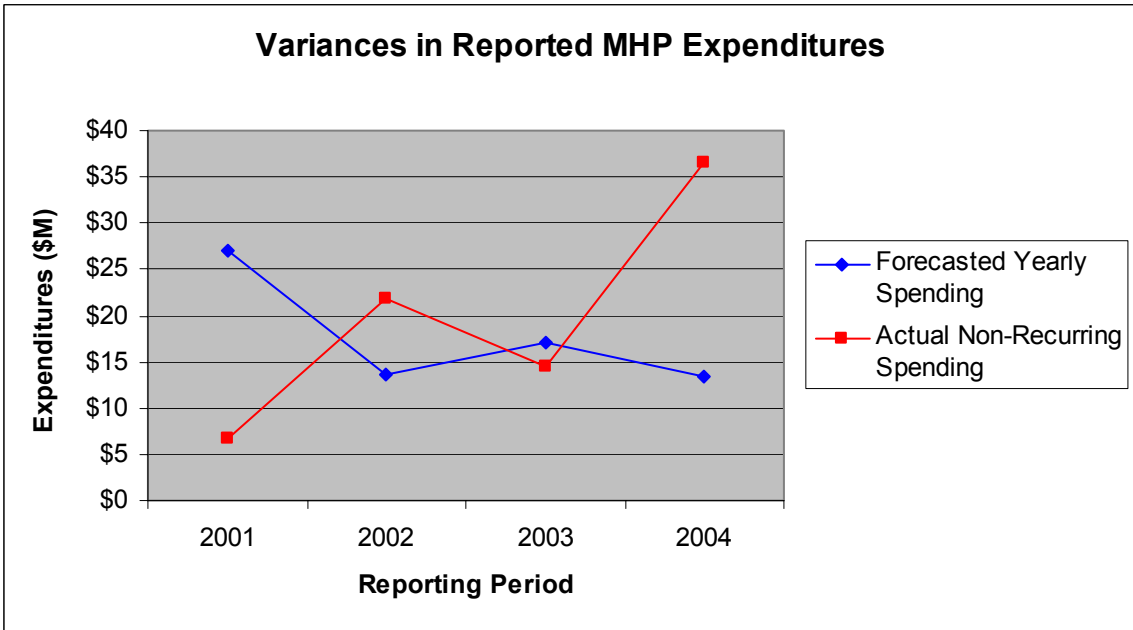
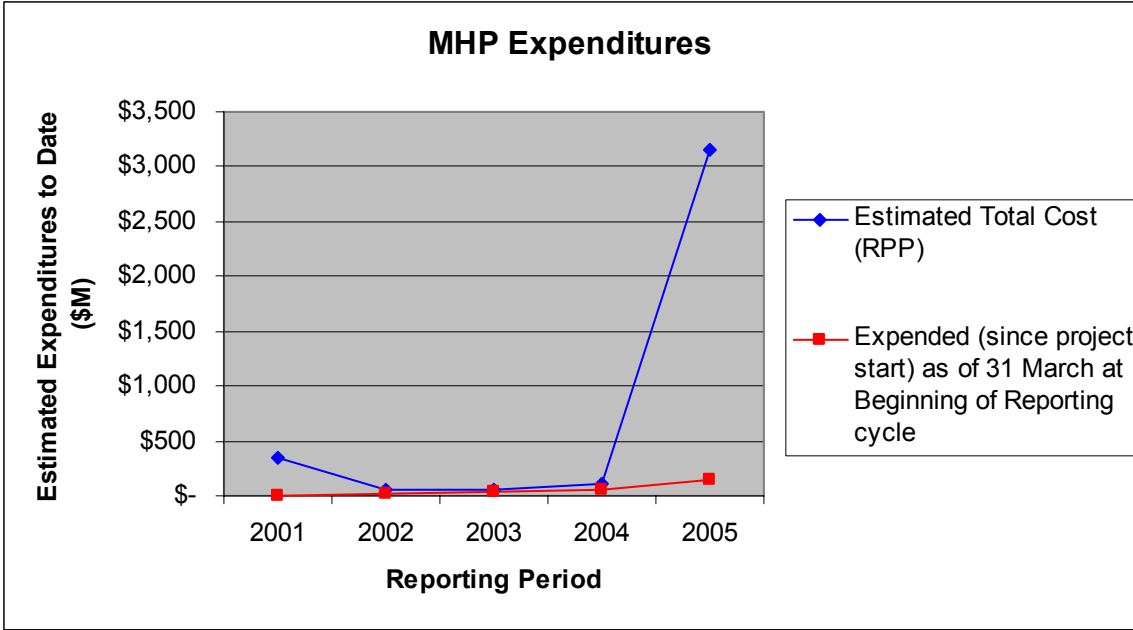
On 23 July 2004, Minister of National Defence Bill Graham and Minister of Public Works and Government Services Scott Brison announced that Sikorsky’s H-92 Cyclone had been selected. On 23 November 2004, Sikorsky International Operations was awarded two separate, but interrelated, contracts. The first, with a value of \$1.8 billion, covered the acquisition of twenty-eight fully integrated, certified, and qualified helicopters with their mission systems installed. The second contract, worth \$3.2 billion, was for the twenty-year, in-service support for the helicopters, and includes the construction of a training facility, as well as a simulation and training suite. Canada is the first nation to select this aircraft for this purpose. The Cyclone has not yet flown in a military configuration.

Delivery of the first helicopter is required to be no later than 30 November 2008, with the remaining helicopters to be delivered at a rate of one per month thereafter.

In September 2004, Agusta/Westland brought suit against the government alleging “serious errors,” favouritism, and discrimination in the awarding of the contract. One of the allegations made was that Sikorsky could not possibly deliver the helicopters by 2008, as stipulated. The trial was due to commence in the summer of 2005 but has not yet started. If the suit is successful, the government may have to award the contract to Agusta/Westland, re-open it for further bidding, or pay substantial damages to Agusta/Westland.

Expected timeframe/Project status

This is surely the most egregious example yet of political interference causing manifold delays in a procurement project. As of February 2006, there has been no resolution of the legal issues raised in September 2004.



Major milestones:

Definition phase

- government announcement; 17 August 2000
- Preliminary Project Approval (PPA) will be back-dated to; 18 August 2000
- DND departmental and TB approval – SS (PPA); 18 June 2003
- Request for Proposals (RFP) issued; 16 December 2003
- winning proposal for MH announced by government; 23 July 2004

Implementation phase

- TB effective project approval (EPA) and contracts for MH; 22 November 2004
- first aircraft delivery; November 2008
- initial operational capability (12 aircraft); 2009
- final aircraft delivery; 2011
- project completed and closed; 2013

(DND 2005–06 *Report on Plans and Priorities*)

4. Conclusion

After twenty years, there is now an expectation that the air force will finally be operating the new Sikorsky-built aircraft by 2008.

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Joint Support Ship (JSS) Project

1) Contacts used during principal information gathering

No single specific contact was used. Information was gathered from a variety of publicly available sources including those provided directly by DND or the CF.

2) History

The Joint Support Ship Project has two aims. The first is to replace the aging Auxiliary Oiler and Replenishment (AOR) vessels that allow Canada's naval task groups to operate while at sea by resupplying them with fuel, munitions, and supplies, while the second is to provide Canada with a limited sealift capability to transport military personnel and some heavy equipment to operations overseas.

First commitment found

The DND's *Defence Planning Guidance 2000* document identified a list of ten projects to be pursued as a first order of new business. Among them was an "Afloat Logistics Sealift Capability," or ALSC. The ALSC Project, according to the document, was expected to start in fiscal year 2001–02 and provide an initial operating capability by fiscal year 2007–08. Since then, the ALSC evolved into the JSS Project. The change in nomenclature was not explained.

Commitments repeated:

- 1999–00 *CDS Annual Report*
- DND *Departmental Performance Report (DPR)*, 2000–01
- Randy Mylyk (spokesperson for Minister of National Defence Art Eggleton), 18 August 2000
- DND *Defence Plan*, 2001
- MND John McCallum, 2 June 2003 (announced engineering, logistics, and management support to the ALSC Project Office)
- MND John McCallum, 22 October 2003
- Minister of Finance Ralph Goodale, 2004 budget, 23 March 2004

- DND *RPP*, 2004–05
- Prime Minister Paul Martin, 14 April 2004
- MND David Pratt, 16 April 2004

Expected timeframe/Project status

In the span of five years from the original conception of the ALSC Project to the current Joint Support Ship Project, a number of significant delays have developed in the project. Expectations for when such a vessel would be brought into service have been pushed back at least five years. No explanation has yet been publicly given for the lengthy delay.

Milestones:

- Treasury Board Preliminary Project Approval (PPA); November 2004
 - release of Letter of Interest (LOI); 25 Feb 2005
 - pre-qualification for project definition contract; spring 2005
 - release of request for proposals; fall 2005
 - project definition contracts awarded; summer 2006
 - requirements validation; fall 2006
 - industry working on implementation proposals; 2007
 - effective project approval; 2008
 - award of implementation and in-service support contracts; 2008
 - delivery of first ship; 2012
 - initial operating capability of first ship; 2013
 - project complete; 2016
- (Assistant Deputy Minister (Materiel), “Project Schedule,” Project Management Office, and Joint Support Ship website,
http://www.forces.gc.ca/admmat/dgmepm/pmojss/schedule_e.asp)

3) Other pertinent information

As part of the CF transformation process launched in 2005 and reflected in the 19 April 2005 *Defence Policy Statement*, a second type of carrier ship project has emerged. This is the proposal, mentioned by CDS General Rick Hillier, to acquire, possibly by 2014, at least one amphibious, assault-style vessel.

The navy is determined to seek a prime contractor with a Canadian shipyard as part of the overall consortium that will build the JSS.

4. Conclusion

The JSS Project is an example of a needed military capability that was unaffordable for years, even though the Canadian navy’s AOR vessels were aging and costs for maintenance were increasing. In the fall of 2005, a newly refitted AOR was assigned the task of carrying relief supplies to the southern United States in the wake of Hurricane Katrina. It was unable to carry out the mission owing to refitting flaws and was replaced by four Canadian frigates, vessels that were unsuitable for the task. Although the government and the navy are dedicated to finding Canadian contractors for the JSS, it has been over a decade since a Canadian shipyard has built a warship of a size even approaching its 20,000 plus tonnes. This could prove highly problematic given the very technical nature of warship

construction beyond hull and main deck phases, and it may well lead to cost overruns and time delays. **This project was behind schedule at the end of 2004.**

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Light Utility Vehicle Wheeled (LUVW) G-Wagon Project

1) Contact used during principal information gathering

Tamara Murphy, DND Public Affairs

2) History

The Light Utility Vehicle Wheeled (LUVW) fleet is being acquired to replace the nineteen-year-old ILTIS. This procurement was accelerated in order to meet an operational requirement for the Afghanistan Kabul mission begun in 2003. The deficiencies of the ILTIS fleet were made obvious upon their arrival in Afghanistan and were highlighted when two Canadian soldiers were killed and three others injured on 2 October 2003 in a land mine blast during a routine patrol near Kabul. The ILTIS jeep had long been criticized by soldiers as not having the armour needed to protect them in the field.

First mention found

Mentioned in the 1998–99 *CDS Annual Report*

First commitment found

A \$126 million contract was awarded to Mercedes Benz Canada on 21 October 2003 for the procurement of 802 G-Wagons and 118 Armour Protection Systems (APS).

Commitment repeated:

- CDS Annual Reports, 2000–03 (2004 was the most recent to mention the project, but it did not contain a section on “Status of Major Equipment Programs,” as was the case in previous reports)
- 2005 budget

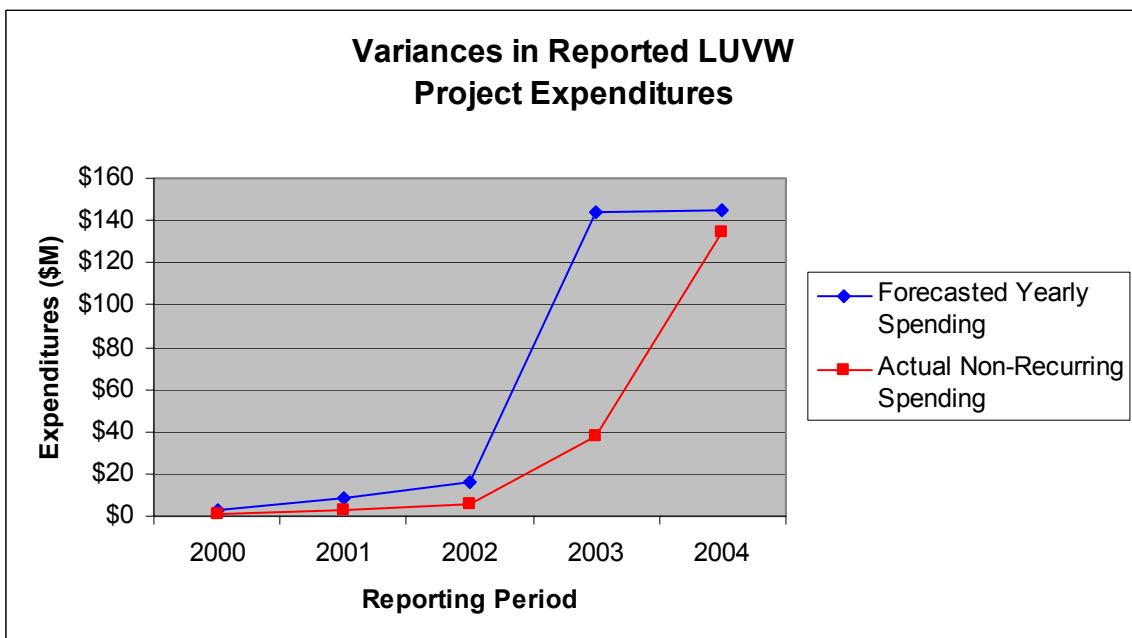
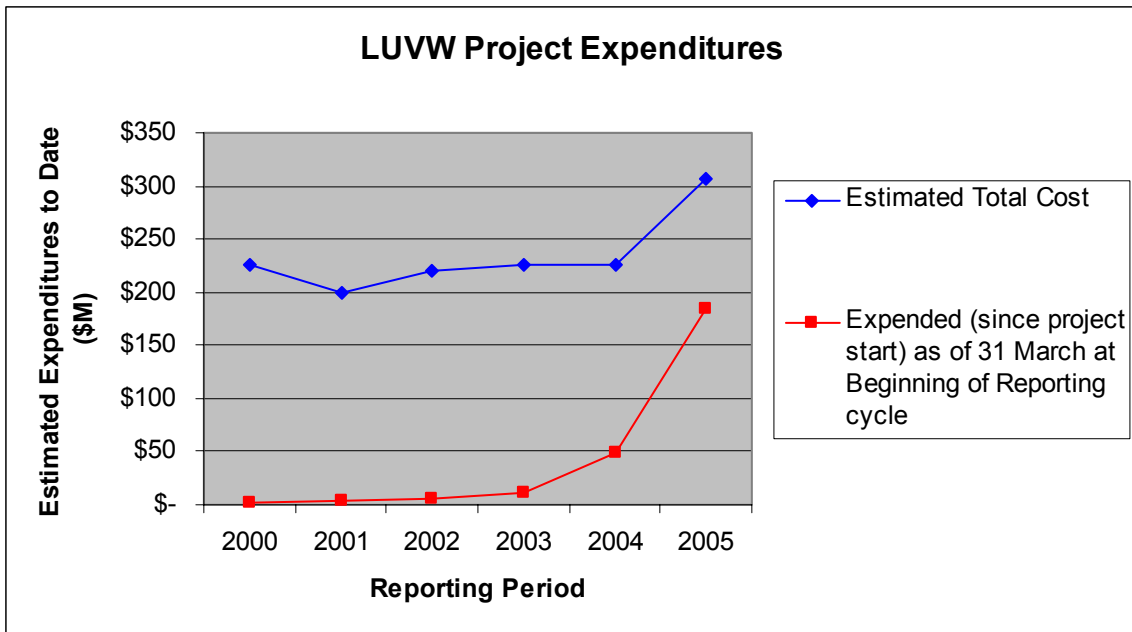
3) Other pertinent information

Mercedes Benz Canada (manufacturer of the G-Wagon) was the only bidder for the Standard Military Pattern (SMP) vehicles. The 802 G-Wagons, acquired to replace the ILTIS, will form part of the army’s LUVW fleet. While the original contract with Mercedes was to purchase a total of 802 vehicles, the army received approval July 2004 to exercise an available option to buy an additional 357 vehicles (74 basic/283 command and reconnaissance) for \$81 million to meet light infantry reconnaissance platoon and reserve armoured reconnaissance requirements. An additional 42 Armour Protection Systems were also purchased under this option in December 2003 for \$4.44 million, bringing the total number of APS kits to 160. It is not known if the decision to purchase the APS was made subsequent to the October deaths of the two Canadian soldiers. The G-Wagon will be used by operationally tasked field units and training establishments and by both regular and reserve units to provide tactical transport for command and control, liaison, reconnaissance, and military police.

The APS kits, designed to protect the vehicle's crew compartment, provides NATO level 1 protection against small arms and protection against hand grenades and anti-personnel mines. The kits are a tailored design package based on a modular approach whereby complete sections of the vehicle, such as the doors and front windshield, are removed and replaced by armoured modules. Additional armoured components are included to protect the floor, roof, and rear wall of the crew area.

Current project budget

Mercedes Benz G-Wagons with integrated logistic support and 170 armour protection systems for use by field force units will cost \$241.4 million (as per Official Project Office reply, 5 July 2005).



Expected timeframe/Project status

The project is in full implementation. The LUVW SMP (G-Wagon) contract was awarded to Mercedes Benz Canada on 21 October 2003. ADM (Mat) responded quickly to a requirement that arose on Operation ATHENA by amending a contract to accelerate delivery and change the delivery location from Canada to Afghanistan. The fielding of the G-Wagon started in March 2004, **five months ahead of schedule**. A total of 60 basic LUVW G-Wagons were delivered directly from the manufacturer's plant in Graz, Austria, to Kabul as a first step to replace the ILTIS fleet deployed on Operation ATHENA. An additional 24 vehicles (20 command and reconnaissance models and 4 military police models) were fielded to complement Rotation (ROTO) 2 in September 2004 and complete the replacement of the ILTIS fleet in theatre. To date, 734 vehicles have been received, and delivery will continue until September 2006.

The level of confidence in the LUVW is high. User feedback from Operation ATHENA on the G-Wagon has been positive, and even with the high mileage being placed on the vehicles in Afghanistan, the fleet serviceability remains steady at 95 percent. (as per official Project Office reply, 5 July 2005)

Next project milestone

With the addition of the Land Force Reserve Requirement (LFRR), project completion is scheduled for July 2007. According to the initial plans in the DND 2000–01 *Departmental Performance Status Report on Major Crown Projects and Large Major Capital Projects Equipment*, project completion is now two years behind schedule because, as of this writing (Feb. 2006), deliveries to Reserve units have not yet been completed.

Major milestones:

- release of standard military pattern RFP; October 2000
- bid closure; March 2001
- evaluation of bids; July 2001
- testing of proposed vehicles; April–November 2002
- awarding of contract; January 2003
- first full production delivery; August 2003
- project completion; August 2005

4. Conclusion

Although the project was accelerated and vehicles were delivered to Afghanistan five months early, the project completion date was originally August 2005. It is, therefore, two years behind the original estimate for all vehicles, including those allocated to Reserve units. However, the option for the additional 357 G-Wagons and 42 APS kits was exercised. Although the final amount to be spent is approximately \$15 million over the 2000–01 *RPP* estimates, it is consistent with the estimated budget from the 2004–05 *RPP*. Given the changes that have been made not only to original requirements, but also to the number of vehicles and “add-ons” (not including turret kits that were adopted from field modifications made to increase defensive capability and firepower of the vehicle beginning in 2005), **it is difficult to judge from publicly available information whether or not this project was on schedule at the end of 2004 or on budget.**

* * *

Fixed-Wing Search and Rescue (SAR) Aircraft Project

1) Contacts used during principal information gathering

No single contact was used. Information was gathered from a variety of publicly available sources.

2) History

Canada has used, and is using, a variety of aircraft in the domestic search and rescue role. Among those utilized most recently are the CC-130E Hercules, the CC-138 Twin Otter, and the CC-115 Buffalo. Most of the aircraft in current use are either obsolete or near the end of their service life. In addition to the SAR requirement, there has arisen since 9/11 a need for tactical airlift capability (rotary or fixed wing) for special operations and also for a small, fixed-wing aircraft for general use in the Canadian North to replace the Twin Otter. In the 2002–03 *CDS Annual Report* (2003), General Henault first mentioned the “Airlift/Search and Rescue (SAR) Rationalization Project.” The following year, the 2003–04 *CDS Annual Report* (2004) stated that “additional [government] approvals will follow for major purchases such as the Mobile Gun System, a joint support ship, and *a fixed-wing, search and rescue aircraft*” (italics added). The “Strategic Capabilities Investment Plan Capital Equipment Annex 2004 Update” (2004) listed under “Effective Engagement Projects” (pp. 42–43/60) a “Fixed-Wing SAR” (aircraft) but listed “0” dollars allocated for that project for fiscal years 04/05, 05/06, 06/07, 07/08, and 08/09. It described the project this way: “This capability will be delivered in the form of modernized, existing aircraft, or a new purchased/leased aircraft fleet in the 2010 time frame. Project definition will commence within the next year.” But although this document referred to a search and rescue aircraft, the DND 2004–05 *RPP* (2004) mentioned only “utility aircraft for use in the Arctic.” Subsequent to that reference, the March 2005 Federal Budget (Section 3: Defence Specific Considerations) referred to a “utility aircraft” but not to a “search and rescue” aircraft.

First mentions found:

- 2002–03 *CDS Annual Report* (2003)
- Budget 2004 – extraordinary funding assigned by the government for this project

Commitments repeated

It has been difficult to track subsequent commitments because there has been a continuing lack of clarity in both planning and budget documents as to whether the government, the department, or the CF are planning to purchase either a single aircraft for Arctic operations, special operations, and search and rescue, or a fixed-wing, search and rescue aircraft, as well as a tactical, special-operations helicopter *and* a small utility aircraft for northern operations.

- Strategic Capabilities Investment Plan 2003

3) Other pertinent information

As of this writing (March 2006), no cabinet approval has been given for any stage of this acquisition. Indeed, it appears as if the “definition phase” for the project remains incomplete. If these assumptions are correct, it appears optimistic to expect these new aircraft to appear before the 2010 time frame projected by the 2004 “Strategic Capability Investment Plan Capital Equipment Annex.”

4. Conclusion

This project (or projects, if two aircraft are to be purchased) is/are at least two years behind schedule. Delays in the replacement of existing, fixed-wing SAR aircraft will make it imperative to continue to use the existing fleet, adding to the risk and the cost of maintenance and inflating the price that will be paid for eventual replacement. Most importantly, the employment of the CC-130 Hercules aircraft for SAR draws resources needed for tactical airlift. **This project is well behind schedule. Since no budget has been proposed, no conclusion is possible regarding whether it is also over budget.**

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Clothe the Soldier (CTS) Project

1) Contacts used during principal information gathering

Initial data gathering used publicly available material produced by the DND and the CF, and was supplemented with information from Major C.J. Gross, Project Manager for Clothe the Soldier.

2) History

Background

In September 1996, the Treasury Board approved the Clothe the Soldier (CTS) omnibus project to address the most pressing deficiencies in the operational clothing and personal protective equipment of the Land Force. These deficiencies are connected with the need for soldiers to be clothed and equipped to conduct war and operations other than war, world-wide, year-round, and in all types of weather conditions. Much of the current suite of individual clothing and equipment is based on old technology and designs that have become obsolete. Over the years, a number of operational deficiencies have been identified in specific items, and it has been noted that many of the items are not fully compatible with each other, thereby reducing their capability, effectiveness, and comfort.

First commitment found

(Original announcement not found; *DND News Room* archives date back only to 1997)

Commitments repeated:

- DND Departmental Performance Reports (DPR), 1998–2003
- CDS Annual Reports, 2000–03
- DND Reports on Plans and Priorities (RPP), 2000–05
- Strategic Capabilities Investment Plan 2003

3) Other pertinent information

Leading and participating departments and agencies:

- lead department; DND
- contracting authority; Public Works and Government Services Canada
- participating departments and agencies; Industry Canada and its regional agencies

Major milestones:

- Treasury Board Preliminary Project Approval; 19 September 1996
- amended Treasury Board Preliminary Project Approval; 24 July 1997

- amended Treasury Board Preliminary Project Approval; 27 July 2000
- schedule for completion and deliveries of all CTS sub-projects; 2006–07
- project completion schedule; 2007–08

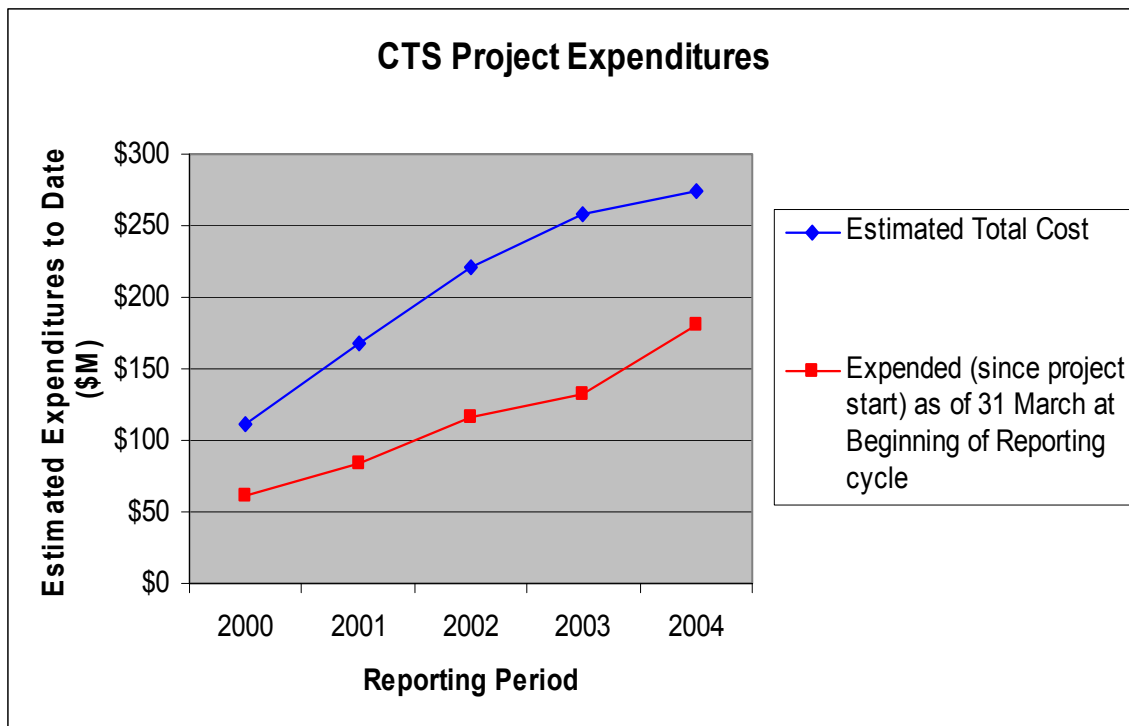
(DND 2004–05 *Report on Plans and Priorities*)

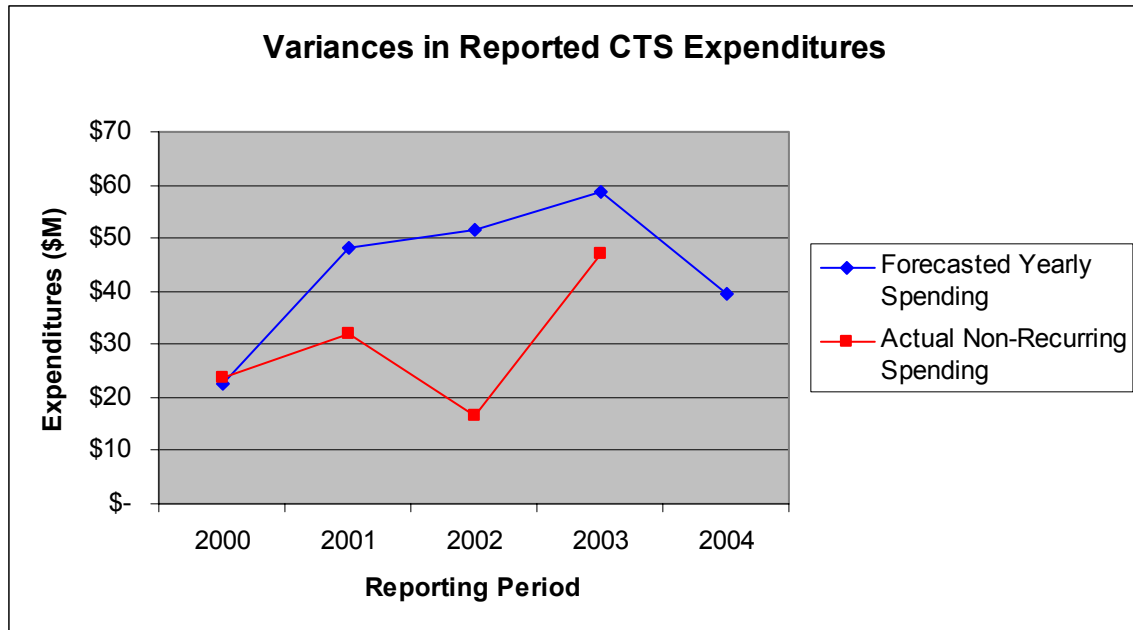
Expected timeframe/Project status

Milestones published in the Department’s 2004–05 *RPP* **indicate a delay of three years in the CTS Project’s completion.** To explain the delay, the following clarification is provided:

The initial funding and schedule estimates for CTS were based on the premise that commercial, off-the-shelf technology or allied military equipment would be able to meet the needs of the Land Force. Consequently, the Treasury Board provided Preliminary Project Approval at an indicative cost estimate of \$183,535,000 (\$ billion per year) in July 1997, with an objective of having all items in implementation by the year 2000. However, with the exception of the multi-tool and sock systems, commercial off-the-shelf technology and allied military equipment have failed to meet departmental requirements in terms of compatibility with in-service equipment and durability. As a result, extensive definition and development work was required to produce items deemed acceptable to soldiers. This additional work led to unforeseen delays and significant cost increases. In addition to the scheduling and cost problems, the initial distribution of CTS items has exposed an operational requirement gap and a morale issue, as some CF personnel who lack the CTS items are deployed alongside others who have them. A review concluded that a change in project scope was required to accommodate the needs of soldiers outside the Land Force who are required to deploy on operations.

This explanation has been repeated in subsequent RPPs, in similar or identical wording, since the 2000–01 RPP.





Note: The above graph is based on incomplete information. Departmental Performance Reports from 2004–05 and 2005–06 contain no data for the Clothe the Soldier Project.

Table 1
Clothe the Soldier Sub-Projects: Actual and Planned Spending (by year)

Sub-project (\$ thousands)	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005
Lightweight Thermal Underwear					
Estimated Total Cost (DPR)	3,090	5,700	4,710	4,600	N/A
Amount Forecasted to be Expended *	2,512	4,300	3,970	4,600	N/A
Planned Spending (DPR)	578	1,400	750	0	N/A
Actual Spending (calc)	1,788	(330)	630	N/A	N/A
Drawers Temperate Underwear					
Estimated Total Cost (DPR)	N/A	2,600	2,820	5,800	N/A
Amount Forecasted to be Expended *	N/A	2,100	2,630	3,800	N/A
Planned Spending (DPR)	N/A	500	100	1,000	N/A
Actual Spending (calc)	N/A	530	370	N/A	N/A
Ballistic Eyewear					
Estimated Total Cost (DPR)	7,003	6,000	5,860	5,700	N/A
Amount Forecasted to be Expended *	40	20	50	100	N/A
Planned Spending (DPR)	15	2,100	3,870	5,600	N/A
Actual Spending (calc)	(20)	30	50	N/A	N/A
Combat Vehicle Crew Glove					
Estimated Total Cost (DPR)	N/A	700	740	700	N/A
Amount Forecasted to be Expended *	N/A	0	20	20	N/A
Planned Spending (DPR)	N/A	700	730	500	N/A
Actual Spending (calc)	N/A	20	0	N/A	N/A
Cold Wet Weather Glove					
Estimated Total Cost (DPR)	5,903	5,800	6,600	6,670	N/A
Amount Forecasted to be Expended *	4,232	5,400	5,800	5,710	N/A
Planned Spending (DPR)	1,671	400	800	960	N/A
Actual Spending (calc)	1,168	400	(90)	N/A	N/A

* The amount that was forecasted to be expended since the start of the project (as of 31 March) at the beginning of the reporting cycle (DPR)

Table 1 (cont.)

Clothe the Soldier Sub-Projects: Actual and Planned Spending (by year)

Sub-project (\$ thousands)	2000– 2001	2001– 2002	2002– 2003	2003– 2004	2004– 2005
Temperate Combat Glove					
Estimated Total Cost (DPR)	N/A	4,100	3,000	3,100	N/A
Amount Forecasted to be Expended* *	N/A	0	0	0	N/A
Planned Spending (DPR)	N/A	2,300	2,000	2,500	N/A
Actual Spending (calc)	N/A	0	0	N/A	N/A
Tactical Vest					
Estimated Total Cost (DPR)	N/A	16,800	16,810	12,600	N/A
Amount Forecasted to be Expended *	N/A	0	0	0	N/A
Planned Spending (DPR)	N/A	5,600	8,480	1,500	N/A
Actual Spending (calc)	N/A	0	0	N/A	N/A
Improved Environmental Clothing System (IECS)					
Estimated Total Cost (DPR)	62,589	62,600	88,710	89,000	N/A
Amount Forecasted to be Expended *	48,655	61,400	64,560	79,200	N/A
Planned Spending (DPR)	8,903	1,000	3,310	8,300	N/A
Actual Spending (calc)	12,745	3,160	14,640	N/A	N/A
Wide Brimmed Combat Hat					
Estimated Total Cost (DPR)	2,268	900	1,660	1,700	N/A
Amount Forecasted to be Expended *	0	500	1,370	1,600	N/A
Planned Spending (DPR)	1,134	400	290	100	N/A
Actual Spending (calc)	500	870	230	N/A	N/A
Wet Weather Boots					
Estimated Total Cost (DPR)	21,588	21,600	21,520	21,200	N/A
Amount Forecasted to be Expended *	143	3,400	21,030	21,100	N/A
Planned Spending (DPR)	7,049	18,000	500	100	N/A
Actual Spending (calc)	3,257	17,900	70	N/A	N/A
Ballistic Plate					
Estimated Total Cost (DPR)	N/A	4,100	4,070	4,000	N/A
Amount Forecasted to be Expended *	N/A	0	30	0	N/A
Planned Spending (DPR)	N/A	3,000	2,760	4,000	N/A
Actual Spending (calc)	N/A	30	(30)	N/A	N/A
Lightweight Thermal Headwear					
Estimated Total Cost (DPR)	N/A	2,400	2,350	2,400	N/A
Amount Forecasted to be Expended *	N/A	0	0	0	N/A
Planned Spending (DPR)	N/A	2,400	1,570	1,200	N/A
Actual Spending (calc)	N/A	0	0	N/A	N/A
Fragmentation Protective Vests					
Estimated Total Cost (DPR)	N/A	18,000	18,020	18,000	N/A
Amount Forecasted to be Expended *	N/A	0	30	0	N/A
Planned Spending (DPR)	N/A	2,400	80	100	N/A
Actual Spending (calc)	N/A	30	(30)	N/A	N/A

* The amount forecasted to be expended since the start of the project (as of 31 March) at the beginning of the reporting cycle (DPR)

4. Conclusion

Information published by the department indicates that a delay of three years has set in. Although this delay is explained, the same explanations have been repeated for the past five years. Such repetitious reasoning does little to validate rising expected total costs over this period of scrutiny. **In addition, there is no publicly available source to verify whether or not items contained within the CTS omnibus project have been successfully delivered.**

Table 2
Clothe the Soldier Sub-Projects; Contractual Details

<i>Sub-Project</i>	<i>Contracted Company</i>	<i>Company Location</i>	<i>Date Contract Awarded</i>	<i>Amount of Contract</i>	<i>Initial Delivery Date</i>	<i>Expected Completion Date</i>	<i>Information Source</i>
Lightweight thermal underwear	Stanfield's, Ltd.	Halifax, NS	8 January 1999	\$3.2 million	2nd quarter 1999	mid-2000	DND News Release, 22 March 1999/Fact Sheet CTS-05 V1 – 10 February 1999
Drawers temperate underwear	Stanfield's, Ltd.	Halifax, NS	29 December 1999	N/A	1st quarter 2000	3rd quarter of 2001	Fact Sheet CTS-06 V1 – 10 January 2000
Ballistic visor	ReVision Eyewear, Inc.	Montreal, QC	06 May 2004	\$1.2 million/ 15,200 visors	winter 2005	spring 2006	DND News Release NR-04.037 – 11 May 2004/DND Backgrounder 32646-600-24 CTS – May 11, 2004
Ballistic eyewear	ReVision Eyewear, Inc.	Montreal, QC	25 August 2003	\$2.9 million/ 80,000 pairs	2004	N/A	DND News Release 32646-600-20 CTS – 25 August 2003; DND Backgrounder 32646-600-20 CTS – 25 August 2003
Combat vehicle crew gloves	Raber Gloves	Winnipeg, MB	11 February 2002		3rd quarter 2002	2nd quarter of 2002	Fact Sheet CTS-10 V1 – 1 May 2002
Lightweight thermal/mortar gloves	Raber Gloves	Winnipeg, MB	N/A	N/A	N/A	N/A	N/A
Tactical vest	Fellfab, Ltd.	Hamilton, ON	22 May 2002	N/A	winter 2003	2004	Fact Sheet CTS-12 V1 – 01 August 2003
Small pack	Fellfab, Ltd.	Hamilton, ON	14 October 2003	\$18.9 million/ 65,360 systems	spring 2004	March 2006	DND News Release NR-03.011 – 10 Nov 2003
Cold wet weather gloves	Les Entreprises Albert Cloutier, Ltee.	Saint Raymond, QC	9 October 1998	\$5.6 million/ 64,000 pairs	mid-2000	end of 2000	DND News Release NR-00.033 – 12 April 1999/Fact Sheet CTS-04 V1 – 20 October 1998
Temperate combat gloves	Les Entreprises Albert Cloutier, Ltee	Saint Raymond, QC	N/A	N/A	N/A	N/A	N/A

Continued on next page

Table 2 (cont.)
Clothe the Soldier Sub-Projects; Contractual Details

<i>Sub-Project</i>	<i>Contracted Company</i>	<i>Company Location</i>	<i>Date Contract Awarded</i>	<i>Amount of Contract</i>	<i>Initial Delivery Date</i>	<i>Expected Completion Date</i>	<i>Information Source</i>
(IECS)	Peerless Garments	Winnipeg, MB	1 June 1998	N/A	4th quarter 1998	end of 2000	Fact Sheet CTS-02 V1 – 11 Oct. 1996/Fact Sheet CTS-03 V1 – 29 May 1998
Wide-brimmed combat hat	Apparel Trimmings, Inc.	Scarborough, ON	30 October 2000	N/A	May 2001	1st quarter 2002	Fact Sheet CTS-08 V1 – 1 May 2001
Wet weather boot	HH Brown Canada, Ltd.	Oakville, ON	8 June 2000	N/A	spring 2001	end of 2001	Fact Sheet CTS-07 V1 – 1 March 2001
General purpose socks	McGregor Industries, Inc.	Toronto, ON	28 March 2001	N/A	spring 2001	spring 2002	Fact Sheet CTS-09 V1 – 15 October 2001
Cold weather socks	Canada One Sourcing	Ottawa, ON	21 December 2001	N/A	2nd quarter 2002	N/A	Fact Sheet CTS-09 V1 – 15 October 2001
Multi-tool *	Legere Industrial Supplies	Ottawa, ON	23 September 1996	53,853 Gerver Multi-pliers	1st quarter 1997	N/A	Fact Sheet CTS-02 V1 – 11 October 1996/
Ballistic plates	Gallet Securities Internationale	Saint-Romauld, QC	25 October 2002	N/A	N/A	N/A	N/A
Lightweight thermal headwear	GroupVR2	Asbestos, QC	8 January 1999	N/A	N/A	N/A	N/A
Fragmentation protective vests	Pacific Safety	Kelowna, BC	26 February 2004	N/A	N/A	N/A	N/A

* SOG Specialty Knives and Tools, Inc., of Eau Claire, WI, was awarded a contract to supply a different multi-tool with crimper; initial delivery and issues to soldiers are expected to commence in the summer of 2002 (*Fact Sheet CTS-13 V1 – 01 July 2003*); Not mentioned in RPPs.

C) UPGRADE COMMITMENTS

CF-18 Incremental Modernization Project (with pertinent information on the Advanced Distributed Combat Training System)

1) Contacts used during principal information gathering

Tamara Murphy, DND Public Affairs; also the November 2004 *Report of the Auditor General*

2) History

A total of 80 CF-18 Hornet aircraft are undergoing a thorough, mid-life upgrade to ensure that the Canadian Forces have a modern and interoperable fighter fleet until 2017.

Various modernization projects are combined in two distinct phases of the overall aircraft modernization program.

A total of 92 aircraft will be kept operational until the phase I modernization of a total of 80 CF-18s is completed in 2006. Thirty-nine aircraft will be retired from service after that, according to the Auditor General.

The package is based on the United States Navy's F-18 Hornet upgrade program. It was found to be the most cost-effective and lowest risk solution for Canada's CF-18 modernization requirements.

First mention found

Modernizing the avionics system was first mentioned in December 1998 and quoted in the 1998–99 *CDS Annual Report* by General Maurice Baril. However, it was being discussed privately by the department far before that:

When purchased in 1980, the CF-18 life expectancy was up to 2003. However, by 1992, after deploying the aircraft to the Gulf War in 1991, the department had concerns about several deficiencies.

(November 2004 *Report of the Auditor General*)

First commitment found

Phase I

This is a cornerstone project that entails the procurement and installation of new radar, "Have-Quick" jam-resistant radios, Combined Interrogator/Transponders, Stores Management Systems, Mission Computers, and Embedded Global Positioning Systems/Inertial Navigation Systems. A new infra-red sensor, night vision imaging system, advanced air-to-air and air-to-ground weapons, and a new advanced distributed combat training simulation system will be procured parallel with phase I. The contract was awarded to Boeing in March 2001 by Defence Minister Eggleton to modernize communication and navigation systems. Under sub-contract, the aircraft modifications are being done by L-3 MAS at its facilities in Mirabel, Quebec. Minister of National Defence John McCallum and General Henault, CDS, announced the awarding of a \$40 million (U.S.) contract for new CF-18 fighter aircraft cockpit displays to Boeing on 22 July 2002. Boeing will subcontract approximately \$9.5 million (CAD) during the definition phase to Toronto-based Litton Systems Canada, a subsidiary of Northrop-Grumman. Development of prototype systems will begin this summer, and the new displays will be installed in Canada's fleet between 2005 and 2007. (*News Room-02.045 – 22 July 2002*)

(According to the Auditor General, the display sub-project was later moved to phase II after it fell behind schedule – see below.)

Phase II

The contract was awarded to Boeing and announced on 18 February 2005 at Mirabel, Quebec, by Defence Minister Graham. The phase II contract will outfit Canada's CF-18s with a secure data and communications link that allows CF-18 crews to stay in constant contact with other jets, ground stations, and Airborne Warning and Control Systems (AWACS) to maintain awareness in their constantly evolving environment. New state-of-the-art colour display panels will provide pilots with improved access to flight data and communications. The colour displays will significantly improve the pilots' ability to refine the reams of data they receive. Pilots' helmets will be outfitted with new visors that display readings from the instrument panel, so they can maintain visual contact with a target and not look down. The aircraft will also be outfitted with a new missile countermeasures chaff/flare dispenser.

Commitment repeated:

- CDS Annual Reports, 2000–03 (2004 is the most recent, but it does not contain a section on “Status of Major Equipment Programs,” as previous Annual Reports had)
- DND Departmental Performance Reports, 2000–04
- Reports on Plans and Priorities, 2000–05
- General Henault, CDS, appearing before the Senate Committee on National Security and Defence, 3 December 2001
- Minister Eggleton's response to the 2001 *Report of the Auditor General (Wednesday Report 15, no. 50, 19 December 2001)*
- General Henault, CDS, at the opening ceremony of the National Security Studies Course, Canadian Forces College, 8 January 2002
- General Henault, CDS, at the Annual General Meeting and Conference of the Manitoba Aviation Council; Winnipeg, 6 March 2002
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003
- *Strategic Capability Investment Plan (SCIP)*

3) Other pertinent information

An Auditor General's report in 2001 on national defence in-service equipment (chpt. 10) revealed that the CF-18 was experiencing a high degree of abort rates or failures per 1,000 flying hours that result in cancelled missions. Aging systems and reduced funding combined to restrict the performance and availability of these aircraft.

Following this, there was a report by Canada's Auditor General in November 2004 on the incremental modernization of the CF-18. One of their primary conclusions was that phase 1 was plagued by delays and a lack of qualified personnel (see report for other conclusions, re: the project).

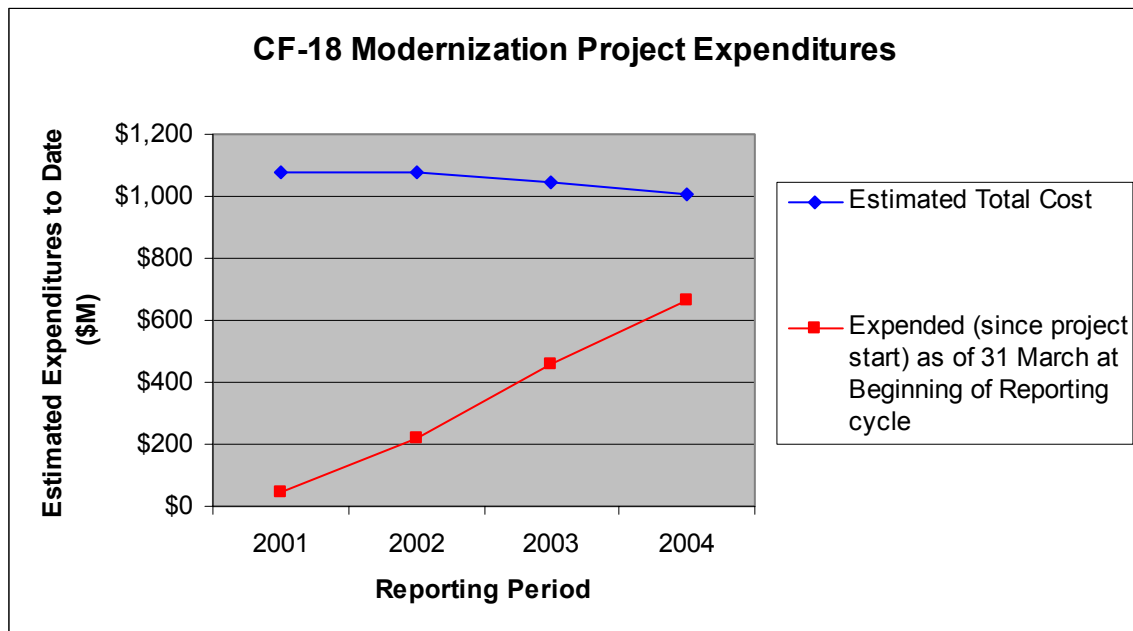
The report concluded that two of the five sub-projects examined within the overall modernization project were behind schedule. The report also noted that:

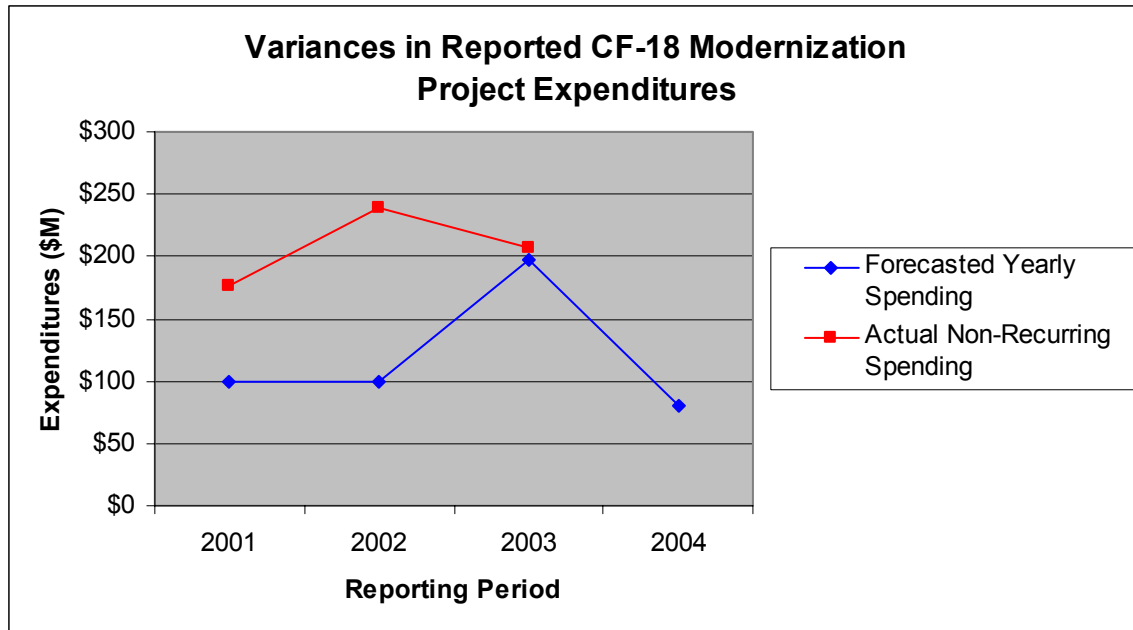
we expected to find an analysis to support why the department chose eighty aircraft as the number to modify. We expected that this analysis would take into account the many variables affecting the estimated useful life of the aircraft, including its expected attrition rate, age, and roles as defined in national defence policy. We were unable to find such an analysis.

Perhaps the most poignant conclusion of the whole report was the following notation: Project management experience is not common, and we found that about 80 percent of the CF-18 project staff arrived with little or no project management experience. Internal reports to the Assistant Deputy Minister (Materiel) group identified the lack of experienced staff as a serious problem facing many projects. Even though the department's acquisition project offices are staffed mainly by military members, there is no long-term training path for developing project manager or director skills. National defence needs a project management progression path so that staff can learn skills and be ready to apply them to large, complex projects such as the CF-18 modernization, rather than spending much of their project time learning about this. Staff could start by working on smaller projects to gain this experience and demonstrate their capacity to progress to larger, more complex projects.

The official Project Office stated that “although the overall cost of the entire modernization project has not yet been finalized, approvals to date total approximately \$2.1 billion.”

The value of the phase 1 contract is \$880 million. The phase II project contract is valued at \$117 million. Negotiations for phase II installation are still underway between the main contractor and the sub-contractor, thus that cost is not yet factored in into the phase II project contract. The 2004 *Report of the Auditor General* claimed the investment would be closer to \$2.6 billion.





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Expected timeframe/Project status

Phase I

CF-18 modernization reached its midway point of phase I on 6 January 2005 when it took delivery of its fortieth phase I, modernized CF-18 from Boeing.

Phase II (as per Project Office)

Work will begin on phase II in October 2006 (scheduled for completion in 2009).

Additional contracts for training, spares, and installations will be awarded at a later date.

NB: A \$39 million contract was awarded to Boeing in January 2006 for phase II of the upgrade. It will include a data link, a helmet-mounted sight, new cockpit displays, and a new flare dispensing electronic warfare system for seventy-eight CF-18s.

Additional associated projects under contract are the Air Combat Manoeuvring Instrumentation (ACMI) and the Advanced Distributed Combat Training System (ADCTS). Other associated projects not on contract yet but being staffed at this time are the Night Vision Imagery System (NVIS), the Advanced Multi-Role Infra-Red Sensor (AMIRS), and the Advanced Medium-Range Air-to-Air Missile (AMRAAM).

Table 3
Estimated Cost of CF-18 Modernization

Project Description	Estimated Total Cost (\$ millions)
Phase I (2001–06) – On-aircraft Modifications	
Mission computers	31.00
Software	151.41
ECP-583 – Radio; Interrogator/transponder; Radar; Stores Management System	1,009.00
Off-aircraft Activities	
ADCTS simulators	200.70
Multi-purpose colour displays (integration)	62.00
Total Audit Scope	1,454.11
Data link (integration)	23.00
Phase II (2004–09)	
ECP-583R2 – Counter measures dispensing system; Helmet mounted display; Data link (installation); Multi-purpose colour displays (installation)	444.44
Defensive electronic warfare suite; Radar warning receiver; Electronic pulse jammer	Yet to be funded
Associated Projects	
Global positioning system	27.00
Night vision	24.00
Air combat manoeuvring instrumentation	34.00
Weapons Projects	
Advanced multi-role infra-red sensor	199.10
Medium range advanced air-to-air missile	145.70
Advanced precision-guided munitions	36.00
Short range advanced air-to-air missiles	177.00
Total CF-18 Incremental Modernization Project	\$2,564.35

Next project milestones

The phase II Validation and Verification Phase will start in January 2006 in China Lake, California. The purpose of this phase is to confirm the design and integration of the phase II elements on a single and dual seat CF-18. Negotiations for phase II installation are still underway between the main contractor and its sub-contractor, thus that cost is not yet factored into the phase II contract.

4. Conclusion

The delays that have occurred in this project highlight the DND's ongoing shortage of experienced project management personnel. Weaknesses in project management within DND and the CF led to delays in the Training System and the Aircraft Cockpit Displays subcomponents of the main project. **As of the end of 2004, this project was behind schedule. Although there is no indication that it was over budget, failure to maintain the schedule on the training systems associated with this project may well result in an imbalance between the amount of training done using simulation and the amount done in the air, with the concomitant expense and wear and tear on the aircraft.**

* * *

CP-140 Aurora Incremental Modernization Project (AIMP)

1) Contacts used during principal information gathering

Tamara Murphy, DND Public Affairs; also Bruce Lewis, Project Management Office

2) History

A contract for eighteen aircraft to be designated the CP-140 Aurora was signed with U.S.-based Lockheed Aircraft in June 1976, and the first aircraft was accepted at Greenwood on 29 May 1980. The CP-140 Aurora is a distinctly Canadian variant of the Lockheed P-3 Orion maritime patrol aircraft. The U.S. is currently modernizing their P-3s, as well. In essence, the Aurora combined the P-3 airframe with the avionics from a different Lockheed design, the carrier-based, S-3 Viking anti-submarine aircraft. Thus, when eighteen Auroras entered service in 1980, the CF gained a long-range patrol aircraft equipped with the most advanced anti-submarine warfare (ASW) equipment available in the west at that time.

The three CP-140A Arcturus aircraft were acquired between December 1992 and April 1993 – essentially an Aurora without the dedicated anti-submarine warfare equipment. All twenty-one aircraft remained in service before the modernization began (*DND Backgrounder*).

Aurora electronics are all currently outdated and difficult to maintain or find parts for. While other operators of P-3s benefit from regular upgrade packages applied to the United States Navy's Orions, the Aurora's distinctiveness has become a disadvantage. Simple, economical "plug-ins" have proved impossible and, as a result, planned CP-140 upgrades have been repeatedly delayed. With no CP-140 replacement on the horizon, the CF has embarked upon the Aurora Incremental Modernization Project (or AIMP). As the name suggests, upgrades are to be phased in.

Modernizations to be carried out include replacement of the existing inertial navigation system with a Global Positioning/Inertial Navigation System, which will improve navigational accuracy and allow the aircraft to meet new and emerging air traffic navigation requirements. The aircraft will also be upgraded with modern electronic flight instruments, a digital auto pilot system, and an improved radar altitude warning system.

The CP-140 Aurora is Canada's primary strategic airborne land and sea surveillance aircraft. It has played important roles domestically and internationally for twenty-five years. Most recently, in the fall of 2004, two CP-140 Aurora maritime patrol aircraft were deployed to Sigonella, Italy, on Operation SIRIUS as Canada's contribution to Operation ACTIVE ENDEAVOUR. The complete Aurora modernization program will bring the aircraft to new capability and longevity standards for continued service until approximately 2025 (*DND News Room-05.059 – 12 July 2005*).

First mention found

Mentioned by General Baril in the 1998–99 *CDS Annual Report*

First commitment found

While it had been discussed since 1998, the first commitment was made in September 2000. On 6 September 2000 Stéphane Dion, Minister of Intergovernmental Affairs, announced on behalf of the Honourable Art Eggleton, Minister of National Defence, the awarding of a contract for the modernization of DND's fleet of eighteen CP-140 Aurora aircraft.

Commitment repeated:

- *RPP, 2000–01*
- *Departmental Performance Report, 2000–01*
- CDS Annual Reports, 2000–03 (2004 is the most recent, but it does not contain a section on “Status of Major Equipment Programs,” as was the case in previous reports)
- General Henault, CDS, appearance before the Senate Committee on National Security and Defence, 3 December 2001
- MND Art Eggleton’s response to the 2001 *Report of the Auditor General (Wednesday Report 15, no. 50: 19 December 2001)*
- General Henault, CDS, at the opening ceremony of the National Security Studies Course, Canadian Forces College, 8 January 2002
- General Henault, CDS, at the Annual General Meeting of the Manitoba Aviation Council and Conference; Winnipeg, 6 March 2002
- General Henault, CDS, at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003
- *Strategic Capability Investment Plan, 2003*

3) Other pertinent information

AIMP is an amalgamation of twenty-three individual projects, grouped in four chronologically consecutive “blocks” and overseen by the Aurora Project Management Office.

Block I of the AIMP covers replacement/upgrade of HF (high-frequency) radio gear, cockpit voice recorder, flight data recorder, and the SRX antennae associated components.

Block II comprises an upgrade of the Navigation Capability Group (including a new horizontal situation indicator and flight direction indicator, Global Positioning System, inertial navigation system, autopilot, radar altimeter, transponder, and Aircraft Collision Avoidance System).

Block III involves an upgrade to the communication capability group (three new VHF/UHF radios, VHF/FM modernization, and a new satellite-communications-based radio), the data management system, and the sensor capability group (including a new electro-optical system, electronic support measure system, magnetic-anomaly detection system, imaging radar, and operational mission simulator).

Block IV is tentatively planned to incorporate a new defensive, early warning system (DEWS) and a stand-off, air-to-surface missile system, but final approval for these elements has not yet been given. Block IV will also include extensive software upgrades for Block III system elements.

The CMC Electronics team includes Astronautics, Litton Systems Canada, Targa Electronic Systems, and the Aerospace Division of IMP Group. IMP—a P-3 modernization facility in Halifax, NS, authorized by the Canadian government and Lockheed Martin—was chosen to install the new avionics suite in the CP-140. Litton Canada, Halifax, is providing the ground support equipment for the new systems.

Costs/budget

As of November 2004, the Canadian air force web page stated that the AIMP had an overall budget of \$1.45 billion.

Expected timeframe/Project status

As of November 2004, the CAF web page stated that “The Aurora Incremental Modernization Project (AIMP) is planned to run until 2010.”

According to the Project Office,

The Aurora Incremental Modernization Project is a planned execution of a modernization program for the CP-140 Aurora aircraft. It currently consists of twenty-three increments (sub-projects), each requiring separate project approvals and related contracts. The core increments are to be executed over approximately ten years. Currently, the third block of projects, comprised of the mission computer and sensors, is scheduled for completion near the end of 2010. Sub-projects listed below are in various stages ranging from proposed (but not yet approved) to under contract and in the implementation stage:

- High Frequency (HF) Radio
- Acoustic System Replacement
- Flight Instruments
- Ultra High Frequency (UHF) Radios
- Mission Computer Replacement (Data Management System)
- Imaging Radar Acquisition
- Electronic Support Measures System
- Communications Management System Modernization
- Very High Frequency VHF (AM) Radio
- Electro-Optical Replacement
- Very High Frequency VHF (FM)
- Airborne Collision Avoidance System
- Acoustic Tape Recorder Replacement
- Defensive Electronic Warfare System
- Acoustics System Modernization
- Additional Ultra High Frequency Radio
- Thirty-two Channel Acoustic Processing Upgrade
- Mission Computer Upgrade
- Electro-optics Upgrade
- Data Link Modernization
- Magnetic Anomaly Detector
- OMS (Operational Mission Simulator)
- Air-to-Surface Weapon Capability

Next project milestones:

- *Block I* (Legacy); Production Completion (18th Aircraft) - Q3 2005
- *Block II* (Navigation Flight Instruments Modernization); Prototype Aircraft Acceptance - Q3 2005
- *Block II* (Communications Modernization System); Prototype Aircraft Acceptance - Q1 2006

- *Block III* (Data Management System and Sensors); Prototype Aircraft Induction - Q2 2006
- *Block IV* (Upgrades); Not yet approved

While it is unclear from the Project Office what has actually been completed, certain sub-projects have signed contracts. Others have been completed, as reported elsewhere.

Miscellaneous information re: status of sub-projects

Navigation and light instruments

Stéphane Dion, Minister of Intergovernmental Affairs, on behalf of the Honourable Art Eggleton, Minister of National Defence, announced that BAE Systems Canada, located in Montreal, Quebec, and Kanata, Ontario, and part of CMC Electronics, Canada, was awarded a \$58 million contract to carry out the Navigation and Flight Instruments Modernization Project on 6 September 2000. (DND News Room – 6 September 2000)

On 5 May 2004, the first CP-140 Aurora, modernized with state of the art navigation and flight instruments avionics, successfully completed its maiden test flight yesterday in Halifax. This flight was a significant milestone for the Navigation and Flight Instruments Project. (*Avionics Magazine Online*)

Acoustic systems

Art Eggleton, MND, announced on 16 March 2001 that a \$58.6 million contract had been awarded for the replacement of the acoustics system for the CP-140 Aurora aircraft and the analysis systems located in the four ground stations in British Columbia and Nova Scotia. The contract was awarded to Computing Devices Canada, Ltd., located in Ottawa, Ontario. (DND News Room – 16 March 2001)

New search radar

Near the end of July 2003, new contracts were announced in the on-going CP-140 Aurora upgrade program. One revealed an unexpected change in direction. The long, drawn-out project to improve the Aurora's radar was to be abandoned – the old AN/APS-503 set was, instead, to be replaced by an entirely new radar set. The set chosen was the AN/APS-143 inverse synthetic aperture radar set by Telephonics (under sub-contract to MacDonald Dettwiler). “The APS-143 (dubbed *Ocean Eye* by its makers) is an X-band surveillance radar with a range of 200 nautical miles. Telephonics (formerly Litton) developed this new radar to replace their earlier APS-128 set.” (*Canadian American Strategic Review Online*)

MX-20 imager

The second contract of July 2003 placed for the Aurora upgrade program was also for a Canadian-made Wescam imager, in this case for MX-20 electro-optical/forward-looking infrared imagers (sensors), big brothers to the MX-15. The MX-20 will replace the Aurora's existing AN/AAR-502 IR imager. This \$19 million contract is part of a \$42 million package with Lockheed Martin Canada who will also adapt the IR imager turret to allow for installation of the new MX-20s. (*Canadian American Strategic Review Online*)

Electro-optics and infrared sensors

The first CP-140 Aurora modernized with new electro-optics and infrared sensors has rejoined the fleet at 14 Wing Greenwood after successful integration of this leading edge surveillance technology. The air force formally accepted the modified aircraft from contractor Lockheed Martin Canada upon completion of a rigorous joint testing program with the company and air force members.

The installation and testing of the sensors is a \$14.5 million follow-up project within the scope of the original contract with Lockheed Martin Canada. It provides an interim solution until the sensors are fully integrated with the aircraft's modernized mission system in 2008. (DND News Room-05.059 – 12 July 2005)

4. Conclusion

Blocks I and II appear essentially complete; the first aircraft with electro-optics and infrared sensors (Block III) has recently rejoined the fleet. The official word from DND, however, is that Block III will not be completed until 2010. It appears that the Project Office is not completing one block before beginning the next. With the information provided, it makes it difficult to discern when an actual “block” will be done. Many of the sub-projects have also changed names, adding to the difficulty of tracking progress. As the *Canadian American Strategic Review* noted in 2005, “DND omni-bus projects tend to be both drawn-out and overly complex – AIMP fits this bill.”²

The selection of appropriate communication and data link systems for the CP-140 AIMP involved in supporting land operation will also be a challenging task. Although the AIMP SOR identifies the requirement for compatible radios with the Canadian army, the problem is that the new army communication equipment (i.e., the Tactical Command, Control, and Communication System – TCCCS) is currently not compatible with that of other services, nor with Canada's NATO allies. As reported by analyst Robert Martyn: “TCCCS is not interoperable with any communication systems in the Canadian air force or navy, or any of our NATO allies' services.”³ Furthermore, according to Lieutenant Colonel McLeish, a staff member in the Directorate of Army Doctrine, “the Canadian army has not yet selected which tactical data link it intends to use for air-to-ground transmissions.”⁴

From information publicly available, it appears that this project was on schedule and on budget at the end of 2004. However, this is a very complex project, and the conflation of production blocks III and IV and the lack of budget projections regarding block IV may be signs of difficulties having crept in towards the end of our reporting period.

* * *

² See <<http://www.sfu.ca/casr/101-cp140aimp2.htm>> for more on the Aurora Modernization Project.

³ Martyn, Robert. 2001. “The Revolution in Military Affairs: Is the Emperor Ready for His New Clothes?” In *Intelligence, Surveillance and Reconnaissance*, ed. D. Margueratt and A. English, 133. Toronto: Canadian Forces College, Air Symposium.

⁴ McLeish, R. Presentation to CFCSC on Canadian Tactical Aviation, 8 March 2002. Quotes retrieved from Major J.A.J. Boucher, “CP-140 Aurora Incremental Modernization Program (AIMP): Not enough for the 21st century” (Unpublished Master's thesis, Canadian Forces College, 2002).

Polaris CC-150 Upgrades Project

1) Contact used during principal information gathering

Tamara Murphy, DND Public Affairs

2) History

Following the government's direction in 1992, DND bought five A310 Airbus aircraft from existing funds as replacements for the Boeing 707 strategic transport fleet. Prior to receiving this direction, the department had no publicly-identifiable plans to replace the fleet before 1999. The government saw this purchase as an opportunity to replace aging aircraft. The five-plane fleet's primary role was long-range transport of personnel and equipment – up to 194 passengers or 32,000 kg of cargo. One aircraft was given a VIP configuration.

The retirement of the Boeing 707 fleet drastically impacted Canada's air-to-air refuelling (AAR) capability because Canada's strategic tankers were among those aircraft. At the time of the A310 acquisition there was no engineering solution to equip it with a tanking capability, and the air force was testing a modified tanker version of Canada's CC-130 Hercules. By the late 1990s, DND had decided to prepare a number of Hercules aircraft to be able to accept fuel bladders in lieu of cargo and equipped them with hose drum units (HDUs) located near the wing tips of the aircraft. They were, in part, supposed to replace the Boeing tankers. The problem with using the Hercules for AAR is the great difference in speeds and altitudes of the propeller-driven tanker and the CF-18 jet fighters. While refuelling, a CC-130 is close to its maximum speed while CF-18s will be flying at an awkwardly slow speed in a high, nose-up position. Additionally, the most convenient altitude for the CF-18 to refuel is often much higher than the CC-130 can achieve.

The 1996 *Report of the Auditor General* noted:

The department decided that A310 strategic air-to-air refuelling, though highly desirable, could be excluded from approval in its Treasury Board submission as it was acquiring five Hercules aircraft with shorter-range tactical air-to-air refuelling capability. The longer-range strategic air-to-air refuelling was therefore not included in the final funding approval for the A310s. The Department of National Defence explained in its submission that a new project would be instigated when strategic air-to-air refuelling was reclassified to "essential." It began this project in May 1993. In the A310 Master Implementation Plan, the department stated, "the [Airbus] is planned to be modified to be air-to-air refuelling capable." However, lack of funds has resulted in postponing any decision on this project, which would require roughly \$80 million in additional funding. Upon completion of the Airbus modifications in December 1997, DND will have the capability to fulfill only three of the four strategic transport roles.

The DND responded as follows:

The A310 Airbus was not intended to fulfill all the roles of the Boeing strategic transport fleet. The acquisition of five Hercules aircraft, with shorter-range, tactical air-to-air refuelling capability allowed the department to defer a decision on how best to satisfy our longer-range, air-to-air refuelling capability. Two Boeing 707s were extended to provide limited strategic air-to-air capabilities in the interim. This meant they were also available for carrying cargo. The \$8.5 million expenditure is attributable to

the decision to continue the operation of the Boeing 707 fleet beyond its original date, thereby providing the department with the opportunity to consider options to address our strategic air-to-air refuelling capability.

When Canada was asked by NATO to provide fighter aircraft to the NATO base in Aviano, Italy, in late 1998 as a means of applying pressure to Yugoslavia over the deteriorating situation in Kosovo (and in the spring/summer of 1999 to take part in the air war against Yugoslavia), the need to regain long-range, air-to-air refuelling capability became obvious.

First mention found

The conversion of the two Polaris aircraft to air-to-air refuellers was mentioned by General Baril in the 1999–2000 *CDS Report*, but the whole issue had been discussed since 1993, according to the 1996 *Report of the Auditor General*.

First commitment found

In October 2002, DND announced an \$80 million project to add new strategic air-to-air refuelling (SAAR) capabilities to two Canadian Forces CC-150 Polaris aircraft. Contracts were signed with the German firms, EADS and LHT, for two conversions to a MRTT (multi-role tanker transport) standard.

This opportunity arose because Germany was investigating SAAR. The CF CC-150s are virtually identical to the Luftwaffe A310-304 MRTs (Multi-Role Transports), thus two Canadian aircraft could be tacked on to the Luftwaffe order for six SAARs – saving \$50 million and three years (*Canadian American Strategic Review Online*).

Commitment repeated:

- CDS Annual Reports, 2000–03 (2004 is the most recent, but it does not contain a section on “Status of Major Equipment Programs,” as was the case in previous reports)
- speaking notes for General Henault, CDS, at the Annual General Meeting of the Manitoba Aviation Council and Conference; Winnipeg, 6 March 2002
- *National Defence Performance Report, 2003*

3) Other pertinent information

Strategic air-to-air refuelling involves a process where MRTT mounts two hose-drum units (HDUs) near the wingtips of the aircraft. The HDUs are completely self-contained (a propeller-driven turbine in the nose of each pod provides power), and fuel flow is computer-controlled from the cockpit (the CC-150 AAR operator will monitor refuelling operations by video camera). Five additional fuel tanks displace LD-3 freight containers in the Airbus’ under-floor cargo bay.

The FRL Mk.32B HDUs used in the modified CC-150 are of the type fitted to Hercules conversions in the early 1990s. The CC-130 Hercules (T) tankers were undergoing squadron trials when the Airbuses were bought – the CC-130H (T) was originally cited as the reason why the CC-150 did not require a refuelling capability.

Costs/budget

Originally expected to cost \$80 million, the cost is now \$108 million (according to the Project Office), approximately \$28 million more due to the delay in launching the project. The project schedule has been dependant upon progress made in meeting the German requirement.

Expected timeframe/Project status

The 2002–03 *CDS Annual Report* stated that “the two modified CF tankers will enter service in August 2004 and February 2005.” In 2004, the air force section of the DND web page⁵ projected that by 2004–05, an air-to-air refuelling capability would be added to the fleet. It was not. According to the Project Office (fall 2005), phase I has been completed and the aircraft are 90 percent modified. Phase II entails the installation of avionics modifications including mission management software.

Next project milestone

The phase II contract was to be awarded in the fall of 2005.

4. Conclusion

While the original project completion date was 2004, the contract for phase II was not signed until the fall of 2005. The entire project also went from \$80 million in October 2002 to \$108 million, according to the budget given by the Project Office in July 2005. Once again, the Project Office stated that this was due to a delay in instigating the project, but did not explain why this occurred.

John McCallum, Minister of National Defence when the commitment was made, claimed that SAAR CC-150s “will provide our air force transport and fighter squadrons with the capability to deploy rapidly on operations around the globe.” The *Canadian-American Strategic Review* has taken issue with that claim, pointing out that this could only be true if CF transport aircraft (CC-130 Hercules and non-SAAR CC-150s) were also to be fitted with in-flight refuelling probes. Given the small number of fighters that will be available for overseas deployment in future (in the fall of 2005 the Chief of the Air Staff announced that potential plans to deploy six CF-18s to Afghanistan had to be shelved for a variety of reasons), it is likely that the two SAARs, supported by the CC-130 tankers, will deliver as much refuelling capacity as the air force needs. **As of the end of 2004, this project was late and over budget.**

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M113 Tracked APC Life Extension Project

1) Contacts used during principal information gathering

Tamara Murphy, DND Public Affairs; Chief of Review Services, “Quick-Time Review” of the project in April 2003

2) History

The M113 is a tracked vehicle that was originally used primarily as a mechanized infantry section carrier. Over the years, several variants have been fielded. The first versions were purchased in the mid-1960s; the last were delivered in 1991. A total of 1,143 vehicles were ordered during this period.

⁵ <http://www.airforce.forces.gc.ca/news/crew/04-04/04_e.asp>

The DND recognized in the early 1990s the need to replace the ageing fleet of APCs that were currently employed in the army. Unfortunately, owing to budget constraints, only the forward echelon, comprising 651 of the 1500 required, could be replaced. To fill the gaps in the support role and combat service support capabilities, a life extension program was pursued in an effort to save money. The department estimates the saving to be around a billion dollars. Estimated per unit cost was estimated at \$900,000 compared to the \$3 million per unit for a LAV III.

The M113 is being refurbished and upgraded into nine new variants of mechanized support vehicles. The role of the new M113 variants is to provide the army with combat support and combat service support vehicles to augment the new LAV III fleet. A total of 289 vehicles are being upgraded. The remaining M113s will be declared surplus.

First mention found

Mentioned in the 1998–99 *CDS Annual Report*

First commitment found

The M113 Life Extension Project will begin on 1 April 2000, and is scheduled for completion by 31 March 2007. A total of 341 tracked APCs will be upgraded to increase their protection, capacity, and mobility, with an option for 61 more (the latter option was for air defence units, and it was ultimately not exercised). (DND *Backgrounder*- 00.008 – 20 April 2000)

DEW ENGINEERING AND DEVELOPMENT LIMITED AWARDED
\$215 MILLION CONTRACT TO UPGRADE ARMOURED
PERSONNEL CARRIERS

Ottawa – April 20, 2000. The Minister of Public Works and Government Services Canada and Minister Responsible for Quebec, the Honourable Alfonso Gagliano, participated today in a ceremony on behalf of the Minister of National Defence, the Honourable Art Eggleton, to announce that DEW Engineering and Development Limited of Ottawa has been awarded a \$215 million contract for the provision of upgrade kits, engineering data, and integrated logistic support to modernize and update a significant part of the army's M113 Armoured Personnel Carrier (APC) fleet. The upgraded M113 APC is a cost effective, state-of-the-art APC that delivers the payload and power to meet future operational requirements to the year 2020. This was a sole-sourced, fixed-price contract. The production work will be performed at the Canadian Forces' 202 Workshop Depot in Montreal, which has been rebuilding Canada's APCs for over thirty years.

Commitment repeated:

- Minister Eggleton, 20 April 2000
- CDS Annual Reports, 2000–03 (2004 is the most recent report, but it does not contain a section on “Status of Major Equipment Programs,” as was the case in previous reports)
- Departmental Performance Reports, 2001–04

3. Other pertinent information

The remanufactured M113 APC will be equipped with a new power pack, and the new driver's station will significantly improve steering and manoeuvrability. The advanced suspension system provides a ride equal to or better than other armoured vehicles in the army's inventory. Approximately half of the vehicles are stretched by approximately one metre to increase the payload capacity and to improve cross-country mobility significantly. The stretched M113, known as the Mobile Tactical Vehicle Light (MTVL), increases payload capacity by 100 percent and volume under armour by 30 percent, compared to the current in-service M113A2.

The following seven variants will be fielded:

- M113 A3 - Personnel Carrier, Ambulance, or Mobile Repair Team
- M577 A3 - Command Post
- MTVL Basic - Personnel Carrier, Light Re-supply
- MTVC - Heavy Re-supply
- MTVE - Engineer Vehicle
- MTVF - Fitter (Repair) Vehicle
- MTRV - Recovery Vehicle

Costs/budget

Estimates in 2001–02 were at \$326.1 million, but this was increased to \$358.4 million in 2003–04. This increase can be accounted for by higher than expected estimates for the 2003–04 timeframe, from \$52.2 to \$73.8 million.

Expected timeframe/Project status (as per Project Office)

The project is in production, and 150 of the 289 vehicles are completed. Seven variants are completed and in production. The last two variants' prototypes (MTVC–Mobile Tactical Vehicle Cargo and MTVF–Fitter) are 99 percent complete. Seventy vehicle kits will be issued to the 202 Workshop Depot starting in the next few months. Vehicles fielded to Gagetown, Edmonton, Wainwright, and Petawawa for the variants are finished. Production should be completed by summer of 2007.

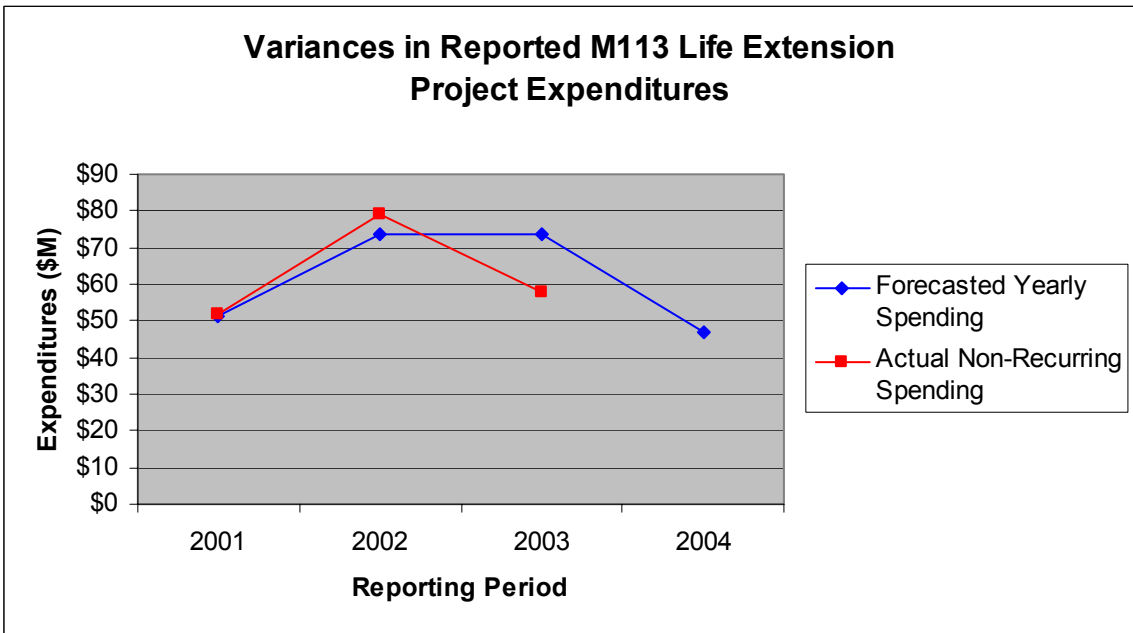
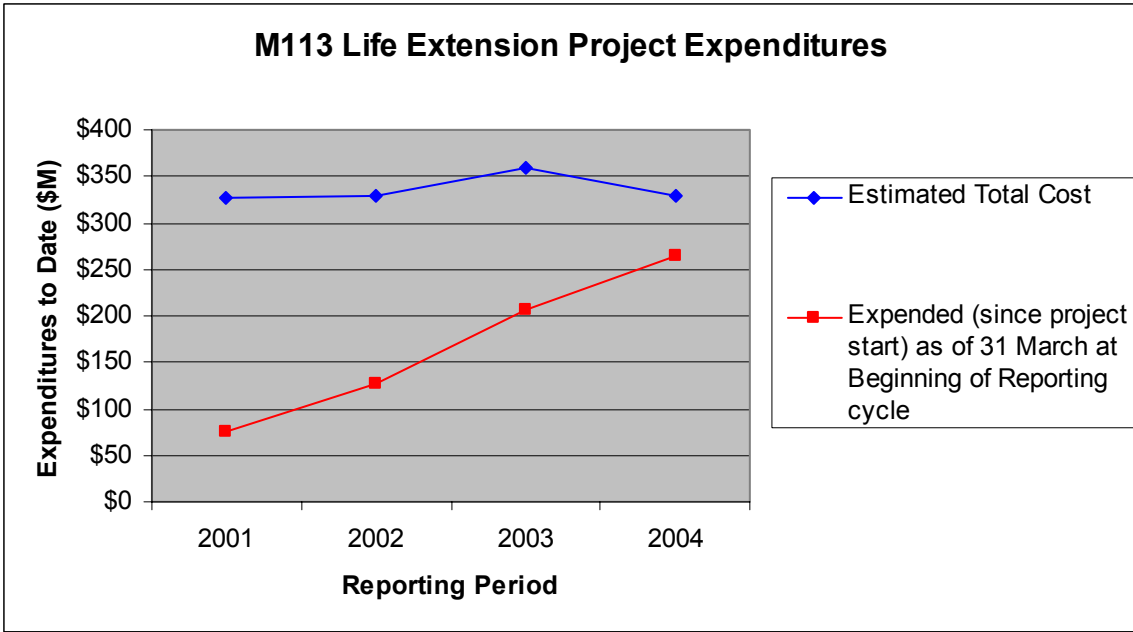
Remaining milestones as of December 31, 2004:

- July 2005, issue of first production MTRV (recovery)
- September 2005, completion of the first MTVF
- October/November 2005, start of delivery to Valcartier, assuming that training was completed in August/September 2005

Major milestones:

- Treasury Board approval; October 1998
- production contract awarded; January 2000
- protected weapons station Treasury Board approval; May 2000
- production starts at 202 Workshop Depot; September 2000
- first fielding; in progress
- last vehicle delivery; May 2006
- project completed; March 2007

(DND Departmental Performance Report 2004)



NB: No information was reported for actual money spent on this project for fiscal year 2004–05

4. Conclusion

According to the Chief Review Services Department, which conducted a *Quick-Time Review* of the project in April 2003, the project was behind schedule by February 2002, and there remained a level of ignorance as to the risks involved in such a large project. Perhaps the most disturbing aspect of that review was the conclusion that they were unsure whether the new reduced number of M113s represented “an actual requirement for the future.” It thus remains to be seen if the army will have any use for this equipment. This is another example wherein the utility of a project changed drastically from the time the project was first conceived to the actual time of delivery. **As of the end of 2004, this project was behind schedule and over-budget.**

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D) ADMINISTRATIVE UPGRADES

Achieving Administrative Efficiency Project

1) Contact used during principal information gathering

Mr. Ward Elcock, Deputy Minister, DND

2) History

In 2003, Minister of National Defence John McCallum created the Minister's Advisory Committee on Administrative Efficiency (MACAE) in an effort to find ways to streamline the way the DND conducted business. The committee presented its report (entitled *Achieving Administrative Efficiency*, 137 pages) in August 2003 and made forty-nine recommendations on how to make DND more efficient. Among its core findings were observations that at National Defence Headquarters (NDHQ), "management focus is more transactional than strategic"; "accountabilities are too diverse"; "risk tolerance is too low"; and "core competencies are not clearly identified."

First mention found

13 January 2003 – John McCallum, MND. As part of a process by which the minister promised to find some \$200 million in the DND budget for "reallocation" within the department, he alluded to a study he was about to launch to find greater administrative efficiencies within NDHQ. In Toronto on 13 January 2003, he made the following remarks to the Canadian Council of Chief Executives:

I have committed to find \$200 million in annual internal savings. This has caused angst within the department. Some felt that the "centre" might simply pocket the \$200 million, leaving the Canadian Forces with nothing but cuts. Others argued that the department had already cut itself to the bone. My own view is different. The "centre" has enough wisdom not to punish departments that do what the "centre" wants them to do, i.e., reallocate. Also, anyone with a \$12 billion budget who can't find \$200 million in savings should be in another line of work. ... The work of the efficiency group will not be limited to these examples, and not all of our efficiency-enhancing efforts will go through this group. Through a concerted effort, including the creation of an appropriate incentive structure, over time the object is to generate savings in excess of \$200 million per year. That way, we will provide better equipment and quality of life for our people, as well as more bang for the buck in providing national defence for Canadians.

First commitment found

30 January 2003 – MND McCallum appointed the Minister's Advisory Committee on Administrative Efficiency. At that time, Minister McCallum announced that he "was committed to ensuring that Canadian taxpayers get the best possible value for every dollar that [DND] spends." Minister McCallum said, "My department has already made significant progress in modernizing its business structures. Nevertheless, I have found, in my experience, that all large organizations can benefit from an outside perspective."

Commitments repeated:

- MND McCallum at the Annual General Meeting of the Conference of Defence Associations; Ottawa, 27 February 2003
- MND McCallum at the Canadian Defence Industries Association; Ottawa, 22 October 2003
- MND McCallum at the Standing Committee on National Defence and Veterans Affairs; Ottawa, 6 November 2003

3) Other pertinent information

Minister McCallum's intent to find and reallocate \$200 million in savings appeared to be integrally bound up with his appointment of the Advisory Committee on Administrative Efficiency. The original announcement of the effort to reallocate funds and the appointment of the MACAE came within days of each other in January 2003. The public announcement of the committee's findings (21 August) and McCallum's announcement that his review of cost savings had found the \$200 million he sought (22 October 2003) came within eight weeks of each other. He also presented the two initiatives as virtually one in his 27 February 2003 speech at the Annual General Meeting of the Conference of Defence Associations in Ottawa.

Nonetheless, the report of the MACAE says the following: "The Committee believes that fundamental improvements to the overall approach to governance and strategic management of defence and its \$13 billion budget will result in very significant savings. While this result *cannot be easily quantified*, it includes the *potential* for large scale savings in dollars, personnel, and time" (p. iv, italics added).

The report, once implemented in whole or in substantial part, may well lead to substantial economies and greater administrative efficiency. But Mr. McCallum very quickly claimed (at a meeting of the Canadian Defence Industries Association in Ottawa, 22 October 2003) that it already had.

The mandate of the committee was to help me find some of these internal savings. And the committee has delivered. I am pleased to report that we have now found \$128 million in administrative savings. This is a hard number, a permanent, recurring, annual saving that will be fully implemented in fiscal year 2005–06. Of this amount, \$85 million is due to committee recommendations in a number of areas, including less reliance on professional service contracts; lower travel costs combined with greater reliance on teleconferencing and videoconferencing; and improved procurement and provision of information technology. The remaining \$43 million comes from improvements in the way the department handles material, following my decision last year to cancel the so-called supply chain project.

As to the rest of the \$72 million in savings that Mr. McCallum had committed to find, the money was to come from: (1) the retirement of the Leopard tanks; (2) the retirement of the Javelin air defence system; and (3) the "paying off" (elimination) of HMCS *Huron*, one of the four TRUMP destroyers that had recently been upgraded.

Mr. McCallum was shortly after replaced as Minister of National Defence by David Pratt. Within the department, the work of implementing the forty-nine recommendations of the MACAE continued with various recommendations allocated to different OPIs (Offices of

Primary Interest), as is normally done with a complex report such as this. In the spring of 2005, Mr. Elcock sent to CDFAI an internally prepared matrix that demonstrated the state of the ongoing work. CDFAI was assured that the department was fully committed to implementing all of the MACAE's recommendations.

On 18 August 2005, Major Michel J.A. Chauvette sent an e-mail to one of this report's authors, Mr. Ray Szeto, which reiterated the department's commitment to the implementation of the MACAE report, especially in light of the new CDS General Rick Hillier's strong support for CF transformation: "[the] implementation plan for each and every MACAE recommendation is being reconsidered/updated. This process is not yet completed and will take a few more weeks to get complete approval from departmental and CF leadership on the entire issue." Major Chauvette promised to provide an updated matrix when completed.

4. Conclusion

It would be unreasonable to expect that the wide-ranging paradigm shift urged by MACAE would be completed by the end of 2004 (i.e., the end date of this study). **But there is currently no way of knowing for certain via publicly available information the extent to which the MACAE's recommendations were implemented by the end of 2004, whether or not a reasonable schedule had been worked out for any or all of the changes, or how many of the changes had been carried out by then.**

* * *

E) AUGMENTATION OF FORCE STRENGTH COMMITMENTS

JTF-2 Capacity Doubling Project

1) Contacts used during principal information gathering

No single specific contact was used. Owing to the classified nature of JTF-2's force size and structure, little information is available publicly from which to draw any firm conclusions.

2. History

Following the terrorist attacks of 9/11, the Canadian Government made a commitment to fund anti-terrorism in its tabled 10 December 2001 budget. Among the responses in the budget was the commitment to provide \$119 million over five years to "double the capacity" of Joint Task Force 2, Canada's special operations force, by fall 2005.

First commitment found

Finance Minister Paul Martin, 10 December 2001

Commitments repeated:

- CDS Annual Reports, 2001–04
- DND Reports on Plans and Priorities, 2001–04
- DND Departmental Performance Reports, 2001–03

3) Other pertinent information

There is no clear definition of the “capacity” of JTF-2 that is to be doubled. However, the statement has been perceived as the doubling of the force’s size. No official figures have been released by DND about the strength and size of JTF-2, although *Ottawa Citizen* reporter David Pugliese has written that the organization has some 297 members.

Expected timeframe/Project status

With the understanding that budgetary funding would account for \$119 million over five years, it can be presumed that the doubling of JTF-2 would be completed by the fall of 2006.

Although there are no figures available to suggest either that the CF has or has not been successful at doubling JTF-2’s capacity, there exist some indications of progress. In the 2003–04 *CDS Annual Report*, it was written that the capabilities of JTF-2 have been “significantly increased,” that efforts to recruit new members have been “very successful,” and that the introduction of new equipment as part of an expansion program will be completed in 2006–07.

4. Conclusion

Given the extreme secrecy cloaking all aspects of JTF-2, it is impossible to judge the extent to which this commitment has been fulfilled. Thus any promises made by any government regarding the status of Canada’s core special operations capability cannot be verified via publicly available information by private citizens, by the press, or even by members of Parliament.

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Land Force Reserve Restructure (LFRR) Project

1) Contacts used during principal information gathering

The main contact was the office of Land Force Reserve Restructure in Ottawa and the project manager, Major General Ed Fitch. Other information was gathered from a variety of publicly available sources from DND, the CF, and the Land Force Command (army).

2) History

In an effort to follow up on the 1995 report of the Special Commission on Reserve Restructure (SCRR), sporadic efforts were made by the army to “reform” the reserves (militia). Some of the changes (and proposed changes) followed directly from the SCRR (for example, the establishment of reserve brigades in place of militia districts), but many did not. To summarize, the army prepared to force radical changes in roles, missions, and tasks on the reserve and aimed to rationalize structure by eliminating non-viable units. Supporters of the reserves rebelled and brought their complaints directly to the Minister of National Defence. At the minister’s behest, and after receiving advice from his Monitoring Committee (chaired by the Honourable John Fraser), the army launched the Land Force Reserve Restructure process aimed at re-engineering the structure and culture

of the Canadian Army Reserve in co-operation with the reservists themselves. The LFRR Strategic Plan⁶ aims to:

- build the trust of the Army Reserve to gain the credibility necessary to accept change;
- establish short-term resource flexibility to initiate change initiatives;
- assure the long-term sustainability of the Army Reserve; and
- develop a structured and assured approach to change.

Phase I of LFRR sought to secure the Army Reserve's sustainability and increase force levels from 13,500 to 15,500. Phase II seeks to ensure the sustainability of phase I and thereafter increase force level by 3,000 to 18,500 in two more steps. It is from this commitment, first made in 2000, that subsequent promises by the government to increase the size of the reserves by 3,000 stemmed. It should be noted that the 2000 commitment to increase force size referred only to the militia (i.e., the Land Force Reserve).

First mention found

Toronto – The Honourable Art Eggleton, Minister of National Defence, today unveiled the government's policy for Land Force Reserve Restructure (LFRR). Based on recommendations from the Minister's Monitoring Committee, the government has provided policy direction for the long term modernization and revitalization of the Army Reserve. In the first phase of the process, DND has committed \$42 million over the next two years to strengthen personnel levels of the Army Reserve to 15,500 from the current level of 13,500. Other initiatives will include improved training for reservists, a reduction to the administrative workload faced by reserve units, and the delivery of state-of-the-art equipment including uniforms, grenade launchers, half-tonne jeeps and three-tonne-trucks. (DND *Backgrounder- LFRR*, 12 October 2000)

Commitments repeated:

- *Departmental Performance Report 2000–01*
- 10 November 2003, MND announcement of specific unit growth for fiscal year 2003–04
- *2004 Throne Speech*
- 2004 election
- 2005 federal budget

3) Other pertinent information

No documents have been found after 2003 which report on the LFRR process. The reason for this, according to General Ed Fitch, project manager of LFRR, is that many of LFRR phase II's objectives are qualitative and cannot reasonably be quantitatively reported. For example, regarding the objective of "rebuilding trust," how do you measure whether or not trust was rebuilt? Also, PMO LFRR went for "the deep objective," i.e., not simply

⁶ This and the succeeding project (Troop Increases) were commitments made by the Liberal governments of Jean Chrétien and Paul Martin. Stephen Harper's Conservative Government, elected on 23 January, made a commitment of its own to increase Canada's military by 13,000 regulars and 10,000 reservists. No details were given as to the breakdown of the increase (i.e., army, navy, or air force), though it can be safely assumed that the majority of the new troops, when added, will go to the Land Forces. The evaluation here is of the state of those increases made in the four year period covered by this report, i.e., up to the end of December 2004.

increasing force numbers, but creating a change in the culture reserve, to make the Army Reserves more flexible and reflective of the times. Whereas phase 1 used funds from the existing defence budget, phase II was dependent on new funding that was late in being announced. The main problems encountered were in the expansion itself. They originally stemmed from the late announcement by the government of the promised phase II funding, followed by internal budget reallocations resulting from increased pressure on the overall DND budget that caused a reduction of the phase I expansion. These events resulted in the loss of some momentum.

4. Conclusion

LFRR has now become integrally tied in with the Canadian Forces and the Canadian army's transformation. **Within the time limits adopted for this report, LFRR was well launched in 2000, but suffered due to uncertain financial resources after phase 1 expansion was completed. The qualitative process sought by the PMO LFRR seems to have been achieved by the end of 2004, but reserve force expansion lagged behind original goals.**

* * *

Troop Increases Project

1) Contacts used during principal information gathering

No single specific contact was used. Information was gathered from a variety of publicly available sources including those provided directly by DND, the CF, or the Senate Committee on National Security and Defence (SCONSAD).

2) History

Among the promises made by the Liberal Party during the 2004 election campaign was the commitment to increase personnel numbers within the CF. This promise was two-fold:

- The regular force would be increased by 5,000 troops, the equivalent of an additional brigade. The Liberals' perception was that this increase would come as a new brigade to be used to significantly enhance Canada's capacity for peace support.
- The reserve force would be increased by 3,000 troops, from 15,500 to 18,500. This increase would not only contribute to Canada's peace- and nation-building initiatives, but would also give the nation a needed capacity to respond to domestic crises.

First commitment found

Prime Minister Paul Martin's Liberal Party underlined this commitment in its published election platform as early as May 2004.

Commitments repeated:

- Scott Reid (PMO Senior Adviser), 17 August 2004
- DND *Departmental Performance Report*, 2004
- Prime Minister Paul Martin, 16 January 2005
- Finance Minister Ralph Goodale; 2005 budget, 23 February 2005

3. Other pertinent information

Increasing the regular force by 5,000 soldiers does not appear plausible within three years. This was the principal message offered as testimony before SCONSAD by Vice-Admiral Ron Buck, Vice Chief of the Defence Staff. Vice-Admiral Buck testified further that such an increase would likely take five years, owing to the lack of personnel and equipment.

With regard to increasing the reserve force, it is worth noting that the army's Land Force Reserve Restructure Project (LFRR) had intended to achieve a strength of 18,500 by fiscal year 2005–06 when it began in the year 2000. By April 2003, DND had announced that phase I of LFRR, which stabilized the reserve force at a strength of 15,500, had been achieved. This announcement also included the initiation of phase II that would see the reserves grow to 18,500 by 2006–07.

In addition to the plausibility of repetitious commitments, questions have arisen as to how successful the CF has been at increasing its reserve ranks. The SCONSAD report *Wounded: Canada's Military and the Legacy of Neglect* notes that the Department of National Defence's reported Army Reserve strength was really only 13,053 as of 1 September 2005.

Expected timeframe/Project status

This promise has now been pre-empted by the commitment made by the Harper government to increase both regulars and reservists by 23,000.

4. Conclusion

From public information available, it is impossible to determine the extent to which this commitment was acted upon by the end of 2004. In any case, the commitment is now irrelevant.