



Reporting the progress of defence acquisition projects

Interim report, June 2008

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Foreword

Projects to acquire defence capabilities involve large amounts of public money and attract much public and political interest. Experience here and in other countries suggests that these types of projects are prone to difficulties, delay, and cost increases.

In my 2005/06 Annual Plan, I indicated my intention to carry out a performance audit to identify and report changes to costs, time frames, and essential user requirements in selected defence acquisition projects. It is inevitable that there will be changes during such projects, particularly in their early stages. Sometimes, these changes will be significant. The purpose of the audit was to improve the quality of reporting by the defence agencies, not to assess the quality of the decisions made in managing the projects.

My staff were unable to complete the audit as originally intended. A lot of the detailed information that I expected the defence agencies to have was not readily available. Also, my staff and the Ministry of Defence disagreed on the point in the acquisition process from which changes should be monitored and reported. Although the defence agencies' guidance states that cost estimates should be robust when they are submitted to Cabinet for approval to commence acquisition, in practice they are not.

This interim report does not make any conclusion about how well the defence agencies are managing specific projects, or on the causes or justifications for changes in forecast costs and time frames. As noted, the focus of our work was on the quality of the monitoring and reporting systems, not the quality of the decisions being made.

The defence agencies are adamant that they manage acquisition projects well. They are often questioned on this. In our view, they must be able to report better and more complete information to demonstrate how well they are managing defence acquisition projects. Better reporting will enable greater accountability to Ministers, Parliament, and other stakeholders on progress with these major acquisition projects.

I am committed to working with the defence agencies to find a way for them to provide effective assurance to Parliament on this area of spending. I am pleased to note that the defence agencies are similarly committed to providing Parliament with the necessary information for such reporting.


K B Brady
Controller and Auditor-General

25 June 2008

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Summary

We were unable to complete our planned performance audit to identify and report changes to costs, time frames, and essential user requirements in recent major defence acquisition projects managed by the Ministry of Defence and the New Zealand Defence Force (the defence agencies).

We had difficulty getting all of the necessary information, particularly from the Ministry's information systems and had to change our audit approach. We briefed the Foreign Affairs, Defence and Trade Committee (the Committee) about this on 20 March 2008.

Although we were unable to complete our audit, we were able to compile a high-level summary of how the costs and time frames have changed for each of the 10 acquisition projects we looked at.

For most of the 10 projects, estimated costs and time frames had increased, in some cases significantly, between when Cabinet gave approval for acquisition to commence and when Cabinet gave approval for the contract to be signed. Time frames increased further for some projects after the contract had been signed, but the defence agencies reported no further cost increases.

In our view, this information is not enough for the defence agencies to demonstrate how well they are managing the projects or for Parliament or other stakeholders to reach a view on this. There is scope for improvement to the quality, transparency, and usefulness of the reports the defence agencies provide about the progress of defence acquisition projects. We will work with the defence agencies during the next two financial years to make the changes needed.

Background

Projects to acquire new defence capabilities (for example, upgraded electronic systems for existing military planes, and new naval vessels or army vehicles) can take several years to complete. These projects involve defining a capability need, preparing a business case, getting approvals, following a procurement process, waiting for the capability to be produced and delivered, and introducing the new capability into service.

A significant amount of funding is provided to the defence agencies to acquire new defence capabilities. In 2006, a long-term plan listed \$2.2 billion (excluding GST) of approved defence acquisition projects. The new capabilities were expected to be delivered between 2006 and 2013.

Because of the costs, time frames, and risks involved, the defence agencies must be able to report transparently to their Minister and to Parliament on the progress of these projects. We expect that the defence agencies would be able to clearly report how and why estimated costs change from those submitted to Cabinet, and how and why time frames and essential user requirements change as projects progress.

Our audit

We started a performance audit to identify and report changes to costs, time frames, and essential user requirements for 10 of the largest and highest-priority defence acquisition projects. The selected projects, and their forecast acquisition costs (excluding GST), were the Medium Utility Helicopter, \$771 million; Multi-Role Vessel and Patrol Vessels (Project Protector), \$500 million; P-3 Systems Upgrade, \$373 million; C-130 Life Extension, \$234 million; Boeing 757 Acquisition and Modification, \$220 million; Training/Light Utility Helicopter, \$110 million; Light Operational Vehicle, \$93 million; Medium Range Anti-Armour Weapon, \$24 million; Improvised Explosive Device Disposal, \$22 million; and Very Low Level Air Defence Alerting and Cueing System, \$14 million.

The acquisition process for these projects is set out in the New Zealand Defence Capability Management Framework (CMF). The CMF describes five stages (including four approval points): Ministerial Note, Approval to Initiate, Approval to Commence, Approval to Negotiate, and Approval to Commit.

Based on the CMF, we set out to compare estimated costs, time frames, and essential user requirements between the Approval to Commence point and the Approval to Commit point, and identify the causes of changes between these points. We also set out to compare the latest forecasts of costs, time frames, and essential user requirements with those approved at the Approval to Commit point, and identify the causes of changes.

We chose the Approval to Commence and Approval to Commit points for our audit because they are two main approval points where Cabinet is presented with estimates of the costs and time frames to acquire defence capabilities. The CMF describes the Approval to Commence point as the "Main Gate", and states that accurate cost estimations are critical at that point. Cabinet notes the estimated costs and gives approval for the acquisition phase of the process to commence. Sometimes those cost estimates have been used to make public announcements on the details of the project. The Approval to Commit point is when the defence agencies seek final Cabinet approval to commit funds for the project before the contract is signed.

Our ability to complete the audit was hindered by the difficulties we encountered getting the necessary information, particularly from the Ministry's information systems. We had to change our audit approach, and briefed the Foreign Affairs, Defence and Trade Committee (the Committee) about this on 20 March 2008.

In keeping with what we told the Committee we would do, this interim report shows, at a high level, the cost and time frame changes we were able to determine for the 10 defence acquisition projects that we looked at. This interim report also summarises the difficulties we encountered with the Ministry's information systems and describes how we will work with the defence agencies during the next two financial years to encourage them to make the changes needed to improve the transparency and usefulness of their reporting about defence acquisition projects.

Our findings

This interim report does not make any conclusion about how well the defence agencies are managing specific defence acquisition projects, or on the causes or justifications for the changes in costs and time frames that we report. We do not have enough information or the right information to form a judgement on that larger question. The purpose of the audit was to improve the quality of reporting by the defence agencies, not to assess the quality of the decisions made in managing the projects.

Although we were unable to complete our audit, we were able to compile a high-level summary of how the costs and time frames have changed for each of the 10 acquisition projects we looked at. We do not report on essential user requirements, because of the difficulty we had getting that information.

Overall findings

The defence agencies must be able to report better and more complete information to demonstrate how well they are managing defence acquisition projects. In our view, the defence agencies must improve the transparency of reporting so that readers of the reports can have confidence that the defence agencies are appropriately managing the acquisition process for the projects.

For most of the 10 projects we looked at, estimated costs and time frames between the Approval to Commence and Approval to Commit points had increased, in some cases significantly. Between the Approval to Commit point and the latest forecasts (in December 2007), no further cost increases were forecast or had occurred for most of the projects, but most had experienced further delays. The delays were smaller than those between the Approval to Commence and Approval to Commit points.

We were unable to find complete information on the individual variations that made up the changes, or the reasons for them. We consider that it is important for the defence agencies to be able to report such information to Ministers, Parliament, and other stakeholders. We recognise that, when the defence agencies' reporting systems were introduced, they were not designed to monitor the progress of projects in the way that we set out to. Nevertheless,

we expected the sort of information we were looking for to have been more readily available and easier to extract than we found.

Changes between the Approval to Commence point and Approval to Commit point

We expected the tender and negotiation process to cause some changes to estimates between the Approval to Commence and Approval to Commit points. Given that the CMF states that accurate cost estimations are critical at the Approval to Commence point, we expected that these changes would not be significant.

Changes were sometimes significant, and cost estimates at the Approval to Commence point were not as robust as the CMF indicates they should be. The defence agencies advised us that cost estimates at this point are, at best, an “intelligent guess” of what new capabilities will cost. This is because the agencies cannot request costed proposals from the market until Cabinet has given Approval to Commence. We note that the CMF indicates that, to provide information that will support the development of robust cost estimates, the defence agencies can consult with suppliers before the Approval to Commence point.

In our view, the defence agencies should start reporting progress from the Approval to Commence point. The defence agencies disagreed with us because, in their view, it is too early in the acquisition process and cost estimates at this point are not robust enough to report against.

Although the defence agencies’ guidance states that cost estimates should be robust when they are submitted to Cabinet at this point, in practice they are not. The defence agencies do not indicate how they have estimated costs or the degree of uncertainty inherent in them. In our view, the defence agencies need to do this as part of their future reporting. They also need to address the mismatch between their practice and the CMF.

We understand that the Ministry will soon be making major changes to the CMF to incorporate the requirements of the Treasury’s Capital Asset Management Review, and the Ministry’s own examination of the level of accuracy that can be expected in cost forecasts at various stages of the acquisition process.

Changes from the Approval to Commit point to the defence agencies’ forecasts at the end of 2007

We expected there to be few changes to costs and time frames after the Approval to Commit point. The defence agencies advised us that the forecast costs and time frames at the Approval to Commit point are much more accurate than the estimates at the Approval to Commence point, because the Ministry has been able to get costed proposals from potential suppliers and is about to award a firm fixed-price contract.

At the aggregate level of total project cost, no changes had been reported for most projects after the Approval to Commit. However, there are underlying variations and movements in and between budget lines that are not reported. We were unable to find complete information on these variations and movements, or the reasons for them. In our view, it is important for the defence agencies to monitor and understand the reasons for such changes, and to be able to report on them so that any trade-offs being made are transparent.

Plan to improve progress reporting on defence acquisition projects

There is scope for improvement to the quality, transparency, and usefulness of the reports the defence agencies provide about the progress of defence acquisition projects. We will work with the defence agencies during the next two financial years to encourage them to make the changes needed.

Our future work with the defence agencies will be in two stages. We will reconsider our approach after each stage.

In stage 1, we will look at how well the defence agencies' reporting of the progress of defence acquisition projects meets the information requirements of internal and external stakeholders, and recommend improvements where necessary.

In stage 2, we will consider, with the defence agencies and other stakeholders, how we can ensure that any recommended improvements are made. Our objective is to achieve a more effective and useful reporting framework that meets the needs of the defence agencies and external stakeholders.

We intend to use our annual plans to keep Parliament and other interested parties informed about the progress we and the defence agencies make against this plan.

Part 1: Introduction

- 1.1 By this time in 2008, we expected to have produced a report for Parliament providing assurance about how effectively the Ministry of Defence (the Ministry) and the New Zealand Defence Force (the NZDF) were managing acquisition projects. We wanted to provide this assurance by carrying out a performance audit to identify and report changes to costs, time frames, and essential user requirements for specific projects managed by the Ministry and the NZDF (the defence agencies). However, we had difficulty getting all of the necessary information, particularly from the Ministry's information systems, and it was not possible to complete the audit.
- 1.2 On 20 March 2008, we briefed the Foreign Affairs, Defence and Trade Committee (the Committee) about these difficulties and proposed a new approach. This interim report is part of that new approach – it sets out what we have found so far, and describes why the existing reporting by the defence agencies is problematic. It also describes how we will work with the defence agencies during the next two financial years to encourage them to make the changes needed to improve the quality, transparency, and usefulness of their reporting about defence acquisition projects.
- 1.3 This interim report does not make any conclusion about how well the defence agencies are managing specific defence acquisition projects, or on the causes or justifications for any changes in costs, time frames, and essential user requirements. We do not have enough information or the right information to form a judgement on that larger question. The purpose of the audit was to improve the quality of reporting by the defence agencies, not to assess the quality of the decisions made in managing the projects.
- 1.4 In this Part, we describe:
- the purpose and approach of our original audit;
 - the change in our approach; and
 - the structure of this interim report.

Purpose and approach of our original audit

- 1.5 We expect the defence agencies to monitor and be able to report on the progress of major defence acquisition projects as part of its accountability to Ministers, Parliament, and other stakeholders. We started to audit 10 of the largest and highest-priority defence acquisition projects against that expectation. The projects are listed in the *Defence Long-Term Development Plan* (LTDP) that the defence agencies regularly publish.

1.6 The purpose of our audit was to identify and report changes to costs, time frames, and essential user requirements for the 10 defence acquisition projects. The selected projects, and their forecast acquisition costs (excluding GST) according to the 2006 LTDP, were:

- Medium Utility Helicopter, \$771 million;
- Multi-Role Vessel and Patrol Vessels (Project Protector), \$500 million;
- P-3 Systems Upgrade, \$373 million;
- C-130 Life Extension, \$234 million;
- Boeing 757 Acquisition and Modification, \$220 million;
- Training/Light Utility Helicopter, \$110 million;
- Light Operational Vehicle, \$93 million;
- Medium Range Anti-Armour Weapon, \$24 million;
- Improvised Explosive Device Disposal, \$22 million; and
- Very Low Level Air Defence Alerting and Cueing System, \$14 million.

1.7 We were particularly interested in measuring the progress of these projects against the costs, time frames, and essential user requirements at two main project approval points (that is, the “Approval to Commence” and the “Approval to Commit” points in the defence acquisition process).

Approval points for defence acquisition projects

1.8 The process for acquiring defence capability is set out in the New Zealand Defence Capability Management Framework (CMF). The defence agencies first implemented the CMF in May 2004 and last updated it in March 2008. There are five stages (including four approval points) described in both the 2004 and 2008 versions of the CMF:

1. Ministerial Note;
2. Approval to Initiate;
3. Approval to Commence;
4. Approval to Negotiate; and
5. Approval to Commit.

1.9 Eight of the 10 selected projects were given Approval to Commence before the 2004 CMF was implemented. However, the 2004 CMF set out practices and procedures that had been in place since mid-2002, after which most of the projects obtained Approval to Commence.

1.10 We consider that the 2004 and 2008 versions of the CMF are not materially different in their requirements, particularly the requirement for accurate estimates at the Approval to Commence point. Both versions require the defence agencies to submit to Cabinet estimates

of cost and time at the Approval to Commence point that have a high level of confidence. By this approval point, the 2004 CMF states that:

...risk should have been sufficiently reduced and the project should have reached a sufficient degree of maturity for user and systems requirements, [expected introduction into service date] and costs to be set with confidence. (Note that [the Approval to Commence] for major projects could be used for external reporting and performance measurement of the [defence agencies].

...

The highest acceptable cost will normally be set at the 90% confidence level. This cost and the expected cost of the demonstration and manufacture phases will be derived from a three point cost estimate.

1.11 In comparison, the 2008 CMF says:

...accurate cost estimation (to 90% level of confidence) is critical at the [Approval to Commence] stage. Moreover, investment proposals should set out the costs of the project derived from a three-point estimate (high, low, and expected cost).

1.12 We have used the 2008 version as our source because it describes the defence agencies' current required acquisition process. Paragraphs 1.13-1.17 describe the stages of the process for acquiring defence capability in more detail, reflecting the requirements from the 2008 CMF.

Ministerial Note

1.13 The defence agencies identify new defence acquisition projects through the Defence Strategic Plan process and list the projects in either the LTDP (which looks ahead 10 years) or the Long Range Capability Forecast Review (which looks more than 10 years ahead). Cabinet is asked to note and approve the projects' listing. To begin one of the listed projects, the Minister of Defence is notified through a Ministerial Note about such matters as the capability being considered, the expected level of capital and operating funding required and available, and the proposed year of delivery and entry into service. The Minister is asked to note that the defence agencies are to start assessing and identifying options for meeting the capability in more detail.

Approval to Initiate

1.14 The NZDF is then primarily responsible for defining the capability required, and getting Cabinet Approval to Initiate a project to acquire the capability. Cabinet is presented with options for delivering the desired capability and asked to approve the defence agencies initiating a capability project and conducting a detailed assessment of those options. At this point, the defence agencies can consult with suppliers to clarify the range of options to meet

the capability need, to provide information on emerging technologies, and to provide information that will support the development of robust cost estimates. Once that work is completed, the defence agencies then seek Cabinet Approval to Commence the acquisition.

Approval to Commence

- 1.15 The CMF describes the Approval to Commence point as the “Main Gate”. At this point, the defence agencies seek Cabinet approval on the basis of the Main Gate Investment Case, which describes in detail the proposal for investment, supported by links to strategy, quantified risk analysis and options for mitigating risk, cost-benefit analysis, an implementation or procurement plan, and a specification of expected performance. The CMF states that accurate cost estimation is critical at this point. Cabinet notes the estimated costs, and sometimes public announcements on the details of the project are made at this point.
- 1.16 The Approval to Commence gives approval for the acquisition phase to begin. During this phase, the Ministry’s Acquisition Division acquires the equipment component of the capability and the NZDF acquires the other functional components of the capability (such as personnel and infrastructure).

Approval to Negotiate and Approval to Commit

- 1.17 The Approval to Commit point is when the defence agencies seek final Cabinet approval to commit funds for the project before signing a contract with a supplier. Between the Approval to Commence and Approval to Commit points, the Ministry’s Acquisition Division carries out activities including tendering, acquisition risk management, tender evaluation, and contract negotiation. Depending on the nature and complexity of the project, the Acquisition Division may seek an Approval to Negotiate with a preferred tenderer. When evaluations of tenders and negotiations with potential contactors are complete, the defence agencies seek Approval to Commit. Once this approval is given, the contract is awarded and the Acquisition Division manages the contract until the NZDF accepts the contract deliverables and services.
- 1.18 The defence agencies work together throughout these five stages, but the balance of responsibility changes from the Approval to Commence point. Before that point, the NZDF does most of the work. After that point, the Ministry’s Acquisition Division is solely responsible for the equipment acquisition phase until the NZDF accepts the equipment. Once the NZDF accepts the equipment, it is responsible for bringing the equipment together with the functional components of the capability that it had acquired, to introduce the capability into service.

- 1.19 We used the process described in the CMF as the basis for our original audit and set out to:
- compare estimated costs, time frames, and essential user requirements at the Approval to Commence point with those at the Approval to Commit point, and identify the reasons for the changes; and
 - compare the latest forecasts of costs, time frames, and essential user requirements with those approved at the Approval to Commit point, and identify the reasons for the changes.
- 1.20 We expected the defence agencies to be able to report the reasons for changes in estimated costs, time frames, and essential user requirements from those defined at the Approval to Commence point.
- 1.21 We expected the tender and negotiation process to cause some changes to estimates between the Approval to Commence and Approval to Commit points. Because the CMF states that accurate cost estimation is critical at the Approval to Commence point, we expected that these changes would not be significant.
- 1.22 During our audit, we were told by the defence agencies that the cost estimates submitted to Cabinet at the Approval to Commence point had not been set with the high level of confidence described in the CMF. The defence agencies told us that they can only make general enquiries of potential suppliers before the Approval to Commence point to support the development of robust estimates, as described in the CMF. This means that the submitted estimates were, at best, an “intelligent guess”.
- 1.23 We expected there to be few changes to costs, time frames, and essential user requirements after the Approval to Commit point. The defence agencies advised us that the forecast costs and time frames at the Approval to Commit point are much more accurate because the Ministry has been able to get costed proposals from potential suppliers and is about to award a firm fixed-price contract.

Problems with the information about each acquisition project

- 1.24 We sought information from the defence agencies on cost and time frame changes and changes to essential user requirements for all of the selected projects. We wanted to present information in our report on:
- the extent to which estimates changed between the Approval to Commence and Approval to Commit points, and why they changed;
 - the total and average cost changes since the Approval to Commit point, the variations making up the totals, and the reasons for them (including any common reasons);
 - the total and average time frame changes since the Approval to Commit point, the variations making up the totals, and the reasons for them (including any common reasons); and

- the extent to which essential user requirements at the Approval to Commit point were met, and the reasons for any changes to those requirements.

1.25 Our audit work mainly involved reviewing project files and documents held by the Ministry and the NZDF at Defence Headquarters in Wellington. For the most part, we focused on information held by the Ministry. We tried to complete a standard set of information for each acquisition project. This proved extremely difficult and time-consuming. It led to a number of queries and information gaps, which we tried to resolve by working closely with the defence agencies' staff.

1.26 However, it became clear that the Ministry's project monitoring and reporting systems in particular were not able to readily produce much of the detailed information needed to explain changes to costs, time frames, and essential user requirements for each project. This was particularly so for historical information about projects that have spanned several years.

1.27 When the defence agencies' systems were introduced, they were not designed to monitor the progress of projects in the way that we set out to. Nevertheless, we expected the sort of information we were looking for to have been more readily available and easier to extract.

Change in our approach

1.28 We advised the Committee in March 2008 that it was not possible for us to report accurately and completely to Parliament in the way we originally intended. Even if we continued the time-consuming work to extract the project information, it would be subject to so many assumptions and qualifications that its value and usefulness would be questionable.

1.29 We told the Committee that we would produce this interim report to explain in more detail the problems we had, and set out our proposed approach to working with the defence agencies to resolve them. We are committed to finding a way to provide effective assurance to Parliament on this area of spending.

1.30 The Treasury has carried out a Capital Asset Management Review to assess the effectiveness of capital asset management regimes, practices, and performance in government departments and Crown entities. We will ensure that any work we do on a revised reporting framework aligns with the Treasury's work.

Structure of this interim report

1.31 Part 2 provides a high-level analysis of cost and time frame changes for the 10 selected acquisition projects. This analysis builds on the information provided by the Ministry to the

Committee in December 2007¹ and by the NZDF to us during our audit. We do not report on changes to the essential user requirements, because of the difficulty we had in getting that information. In preparing our analysis, we checked the information reported by the Ministry to the Committee in December 2007 against Cabinet approvals and LTDPs, where appropriate.

- 1.32 Part 3 summarises the difficulties we encountered, particularly with the Ministry's information systems. These difficulties have prevented us from identifying and properly reporting the details of – and reasons for – the changes to project costs, time frames, and essential user requirements.
- 1.33 Part 4 presents our planned new approach – how we will work to encourage the defence agencies to improve their reporting on the progress of defence acquisition projects.
- 1.34 In this performance audit, we did not verify the accuracy of the individual financial transactions within the procurement phase of each of the selected acquisition projects. We review a sample of those transactions as part of the annual financial audit of the Ministry. This performance audit examined other aspects of the Ministry's reporting on the projects in more detail than we have done in the financial audit. The results of the respective audits can be different, depending on their scope and level of detail.
- 1.35 We do not include recommendations in this interim report, because we have not yet formed a view on the best way for the defence agencies to address the problems we have identified. We will complete the work needed to do this as part of the first stage of our planned new approach.

¹ Ministry of Defence response to the Foreign Affairs, Defence and Trade Committee's Supplementary Questions from the Ministry's Financial Review 2006/07 (response dated 7 December 2007), pp 5-6.

Part 2: Summary of changes to the selected defence acquisition projects

- 2.1 In this Part, we provide:
- our overall findings about how costs and time frames have changed during the acquisition process for each of the 10 selected projects;
 - a high-level analysis of those changes for each project; and
 - a summary of the extent of the changes for each project.
- 2.2 We looked at cost and time frame changes between the Approval to Commence and Approval to Commit points in the acquisition process. We also looked at changes between the Approval to Commit point and the latest forecasts that the Ministry reported to the Committee in December 2007. For one project managed by the NZDF, we looked at changes between the Approval to Commit point and the latest forecasts the NZDF provided to us at the end of 2007 and in April 2008.
- 2.3 One of the main objectives of our original audit was to provide Parliament with a standard set of information that recorded the progress of each of the 10 selected acquisition projects from the Approval to Commence point, including the reasons for changes to costs, time frames, and essential user requirements. The information we present here is limited to a high-level analysis because of the difficulties we had in sourcing that standard set of information. Part 3 explains these difficulties in more detail.
- 2.4 We were able to compile enough information to describe each project's purpose and history, and to produce summary tables on the changes to costs and time frames since the project started. However, the tables contain many assumptions because consistent and comparable information was not always available. The summary tables and descriptions of each project's purpose and history are in the Appendix.
- 2.5 To provide an analysis of each project's progress against the costs and time frames set at the Approval to Commence point, we had to assume:
- an Approval to Commence point for those projects that started before the CMF was first implemented in May 2004, by identifying the relevant historical approval; and
 - some dates for project time frames, because the dates were sometimes imprecise or loosely inferred rather than clearly specified in project approval documents. If dates were mentioned in other documents but not in project approval documents, we have used those. Where we have made assumptions, we have been conservative. For example, if only the year for delivery was indicated, we have assumed that delivery would be by the end of the year.

- 2.6 For projects that started before the CMF was implemented, we have not always used the same Approval to Commence figures that the Ministry did in its report to the Committee in December 2007. We note that the Ministry used figures from LTDPs and reported them as Approval to Commence figures. We also note that the Ministry was inconsistent in how it used LTDP figures:
- The Ministry did not always use the project cost and time frame figures from the first LTDP the project was described in. For example, for the Medium Utility Helicopter project, we use the \$400 million to \$550 million range from the Cabinet Approval to Commence (which cited the 2003 LTDP). In its report to the Committee, the Ministry used the \$400 million to \$550 million range from the 2004 LTDP, which also included the Training/Light Utility Helicopter.
 - The Ministry did not always use cost and time frame figures from the same LTDP. For example, for the Approval to Commence point for the Light Operational Vehicle project, the Ministry used the 2002 LTDP for costs and the 2004 LTDP for time frames.
- 2.7 Wherever possible, we have identified the project-specific Cabinet approval that equates to the Approval to Commence point, and used this as the source of approved figures. To be consistent, we also cite estimated cost and time frame information from the same approval document. We were not always able to do this, because time frames were sometimes not specified at the Approval to Commence point. In those situations, we have used LTDP figures or information from other sources. Identifying the project-approval equivalent to the Approval to Commence point was not always easy, and was one of the difficulties we had in conducting our original audit. We discuss this difficulty further in paragraphs 3.11-3.13.
- 2.8 In the summary tables of information in the Appendix, we provide references to the sources of our information. We also show where our figures come from a different source – and differ – from those the Ministry reported to the Committee in December 2007.

Our overall findings

- 2.9 During our audit, we were mindful of the uncertainty in the defence agencies' estimates before the Approval to Commit point. The defence agencies do not indicate the degree of uncertainty inherent in their estimates, but our work confirms that the costs approved at the Approval to Commit point are sometimes significantly higher than those estimated at the Approval to Commence point.

Changes between the Approval to Commence and Approval to Commit points

- 2.10 Overall, for most of the 10 projects covered by our audit, estimated costs and time frames between the Approval to Commence and Approval to Commit points had increased – in some cases, significantly.

- 2.11 The defence agencies advised us that changes between the Approval to Commence and Approval to Commit points are unavoidable because:
- the defence agencies can only make general enquiries of potential suppliers before the Approval to Commence point, so the estimate presented to Cabinet then is, at best, an “intelligent guess”;
 - the precision of estimates at the Approval to Commence point will vary depending on whether the capability is an established piece of equipment or whether design work is needed; and
 - projects are almost always paid for in overseas currency, so prices are subject to foreign exchange fluctuations. To cover this uncertainty, in all of the submissions to Cabinet for Approval to Commit, the project cost is adjusted to accommodate the estimated cost of buying foreign currency in the future.
- 2.12 The CMF indicates that, before the Approval to Commence point, the defence agencies can consult with suppliers to get information to support the development of robust cost estimates. If this is not the defence agencies’ practice, then the CMF needs to be amended to reflect actual practice. We understand that the Ministry will soon be making major changes to the CMF to incorporate the requirements of the Treasury’s Capital Asset Management Review, and the Ministry’s own examination of the level of accuracy that can be expected in cost estimates at various stages of the acquisition process.

Changes from the Approval to Commit point to the defence agencies’ forecasts at the end of 2007

- 2.13 Between the Approval to Commit point and the latest forecasts, no further cost increases were forecast or had occurred for most of the projects, but most had experienced further delays. The delays were smaller than those between the Approval to Commence and Approval to Commit points.
- 2.14 We expected few changes to costs and time frames after the Approval to Commit point. The defence agencies advised us that the forecast costs and time frames at the Approval to Commit point are much more accurate because the Ministry has been able to get costed proposals from potential suppliers and is about to award a firm fixed-price contract.





High-level analysis of cost and time frame changes for each project

- 2.15 Figure 1 provides for each project:
- a summary of the extent of changes to project costs and time frames between the Approval to Commence point and the latest forecasts at December 2007 (and April 2008 for the Improvised Explosive Device Disposal project managed by the NZDF); and
 - some commentary on the reasons for the cost and time frame changes.

2.16 The sources we used included:

- cost and time frame estimates for projects in LTDPs;
- Cabinet papers seeking Approval to Commence and Approval to Commit;
- project progress reports, evaluations, and contract documents from the Ministry's acquisition files; and
- the project cost and time frame information reported by the Ministry to the Committee in December 2007, and by the NZDF to us during the audit.

Figure 1
Summary of cost and time frame changes for each of the selected defence acquisition projects

<p>Medium Utility Helicopter</p>		
<p>Purpose:</p>	<p>To replace 14 Iroquois helicopters with eight NH90 Medium Utility Helicopters.</p>	
<p>Changes between the Approval to Commence and Approval to Commit points</p> <p>The cost approved at the Approval to Commit point (\$771.7 million) was \$221.7 million more than the upper limit of the estimated range at the Approval to Commence point (\$550 million). Between the approval points, the date of introduction into service increased by 42 months.</p> <p>Changes between the Approval to Commit point and the end of 2007</p> <p>Since the Approval to Commit point, there have been no further changes to costs or time frames.</p> <p>Overall, the changes for the Medium Utility Helicopter project came from the difference between initial estimates and the more accurate costs from the tender process. The lengthy tender process also delayed the project.</p>		
<p>Multi-Role Vessel and Patrol Vessels (Project Protector)</p>		 <p>Multi-Role Vessel</p>  <p>Offshore Patrol Vessel</p>  <p>Inshore Patrol Vessel</p>
<p>Purpose:</p>	<p>To replace HMNZS <i>Canterbury</i> with a Multi-Role Vessel and introduce a mix of offshore and inshore patrol capabilities through the purchase of two Offshore Patrol Vessels and four Inshore Patrol Vessels.</p>	
<p>Changes between the Approval to Commence and Approval to Commit points</p> <p>The cost approved at the Approval to Commit point (\$499.7 million) was \$0.3 million less than the Cabinet-directed cap at the Approval to Commence point (\$500 million). The estimated delivery date for the Multi-Role Vessel increased by 12 months (no timing was given for the delivery of the Patrol Vessels at the Approval to Commence point).</p> <p>Changes between the Approval to Commit point and the end of 2007</p> <p>Between the Approval to Commit point and the end of 2007, there was no reported change in cost. However, the Treasury understands that the defence agencies, after the Ministry's December 2007 forecast, have found that their project commitments now exceed the project's budget.</p> <p>Since the Approval to Commit point, the Multi-Role Vessel's delivery was delayed by another six months. The last Patrol Vessel is forecast to be delivered 10 months later than the date defined at the Approval to Commit point.</p> <p>Overall, there have been delays in design, construction, and testing of the vessels. The defence agencies have advised us that Ministers have been informed of the project's cost and time situation.</p>		

P-3 Systems Upgrade

Purpose:

To upgrade the mission, and communications and navigation systems, of six P-3 Orion aircraft.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$373.1 million) was \$91.1 million more than the upper limit of the estimated range at the Approval to Commence point (\$282 million). The estimated delivery date for the last aircraft increased by 18 months.

Changes between the Approval to Commit point and the end of 2007

Since the Approval to Commit point, the forecast of cost has decreased by \$0.1 million, but the delivery date for the last aircraft has increased by another three months.

Overall, the increase in the estimated cost and the delays are because of technical issues with the prototype aircraft and increased specifications.

C-130 Life Extension

Purpose:

To upgrade and extend the life of five C-130 Hercules aircraft to 2017, improving aircraft availability and reliability.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$233.7 million) was \$18.3 million less than the estimate at the Approval to Commence point (\$252 million). The estimated delivery date for the last aircraft increased by 15 months.

Changes between the Approval to Commit point and the end of 2007

Since the Approval to Commit point, the forecast of cost has decreased by \$0.7 million, but the delivery date of the last aircraft has increased by another six months.

Overall, the project's estimated cost decreased as the Ministry received more information about the actual cost of capabilities, even though capabilities have been added. The increases in the delivery time frames were the result of the contractor and the Ministry encountering technical difficulties with the modifications to the first aircraft.

Boeing 757 Acquisition and Modification

Purpose:

To acquire and modify two Boeing 757-200 aircraft to replace two ageing Boeing 727s.

Modifications to the 757 aircraft were required to meet the NZDF's capability requirements.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$220.6 million) was \$21.3 million more than the estimate at the Approval to Commence point (\$199.3 million). The estimated delivery date for the modified aircraft increased by 36 months.

Changes between the Approval to Commit point and the end of 2007

Since the Approval to Commit point, there has been no change in the forecast of cost, but the delivery date has increased by another 12 months.

Overall, the aircraft were purchased at a cost greater than that estimated, but were acquired on schedule. There was an increase in the estimated cost and delivery date for the modified aircraft.

There have been issues agreeing contractual terms and subsequent changes to the requirements of the modification programme (for example, the addition of Antarctic operations required the installation of software and navigation equipment).

Training/Light Utility Helicopter

Purpose: To replace five Sioux helicopters with five Agusta-Westland A109 Training/Light Utility helicopters and a flight simulator.



The Training/Light Utility Helicopter contract was still being negotiated during our audit, and the Approval to Commit point came after the Ministry's December 2007 report to the Committee. However, the first estimate of cost and time proved unrealistic, with an increase of \$99 million between the 2002 and 2006 LTDPs.

The defence agencies advised that the estimate in the 2002 LTDP was based on an "off-the-shelf" civil helicopter. The 2006 LTDP estimate was informed by technical changes to the Medium Utility Helicopter project that meant an "off-the-shelf" civil helicopter would no longer meet the NZDF's training needs. It became necessary to seek a militarised helicopter at additional cost. Cabinet noted that the \$110 million figure was an estimate, subject to confirmation after further discussions with manufacturers and suppliers.

The cost approved at the Approval to Commit point in April 2008 (\$139.3 million) was \$29.3 million more than the estimated cost at the Approval to Commence point (\$110 million), using the 2006 rather than 2002 estimate. The estimated delivery time frame for the helicopters has increased by 36 months between the Approval to Commence and the Approval to Commit points.

Light Operational Vehicle

Purpose: To acquire a fleet of Light Operational Vehicles to replace the Army's Land Rovers, which were overdue for replacement. Our analysis focused on the military vehicles purchased as part of the project.



Changes between the Approval to Commence and Approval to Commit points

We have a different interpretation of what the Approval to Commence point is than the Ministry, so there are some differences between our figures and those reported by the Ministry to the Committee in December 2007.

We use the July 1999 Cabinet approval figure (\$56.1 million) for the Approval to Commence point. The Ministry uses the range (\$60 to \$110 million) from the 2002 LTDP because it considers the 1999 approval related to a project that had been cancelled. We could not verify this through the Ministry's documentation.

Based on our interpretation, we consider that the cost approved at the Approval to Commit point (\$93.3 million) was \$37.2 million more than the estimate at the Approval to Commence point (\$56.1 million). The estimated delivery date for the vehicles increased by 69 months.

Changes between the Approval to Commit point and delivery

Between the Approval to Commit point and the vehicles' delivery, there was no change in cost, and delivery was six months earlier than forecast.

Overall, the main reasons for the cost and time changes were a failed initial tender process, subsequent changes to the numbers and types of vehicle required as the Army refined its requirements, and Special Operations Vehicles being added to the project to close a mobility gap for the Special Forces.

Medium Range Anti-Armour Weapon

Purpose: To acquire the Javelin "fire and forget" Medium Range Anti-Armour Weapon to negate threats from tanks and armoured vehicles at a distance of several kilometres.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$23.9 million) was \$2.4 million more than the estimate at the Approval to Commence point (\$21.5 million). The estimated delivery date for the weapon increased by 24 months.

Changes between the Approval to Commit point and delivery

Between the Approval to Commit point and the weapon's delivery, there was no change in cost, while delivery was delayed by another 16 months.

The delay since the Approval to Commit point was because of a manufacturing defect affecting the worldwide supply of missiles for the weapon.

Improvised Explosive Device Disposal

Purpose:

To enhance the NZDF's existing Improvised Explosive Device Disposal (IEDD) capability and develop a credible chemical, biological, radiological, and conventional IEDD capability. Both capabilities cover detection, identification, field evaluation, rendering safe recovery, and final disposal.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$21.6 million) was \$1.9 million more than the estimate at the Approval to Commence point (\$19.7 million). It was not possible to calculate any change in delivery date because there was no indication of this in the Cabinet Approval to Commence.

Changes between the Approval to Commit point and the end of 2007

While timing is still within that defined at the Approval to Commit point (2007/08 financial year), the NZDF told us that it is likely that it will need to seek additional funds to complete the project. As at April 2008, the NZDF projected that another \$0.75 million would be required, although that would be confirmed after the completion of a tender round.

The cost changes are the result of increased construction costs for IEDD units. Although the project is on schedule, the NZDF has advised that a lack of suitably trained and qualified personnel means that it has difficulty maintaining staff levels.

Very Low Level Air Defence Alerting and Cueing System

Purpose:

To acquire the Alerting and Cueing System needed to make completely operational the Very Low Level Air Defence (VLLAD) missiles and launchers that were acquired and delivered through a separate acquisition. The Alerting and Cueing System detects, identifies, and warns of approaching aircraft then assists with the aiming of the VLLAD weapons.



Changes between the Approval to Commence and Approval to Commit points

The cost approved at the Approval to Commit point (\$13.7 million) was \$5.7 million more than the estimate at the Approval to Commence point (\$8 million). The estimated delivery date for the system increased by 39 months.

Changes between the Approval to Commit point and the end of 2007

Between the Approval to Commit point and the end of 2007 there was no reported change in cost. However, in April 2008 the Cabinet External Relations and Defence Committee approved the addition of \$0.55 million to the budget to complete the project. The delivery date increased by nine months since the Approval to Commit.

The significant cost and time changes are largely the result of there not being an "off-the-shelf" Alerting and Cueing System at the time of first estimates, increases in the first estimates of cost and time once such a system was found, and then the need to purchase additional equipment to make the system fully operational after it was delivered.

Source: All images from the Ministry of Defence, except for Training/Light Utility Helicopter (which is from Agusta-Westland) and the Improvised Explosive Device Disposal (which is from the New Zealand Army).

Summary of cost and time frame changes for each project

2.17 We used the information on cost and time frame changes for each project to look at the pattern of changes for all of the projects. In particular, we looked at how much the costs and time frames had changed:

- between the Approval to Commence and the Approval to Commit points; and
- between the Approval to Commit point and the defence agencies' forecasts at the end of 2007.

Changes between the Approval to Commence and Approval to Commit points

- 2.18 Figure 2 shows the cost and time frame changes for each of the selected acquisition projects between the Approval to Commence and Approval to Commit points.
- 2.19 Except for Project Protector and the C-130 Life Extension project, estimated costs increased between the Approval to Commence and Approval to Commit points. The increases ranged from \$1.9 million for the Improvised Explosive Device Disposal project to \$221.7 million for the Medium Utility Helicopter project. The decreases were \$0.3 million for Project Protector and \$18.3 million for the C-130 Life Extension project.
- 2.20 Except for the Improvised Explosive Device Disposal project, where there was no indication of timing at the Approval to Commence point, the projects experienced delays between the Approval to Commence and the Approval to Commit points. Delays ranged from 12 months for the Multi-Role Vessel component of Project Protector to 69 months for the Light Operational Vehicle.

Figure 2

Cost and time frame changes between the Approval to Commence and Approval to Commit points for each of the selected defence acquisition projects

Project	Change in costs		Change in time (months)
	\$m	%	
Medium Utility Helicopter	+221.7	+40	+42
Multi-Role Vessel and Patrol Vessels (Project Protector)	-0.3	-0.06	+12 (for the Multi-Role Vessel. No timing was given in the Cabinet Approval to Commence for the Patrol Vessels)
P-3 Systems Upgrade	+91.1	+32	+18
C-130 Life Extension	-18.3	-7	+15
Boeing 757 Acquisition and Modification	+21.3	+11	+36
Training/Light Utility Helicopter	+29.3	+27	+36
Light Operational Vehicle	+37.2	+66	+69
Medium Range Anti-Armour Weapon	+2.4	+11	+24
Improvised Explosive Device Disposal	+1.9	+10	Not determined as no timing was given in the Cabinet Approval to Commence
Very Low Level Air Defence Alerting and Cueing System	+5.7	+71	+39

Changes from the Approval to Commit point to the defence agencies' forecasts at the end of 2007

- 2.21 Figure 3 shows the cost and time frame changes for each of the selected projects between the Approval to Commit point and the defence agencies' forecasts at the end of 2007 (except for the Training/Light Utility Helicopter project, because it had not reached the Approval to Commit point at the end of 2007). Figure 3 shows that each project was reported to be either

on, or slightly under, the budget defined at the Approval to Commit point, but most had experienced further delays. The extent of the delays was generally less than that between the Approval to Commence and Approval to Commit points. According to the Ministry, there has been little movement in costs because of its practice of entering into firm fixed-price contracts, where the cost risk is borne by the supplier. However, the Ministry says that it has only a limited ability to affect the timelines of suppliers. The Ministry's influence is limited to withholding milestone payments and threatening liquidated damages claims.

- 2.22 As at the end of 2007, against the cost and time parameters set at the Approval to Commit point:
- one project was delivered on budget and early (Light Operational Vehicle);
 - two projects were under budget but late (P-3 Systems Upgrade and C-130 Life Extension);
 - two projects were on budget and on time (Medium Utility Helicopter and Improvised Explosive Device Disposal); and
 - four projects were on budget but running late (Project Protector, Boeing 757 Acquisition and Modification, Medium Range Anti-Armour Weapon, and Very Low Level Air Defence Alerting and Cueing System).

2.23 However, we understand from the Ministry, the NZDF, and the Treasury that Project Protector and the Improvised Explosive Device Disposal projects are likely to require additional funds before they can be completed. The Very Low Level Air Defence Alerting and Cueing System project has received an additional \$0.55 million for it to be completed, but this is not reflected in Figure 3. Cabinet approval for the additional funds came after the Ministry reported its forecast to the Committee.

Figure 3
Cost and time frame changes between the Approval to Commit point and the defence agencies' forecasts at the end of 2007 for each of the selected defence acquisition projects

Project	Change in costs		Change in time (months)
	\$m	%	
Medium Utility Helicopter	0	0	0
Multi-Role Vessel and Patrol Vessels (Project Protector)	0	0	+6 months for the Multi-Role Vessel and +10 months for the Patrol Vessels
P-3 Systems Upgrade	-0.1	-0.03	+3
C-130 Life Extension	-0.7	-0.3	+6
Boeing 757 Acquisition and Modification	0	0	+12
Training/Light Utility Helicopter	<i>Not applicable because the contract had yet to be finalised as at the end of 2007</i>		
Light Operational Vehicle	0	0	-6
Medium Range Anti-Armour Weapon	0	0	+16
Improvised Explosive Device Disposal	0	0	0
Very Low Level Air Defence Alerting and Cueing System	0	0	+9

Part 3: Problems with information about the selected defence acquisition projects

- 3.1 In this Part, we discuss the problems that prevented us from providing a more detailed and precise analysis of the cost and time frame performance of the selected defence acquisition projects. We recognise that, when the defence agencies' reporting systems were introduced, they were not designed to monitor the progress of projects in the way that we expected. However, we still expected that the information we were looking for would have been more readily available and easier to extract.
- 3.2 As we highlighted in Part 2, there were changes to the costs and time frames between the Approval to Commence and Approval to Commit points for each of the 10 selected defence acquisition projects. Such changes are to be expected because the cost and delivery time frames become more precise during the acquisition process.
- 3.3 Changes can be caused by a range of factors, including:
- improved knowledge of available equipment or systems;
 - contract negotiations;
 - production difficulties;
 - greater awareness of logistic support requirements and costs;
 - personnel and training needs;
 - specification changes; and
 - foreign exchange fluctuations.
- 3.4 It is important for the defence agencies to maintain information so that they can monitor and report changes, and are able to explain the reasons for changes to Ministers, Parliament, and other stakeholders. This is the essence of accountability, and will provide confidence to readers of the reports that the defence agencies are appropriately managing projects through the acquisition process.
- 3.5 In compiling the information for each project, we had difficulty:
- getting information on the reasons for changes to estimated costs, time frames, and essential user requirements;
 - accurately identifying the approval points for some projects; and
 - extracting and interpreting historical information.

3.6 These difficulties have implications for the transparency of the acquisition process. There is also a risk that the outcome of an acquisition is a capability that does not meet the essential user requirements that were defined by the NZDF at the start of the project.

Difficulty getting information about the reasons for changes

3.7 The Ministry's financial reporting system is designed to monitor expenditure against the budget that Cabinet approved for each defence acquisition project. From this system, we were able to identify high-level differences between the current costs for project main line items (for example, the prime contract and ancillary contracts) and the budget approved by Cabinet. However, this system does not identify the reasons for changes between expenditure categories. Some of this information is available from the responsible project manager's working files. However, some of these files are held offshore (in cases where the project manager is based overseas) and do not monitor changes between expenditure categories consistently or comprehensively. We encountered similar problems when we tried to ascertain changes in time frames and essential user requirements.

3.8 As an example, we tried to ascertain the changes in cost for the Medium Range Anti-Armour Weapon project. Between Cabinet's Approval to Commence in December 2002 and the Approval to Commit point in December 2003, the estimated cost of the project increased from \$21.5 million to \$23.9 million (an increase of \$2.4 million). As at June 2007, the forecast cost to complete the project had reduced to \$21.9 million (a decrease of \$2 million). By December 2007, the forecast had again risen to \$23.9 million. We were unable to identify the reasons for all of the cost movements using the Ministry's project files and financial reports.

3.9 The \$2.4 million increase in estimated cost between the Approval to Commence and Approval to Commit points included savings from favourable exchange rates (a decrease of \$3.7 million) and an increase in the cost of various project line items (an increase of \$6.1 million). Of the \$6.1 million, we were able to find reasons for an increase of \$0.5 million,² leaving \$5.6 million that the Ministry's project manager could not explain in any further detail. The project manager assumed that the increase was the result of the supplier providing more accurate costs at the Approval to Commit point.

3.10 As at June 2007, the project was forecast to be \$2 million under budget. We tried to identify the reasons for this. There were savings because of favourable exchange rates (a decrease of \$2 million), and reductions in the prime contract, ancillary contracts, and project

² This \$0.5m was made up of price increases for some project items, and savings in other areas of the project. Reasons for the changes included:

- price increases for weapons systems, missiles, and simulation and training equipment;
- reduced costs for depot level support, transportation, training, and testing;
- purchase of additional spare parts and equipment; and
- an increased budget for the Ministry's project administration and infrastructure requirements.

management costs (decreases of \$0.5 million, \$1.7 million, and \$1 million respectively). Those savings were partly offset by an increase (\$3.2 million) in the budgeted contingency funding committed or forecast to be spent, leaving the project \$2 million under budget. We were unable to find detailed reasons for the savings under ancillary contracts and project management, because the Ministry's finance and acquisition project management systems did not monitor costs at the level of detail that we required.

Difficulty accurately identifying approval points for some projects

- 3.11 We have used the Approval to Commence point as the baseline approval point for each project. This is one of the main milestones set out in the CMF. Not all of the projects included in our audit were approved under the CMF. Some pre-dated it, and for those projects it was sometimes difficult to identify the historical approvals that corresponded to the CMF's milestones, because the approvals were not always clearly documented.
- 3.12 For example, the Very Low Level Air Defence Alerting and Cueing System (VACS) was originally a component of the Very Low Level Air Defence (VLLAD) project to procure short-range anti-aircraft missiles for the Army. The project was first approved in June 1994. In August 1996, the project was split into two parts: one to procure the missiles and launchers, and the other to procure a radar alerting and cueing system to identify hostile aircraft and assign missiles to target them (the VACS). The delivery of missiles and launchers was completed in April 1998. However, no suitable VACS was available. The Ministry told us that the VACS part of the project was cancelled, and a new project to procure a VACS started in 2002.
- 3.13 The Ministry's documentation did not clearly show the cancellation of the VACS part of the original VLLAD project and the start of the new project, including the dates when each happened. Therefore, it was not possible to formally identify the Approval to Commence point for the revived VACS project. For our analysis, we have used the cost and time frame given in the 2002 LTDP. Assessing the timeliness of the VACS project against the original June 1994 approval would show the overall project performance in a poor light, and one that does not reflect the more recent performance of the project.

Difficulty extracting and interpreting historical information

- 3.14 Information about some of the defence acquisition projects is dated. For example, the VACS and the Medium Range Anti-Armour Weapon projects began in the 1990s. Extracting the necessary information from the extensive project files proved very time-consuming. The information often required interpretation, based on an in-depth knowledge of the project, to extract the relevant details for our audit. We did not have that in-depth knowledge and, in some cases, project managers with the relevant historical knowledge had left the Ministry.

3.15 We expected the Ministry to have information in a format that we could readily access and understand. Because the information was not readily accessible, the NZDF, as the end user, may also not have adequate access to information about whether the acquisition process will deliver a capability that meets its requirements.

The Ministry's reporting of the progress of acquisition projects

3.16 To compile the information in Part 2, we examined the Ministry's internal financial reporting of the progress of projects, which was also reported in the Ministry's annual report. In our view, both could be more complete and clearer in conveying the progress of projects. Our concern is that the Ministry could report more information on project progress, not that the reported figures are inaccurate.

3.17 The format of the Ministry's internal reporting and its annual report is very similar. Both present highly aggregated information and are arranged by "total approved cost" and "total forecast to complete":

- The total approved cost reflects the cost defined at the Approval to Commit point, factoring in any foreign exchange changes (which are costs outside the Ministry's control).
- The total forecast to complete is made up of expenditure to date, future commitments and forecasts, and Goods and Services Tax.

3.18 However, a significant difference between the reports is that the annual report does not show the "total cost variance" that is included in the internal report. The total cost variance is the difference between the approved cost and forecast to complete. Figure 4 shows the internal report and annual report extract produced for the C-130 Life Extension project.

Figure 4
Illustration of the Ministry's internal report and annual report information for the C-130 Life Extension project

Internal report format (June 2007)

Annual report 2007 format

Ministry Of Defence - Project Status Report			\$
Project	C130 Hercules Life Extension Study		
Project Summary			
Project approval	233,739,000	Project approval	233,739,000
Foreign exchange variance	(2,716,571)	Foreign exchange variances to date and forecast to complete	(2,716,571)
GST	29,217,000	GST	29,217,000
Total approved cost	260,239,429	Total approved cost	260,239,429
GST exclusive		GST exclusive	
Expenditure to date	162,044,047	Expenditure to 30 June 2006	109,851,485
Future commitments	52,544,148	Expenditure 2006/07	52,192,582
Future forecasts	16,345,312	Future commitments and forecasts	68,889,460
	230,933,507		230,933,507
GST		GST	
Expenditure to date	243,647	GST to 30 June 2006	110,175
Future forecasts	28,973,350	Expenditure 2006/07	133,472
	29,216,997	Future commitments and forecasts	28,973,350
Total forecast to complete	260,150,504		29,216,997
Cost variance		Total forecast cost to complete	260,150,504
Project variance	88,922		
GST variance	3		
Total cost variance	88,925		

- 3.19 For the 10 selected projects, we reviewed information from the Ministry's internal financial status reports (as at the end of June 2007) to see what total cost variance was reported between the Approval to Commit point and the cost forecast at the end of June to complete the project. We note how small the variance was for each project, with each project reported to be under budget.
- 3.20 Figure 5 shows the reported cost variations and the percentages of the approved costs they represent. Two projects are not included – the Training/Light Utility Helicopter had not reached the Approval to Commit point as at the end of June 2007, and the Improvised Explosive Device Disposal project is managed by the NZDF.

Figure 5
Reported cost variations and their percentage of project approval, as at June 2007

Project	Total cost variation (including GST)	Total cost variation as a percentage of project approval
Medium Utility Helicopter	\$1,230	0.0002%
Multi-Role Vessel and Patrol Vessels (Project Protector)	\$9,665	0.002%
P-3 Systems Upgrade	\$1,185,635	0.3%
C-130 Life Extension	\$88,925	0.04%
Boeing 757 Acquisition and Modification	\$978	0.0004%
Light Operational Vehicle	\$23,474	0.03%
Medium Range Anti-Armour Weapon	\$555	0.002%
Very Low Level Air Defence Alerting and Cueing System	\$367	0.003%

Source: The Ministry of Defence's Financial Status Reports.

3.21 The Ministry's practice of entering into firm fixed-price contracts, where the risk is borne by the contractor, provides a reason for the variations being so small. However, without access to more complete information, we cannot confirm whether the defence agencies have made capability and/or time trade-offs to remain within the approved budget. In our view, the Ministry's reports do not provide some important and useful information. For example, they do not show:

- what cost changes there have been compared with budgeted costs to make up the overall variance, and the reasons for the changes;
- how much of the project contingency has been used;
- how much of future expenditure is uncommitted; and
- how foreign exchange fluctuations have affected project costs set at the Approval to Commit point.

Use of project contingency and savings against budget

3.22 The project contingency for the Medium Range Anti-Armour Weapon was used to retain savings from other budget lines (see paragraph 3.10). It is sensible to retain savings from budget lines to use for any unexpected costs. However, the practice of placing those saved funds in the contingency reduces the transparency of project changes, especially savings.

3.23 In our view, information about how much of the contingency has been used, and what savings on budgeted costs have been made to date, could usefully be separately identified in the Ministry's internal and external reports. Instead, contingency expenditure and budget savings are included within the aggregated "future commitments and forecasts" figure in the

Ministry's reports. Because the use of the contingency fund and any savings on budget lines are not reported separately, the Ministry's reports do not transparently show that projects may be underspent, as happened with the Medium Range Anti-Armour Weapon project. Equally, any overspending that has been managed by the project manager re-assigning savings from elsewhere or by favourable foreign exchange fluctuations is not transparent.

Uncommitted expenditure

- 3.24 The Ministry's reports on the projects do not distinguish between future expenditure that is committed to be spent under contracts that are in place, and future expenditure that is forecast as being required to complete the projects but has not yet been committed to under contract. Separately identifying these two types of expenditure – and identifying early where forecast expenditure may not be required – could be useful to the NZDF in deciding how to re-allocate any uncommitted funds.

Reporting foreign exchange fluctuations

- 3.25 Foreign exchange fluctuations are a standard feature of projects that span several years and currencies. The cost of the fluctuations is forecast, included as part of the total cost of the project, and submitted to Cabinet when the Ministry seeks its Approval to Commit. However, accounting for subsequent foreign exchange fluctuations in the Ministry's reporting is complicated.
- 3.26 When there is a favourable change in the foreign exchange rate, the saving is deducted from the project's total approved cost. When the change is unfavourable, the loss is added to the project's total approved cost. Therefore, the total approved cost of a project increases or decreases according to foreign exchange fluctuations. In our view, a project's total approved cost should be reported as a constant.
- 3.27 Figure 6 shows how foreign exchange fluctuations affect the total approved cost of the selected defence acquisition projects reported by the Ministry in its 2005, 2006, and 2007 annual reports. The Figure does not include three projects from our selection:
- The Medium Utility Helicopter project is not included because its total cost had not been defined until the period covered by the 2007 annual report.
 - The Training/Light Utility Helicopter is not included because contract negotiations had not been completed at the time of the 2007 annual report.
 - The Improvised Explosive Device Disposal project is not included because it is managed by the NZDF.

Figure 6
Effect of foreign exchange fluctuations on the total approved cost (including GST) for the selected defence acquisition projects

Project	2005 annual report (\$m)	2006 annual report (including the change in \$m from 2005)	2007 annual report (including the change in \$m from 2006)
Multi-Role Vessel and Patrol Vessels (Project Protector)	558.2	558.8 (+0.6)	558.8 (0)
P-3 Systems Upgrade	393.7	394.0 (+0.3)	391.3 (-2.7)
C-130 Life Extension	261.1	261.4 (+0.3)	260.2 (-1.2)
Boeing 757 Acquisition and Modification	235.6	248.5 (+12.9)	247.3 (-1.2)
Light Operational Vehicle	106.2	106.4 (+0.2)	106.3 (-0.1)
Medium Range Anti-Armour Weapon	25.1	24.8 (-0.3)	24.9 (+0.1)
Very Low Level Air Defence Alerting and Cueing System	15.8	15.9 (+0.1)	16.0 (+0.1)
TOTAL	1595.7	1609.8 (+14.1)	1604.8 (-5)

- 3.28 Figure 6 shows how the total approved cost of the selected projects changed because of foreign exchange fluctuations. When compared with the total cost of the projects, the changes are not significant. However, the changes for individual projects can be significant. For example, the total approved cost for the Boeing 757 Acquisition and Modification project changed by about \$13 million between the 2005 and 2006 annual reports.
- 3.29 We are satisfied that the Ministry is managing its exposure to foreign currency fluctuations appropriately. However, we consider that the Ministry can improve its reporting on the effect these fluctuations have on a project's cost. Because the Ministry's submissions to Cabinet at the Approval to Commit point include the forecast cost of foreign exchange fluctuations, the subsequent effect of actual changes should be shown separately as a variation to the cost that Cabinet approved.
- 3.30 Our concern, which is shared by the Treasury, is that the Ministry's current practice is to report the actual change in a "floating" total approved cost. This approach reduces the transparency of how foreign exchange fluctuations affect the cost of individual projects, and the projects overall. In our view, the Ministry's reporting should show the fluctuations as part of the overall cost variance. We were told that the Ministry is reconsidering its approach to reporting project costs. This is one area that the Ministry could usefully review.

Part 4: Plan to improve progress reporting on defence acquisition projects

- 4.1 In Parts 2 and 3, we described the current limitations in the quality and amount of information on progress against approved costs, time frames, and essential user requirements for defence acquisition projects. In this Part, we describe our plan for working with the defence agencies to improve their reporting about the progress of these projects.
- 4.2 We intend to work with the defence agencies during the next two financial years to make the changes needed to improve the quality, transparency, and usefulness of their reporting about defence acquisition projects.
- 4.3 Our work with the defence agencies will be in two stages. We will reconsider our approach after stage 1.
- 4.4 In stage 1, we will look at how well the defence agencies' reporting of the progress of defence acquisition projects meets the information requirements of internal and external stakeholders, and recommend improvements where necessary.
- 4.5 In stage 2, we will consider, with the defence agencies and other stakeholders, how we can ensure that the recommended improvements are made so that a more effective and useful reporting framework is created.

Stage 1: Meeting the information requirements of stakeholders

- 4.6 The main focus of stage 1 will be on how well the defence agencies meet the information requirements of internal and external stakeholders, including Parliament, when reporting the progress of defence acquisition projects. This was part of our original audit, but the difficulties we encountered with the Ministry's information systems have made it a necessary first step towards our long-term objective of providing Parliament with assurance about the management of defence acquisition projects.
- 4.7 We will examine the defence agencies' project monitoring and reporting systems to identify the improvements needed. As part of that work, we will seek the Committee's and other stakeholders' views on the quality of the existing reporting, particularly its strengths and weaknesses. We will gather views on the information stakeholders would like to receive on project progress. We will then be able to establish what changes are required to the defence agencies' systems to enable them to produce the type of information that internal and external stakeholders consider should be reported.

Stage 2: Future reporting about acquisition projects

- 4.8 Depending on the findings from stage 1, we will then consider, with the defence agencies and relevant external stakeholders, what further work we may need to do to ensure that the defence agencies' reporting is useful for them and for others.
- 4.9 In encouraging the defence agencies to create a revised reporting framework, we will need to take account of New Zealand's defence acquisition environment, defence acquisition project reporting practices in other jurisdictions (for example, the United Kingdom and Australia), and the implications of the Treasury's Capital Asset Management Review. This approach will ensure that the framework is relevant and practical.
- 4.10 We intend to use our annual plans to keep Parliament and other interested parties informed about the progress we and the defence agencies make against this plan.

Appendix – Supporting detail about the selected defence acquisition projects

In this Appendix, we present the detailed information supporting our findings in Part 2. For each of the 10 selected projects, we describe:

- the project's purpose and history, and how it has progressed through the acquisition process; and
- the changes to project costs and time frames, presented in two tables.

The first table shows the costs and time frames estimated at the Approval to Commence and Approval to Commit points, and the Ministry's forecast to the Committee in December 2007.

There are two exceptions. The NZDF manages the Improvised Explosive Device Disposal project, so for that project we show instead the information the NZDF provided to us in April 2008. The contract negotiations for the Training/Light Utility Helicopter had not been completed by December 2007, so for that project we show the cost and time frame changes between the Approval to Commence and Approval to Commit points.

The second table shows how much the costs and time frames changed between these points.

In paragraphs 2.4-2.5, we said that we had to make some assumptions before we could analyse how projects had progressed against the costs and time frames set at the Approval to Commence point. In the tables of information for each project, we name the sources we used for the figures. We have also noted where our figures differ from those the Ministry reported to the Committee in December 2007.

Medium Utility Helicopter and Training/Light Utility Helicopter

Project purpose and history

The purpose of these projects is to replace 14 Iroquois helicopters with eight NH90 Medium Utility Helicopters, and replace the Sioux helicopters with five Agusta-Westland A109 Training/Light Utility Helicopters and a flight simulator. Unlike the rest of the report, we have grouped the Medium Utility and Training/Light Utility Helicopter projects in this section. The two helicopter types are part of the same project – NZDF Helicopter Capability. However, the two types had separate references in the 2006 LTDP, and have followed different acquisition paths and timing. We reflect here the shared history of the helicopters, and the rest of the report shows their progress as separate parts of the combined project.

Since the mid-1960s, a fleet of 14 Bell UH-1H Iroquois aircraft have provided the utility helicopter capabilities of the NZDF. Five Bell B47G Sioux aircraft have provided helicopter training requirements. After more than 40 years' service, both types of helicopter are approaching or are at the limits of safe and economic operation. Neither type can meet the NZDF's current and future helicopter requirements, which include:

- lifting heavier loads over longer distances;
- operating in adverse weather and at night; and
- providing lead-in training for both the new Medium Utility helicopter and the Seasprite SH 2G operated by the Royal New Zealand Navy.

On 3 December 2003, Cabinet approved the Ministry going to the industry to explore options for both the Medium Utility Helicopter and the Training/Light Utility Helicopter capabilities. At that point, the capabilities were estimated to cost between \$400 million and \$550 million for the Medium Utility Helicopters and \$11 million for the Training/Light Utility Helicopters.

A contract for the acquisition of eight NH90 Medium Utility helicopters, spares (including another airframe for parts), and training was signed on 31 July 2006 (see the Ministry's *Annual Report for 2006*, page 37).

On 30 October 2007, the Minister of Defence announced that Cabinet had approved the start of contract negotiations for five Agusta-Westland A109 Training/Light Utility Helicopters and a flight simulator to meet the NZDF's requirements. A contract was signed on 8 May 2008.

The tables below for the Training/Light Utility Helicopter project show the changes in costs and time frames between the Approval to Commence and Approval to Commit points only. This is because, unlike the other selected projects, this project's Approval to Commit came after the Ministry's December 2007 report to the Committee.

Cost and time frame changes for the Medium Utility Helicopter

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$400m to \$550m ¹	\$771.7m ²	\$771.7m
Time frame	Around 2007 ³	All deliveries by mid-2011	All helicopters by mid-2011

Sources

- 1 We use the range from the Cabinet approval of 3 December 2003, which cited the 2003 LTDP. When the Ministry reported to the Committee in December 2007, it used the 2004 LTDP range (\$400 million to \$550 million) for both the Medium Utility Helicopter and Training/Light Utility Helicopter.
- 2 We use the cost in the contract, which was signed on 31 July 2006.
- 3 We use the 2003 LTDP because no time frame was given in the Cabinet approval.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$221.7m ¹	0	+\$221.7m
Time (months)	+42 ²	0	+42

Explanatory notes

- 1 This is the difference between the upper limit of the estimated range at the Approval to Commence point (\$550 million) and the Approval to Commit point (\$771.7 million).
- 2 This is the difference between the Approval to Commence point (around 2007 – so we have assumed that this means the end of 2007) and the Approval to Commit point (mid-2011 – so we have assumed that this means the end of June 2011).

Cost and time frame changes for the Training/Light Utility Helicopter

Costs and time frames at the Approval to Commence and Approval to Commit points

	Approval to Commence point	Approval to Commit point
Cost (excluding GST)	\$110m ¹	139.3m ³
Time frame	During 2008 ²	Enter into service in 2011 ⁴

Sources

- 1 We use the figure from the Cabinet approval of 4 September 2006. We note the significant increase in the defence agencies' estimate of cost between the 2002 and 2006 LTDPs (an increase of \$99 million, from \$11 million to \$110 million). The defence agencies advised that the estimate in the 2002 LTDP was based on an "off-the-shelf" civil helicopter. The 2006 LTDP estimate was informed by technical changes to the Medium Utility Helicopter project that meant that an "off-the-shelf" civil helicopter would no longer meet the NZDF's training needs, and that a militarised helicopter would be sought at additional cost. Cabinet noted that the \$110 million figure was an approximate cost, subject to confirmation after further discussions with manufacturers and suppliers.
- 2 We use the figure from the 2006 LTDP because there was no indication of timing in the Cabinet approval.
- 3 We use the approval signed by the Ministers of Defence and Finance (Joint Ministers) on 29 and 30 April 2008 respectively, as authorised by Cabinet.
- 4 We use the Minister of Defence's press release marking the signing of the contract on 8 May 2008. This is because there was no indication of timing in the Joint Ministers' approval.

Changes to costs and time frames as the project has progressed

	Approval to Commence to Approval to Commit points
Cost (excluding GST)	+\$29.3m ¹
Time (months)	+36 ²

Explanatory notes

- 1 This is the difference between the Approval to Commence point (\$110 million) and the Approval to Commit point (\$139.3 million).
- 2 This is the difference between the Approval to Commence point (during 2008 – so we have assumed that this means the end of 2008) and the Approval to Commit point (enter into service in 2011 – so we have assumed that this means the end of 2011).

Multi-Role Vessel and Patrol Vessels (Project Protector)

Project purpose and history

The purpose of this project is to replace HMNZS *Canterbury* with a Multi-Role Vessel, and introduce a mix of offshore and inshore patrol capabilities through the purchase of two Offshore Patrol Vessels and four Inshore Patrol Vessels.

The Defence Policy Framework released in June 2000 noted that there was a strong case for having an enhanced military maritime patrol capability. It was envisioned that this might include medium-sized lightly-armed patrol vessels operated by the Royal New Zealand Navy (but also with specialists from other government agencies such as the New Zealand Customs Service), as well as a Multi-Role Vessel more than 100 metres long for operating in the South Pacific and the Southern Ocean/Antarctic Ocean.

On 17 December 2001, Cabinet directed the Ministry, with the NZDF and other departments and agencies as appropriate, to seek proposals from manufacturers and suppliers to meet the requirements for a Multi-Role Vessel, and offshore and inshore patrol capabilities. The overall cost of the project was not to exceed \$500 million (with a US\$100 million cap for the Multi-Role Vessel).

The Ministry identified Tenix Defence Pty Limited of Australia (Tenix) as the preferred tenderer. After discussions with other agencies and analysis by the Ministry, Cabinet considered two options for the Project Protector fleet on 17 May 2004. These were:

- option A: To accept the Tenix proposal for one Multi-Role Vessel, two Offshore Patrol Vessels, and four Inshore Patrol Vessels at a proposed price of NZ\$458 million; and
- option B: To seek an extension to the Tenix proposal until 31 August 2004, to permit full evaluation of fleet mix and long-run cost implications, at an additional likely cost of \$16.35 million if the same fleet composition was retained.

On 19 May 2004, having been authorised by Cabinet, the Cabinet Policy Committee accepted option A, and granted Ministers powers to approve the final contract within the agreed budget of \$500 million. Subsequent required changes to the Tenix proposal³ and the addition of the Ministry's project management costs meant that the forecast cost of the acquisition increased from \$458 million to \$499.7 million by the time the contract was signed in July 2004.

³ The changes ranged from minor layout changes to more significant changes (like the need to store and circulate aviation fuel on the Multi-Role Vessel, extended fire protection systems, and the modification of loading/unloading cranes).

Cost and time frame changes for Project Protector

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	Cost not to exceed \$500m ¹	\$499.7m	\$499.7m ³
Time frame	Multi-Role Vessel 2005 Patrol Vessels not stated	Acceptance date for the Multi-Role Vessel would be 13 December 2006, with the last Patrol Vessel to be accepted 28 December 2007 ²	Multi-Role Vessel delivered June 2007. All ships expected to be delivered by October 2008

Sources

- 1 We use the figure from the Cabinet approval of 17 December 2001. The Ministry cited the \$500 million figure from the 2003 LTDP.
- 2 We use the figures from the contract signed on 28 July 2004.
- 3 The Treasury understands that the defence agencies, after the Ministry's December 2007 forecast, have found that their project commitments now exceed the project's budget. The defence agencies have advised us that Ministers have been informed of the project's cost and time situation.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	-\$0.3m	0	-\$0.3m
Time (months)	+12 for the Multi-Role Vessel ¹ Not defined for the Patrol Vessels	+6 for the Multi-Role Vessel ² and +10 for the Patrol Vessels ³	+18 for the Multi-Role Vessel and +10 for the Patrol Vessels

Explanatory notes

- 1 This is the difference between the Approval to Commence point (2005 – so we assume the end of 2005) and the Approval to Commit point (December 2006).
- 2 This is the difference between the Approval to Commit point (December 2006) and Ministry's December 2007 forecast (delivered June 2007).
- 3 This is the difference between the Approval to Commit point (28 December 2007) and the Ministry's December 2007 forecast (all ships expected in October 2008).

P-3 Systems Upgrade

Project purpose and history

The purpose of this project is to upgrade the mission, and communications and navigation systems, of six P-3 Orion aircraft.

In August 2000, Cabinet agreed that New Zealand's future requirements for maritime patrol included a wide range of civilian functions (including surveillance for fisheries, resource management, conservation, immigration, customs, maritime safety, and search and rescue purposes).

Cabinet then agreed in April 2001 that the P-3 Orions be retained to:

- provide a long-range air patrol capability to meet civilian requirements;
- provide a contingent military capacity against surface targets; and
- contribute to the Government's foreign and security policy objectives in the South Pacific and the Asia-Pacific region.

Cabinet also agreed that a limited upgrade for the P-3 Orions be progressively implemented, using good quality commercial systems wherever possible (giving priority to those systems that will provide an appropriate and affordable set of sensors to perform these tasks).

The 2002 LTDP estimated that the P-3 Mission Systems Upgrade would cost between \$151 million and \$221 million, depending on which of three options was selected. Briefing documents supporting the plan noted that the P-3's communications and navigation systems also needed to be upgraded and that this was likely to be addressed as a separate project at the same time as upgrading the C-130 Hercules' systems.

On 4 December 2002, the Cabinet External Relations and Defence Committee authorised the Ministry to seek tenders from industry for all three Mission Systems Upgrade options and the immediate communications and navigation systems upgrade. This Approval to Commence acquisition was confirmed by Cabinet on 9 December 2002.

After the tender process, the Ministry recommended, in August 2004, that Cabinet select the Mission Systems option providing an upgrade that would meet all civilian requirements and the Government's defence policy objectives, along with a full communications and navigation upgrade and a flight deck trainer. The indicative total cost for the P-3 Systems Upgrade was NZ\$354.3 million. The Ministry noted that, although this exceeded the LTDP and forecasts from previous Cabinet papers, it thought that the project could be managed within the overall funding envelope of the LTDP (that is, possibly by delaying the start of other projects in the LTDP).

Cabinet gave approval for the project to proceed and delegated responsibility for giving Approval to Commit to a contract to the Ministers of Finance and Defence, which occurred in

September 2004. After negotiations, the total acquisition cost for the project was set at \$373.1 million. The contract was signed by the Minister of Defence on 5 October 2004.

Cost and time frame changes for the P-3 Systems Upgrade

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$170m-\$221m for the mission systems upgrade, and \$61m for communication and navigation systems upgrade, ¹ so \$231m-\$282m in total	\$373.1m for the mission and communication and navigation systems upgrades (includes estimated cost of forward cover) ³	\$373m
Time frame	2006 for the first upgraded aircraft ¹ 2008/09 for the last upgraded aircraft ²	The first modified aircraft was scheduled to be accepted into service in 2008, with the last at the end of 2010 ³	All aircraft delivered by early 2011

Sources

- 1 We use the figures from the Cabinet approval of 9 December 2002. The Ministry uses the 2003 LTDP.
- 2 Because there was no indication of timing for the last aircraft in the Cabinet approval, we have used the figure from the 2003 LTDP.
- 3 We use the figure from the decision of the Ministers of Finance and Defence (as approved by Cabinet) of 23 September 2004.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$91.1m ¹	-\$0.1m ⁴	+\$91m
Time (months)	+24 for the first aircraft ² +18 for the last ³	+3 for the last aircraft ⁵	+24 for the first aircraft and +21 for the last

Explanatory notes

- 1 This is the difference between the upper limit of the estimated range at the Approval to Commence point (\$282 million) and the Approval to Commit point (\$373.1 million).
- 2 This is the difference between the Approval to Commence point (2006 for the first aircraft – so we have assumed that this means the end of 2006) and the Approval to Commit point (2008 for the first aircraft– so we have assumed that this means the end of 2008).

- 3 This is the difference between the Approval to Commence point (2008/09 for the last aircraft – so we have used the end of June 2009) and the Approval to Commit point (the end of 2010).
- 4 This is the difference between the Approval to Commit point (\$373.1 million) and the Ministry's December 2007 forecast (\$373 million).
- 5 This is the difference between the Approval to Commit point (the end of 2010) and the Ministry's December 2007 forecast (early 2011 – so we have assumed that this means the first quarter of the year).

C-130 Life Extension

Project purpose and history

The purpose of this project is to upgrade and extend the life of five C-130 Hercules aircraft to 2017, to improve aircraft availability and reliability.

The *Government Defence Statement: A Modern, Sustainable Defence Force Matched to New Zealand's Needs* (8 May 2001) noted that the C-130 Hercules fleet would be upgraded or replaced.

On 22 May 2002, Cabinet's Policy Committee noted that the LTDP had mentioned that, among other projects, the C-130 replacement/upgrade project was necessary to avoid a failure of Government policy.

A Fixed Wing Transport Review was initiated by the joint Ministry/NZDF Office of the Chief Executives on 18 July 2002 to consider the C-130 replacement/upgrade project and the Boeing 727 replacement project. In November 2002, the review report recommended that the existing fleet of C-130s be upgraded for a planned 15 years (rather than be replaced with a more modern version).

On 18 November 2002, Cabinet endorsed the conclusions of the review and authorised the Ministry to seek proposals for upgrading the five C-130 aircraft for a life extension of 15 years, at a likely cost of about \$252 million.

After a lengthy tender process, the Ministry sought and obtained Cabinet approval on 11 October 2004 (confirming a decision by the Cabinet Policy Committee of 6 October 2004) for contract negotiations to start with L3 Communications Spar Aerospace. Cabinet approval was given in December 2004 for the Ministry to enter into a contract with L3 Communications Spar Aerospace. The contract was signed on 14 December 2004.

Cost and time frame changes for the C-130 Life Extension project

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$252m (including \$119m for the communication and navigation system upgrade) ¹	\$233.7m ³	\$233m ⁴
Time frame	The prototype aircraft would be delivered in the first half of 2007, with the last in the third quarter of 2009 ²	The prototype aircraft would be delivered in 2007, with the last during 2010 ³	All aircraft delivered by the second quarter of 2011

Sources

- 1 We use the figures from the Cabinet approval of 18 November 2002. The Ministry uses the \$200 million to \$320 million range from the 2004 LTDP.
- 2 Because there was no reference to timing in the November 2002 Cabinet approval, we use the figure from Cabinet's "Approval to Commit to Contract Negotiations" of 11 October 2004.
- 3 We use the figures from the Cabinet Approval to Commit of 6 December 2004.
- 4 The Ministry reported a forecast cost of \$254.2 million, including \$21.2 million for a self-defence upgrade that was approved in May 2007. For our analysis, we exclude that upgrade because it was not part of the original project.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	-\$18.3m	-\$0.7m	-\$19m
Time (months)	+15 for all aircraft ¹	+6 for all aircraft ²	+21 for all aircraft

Explanatory notes

- 1 We have had to assume the difference between the Approval to Commence point (the third quarter of 2009 – so we use the end of September) and the Approval to Commit point (during 2010 – so we use the end of 2010).
- 2 We have had to assume the difference between the Approval to Commit point (during 2010 – so we use the end of 2010) and the Ministry's December 2007 forecast (the second quarter of 2011 – so we use the end of June 2011).

Boeing 757 Acquisition and Modification

Project purpose and history

The purpose of this project is to acquire and modify two Boeing 757-200 aircraft to replace two ageing Boeing 727s. Modifications to the 757 aircraft were required to meet the NZDF's capability requirements.

The *Government Defence Statement: A Modern, Sustainable Defence Force Matched to New Zealand's Needs* (8 May 2001) noted that a study would be completed to identify the options for replacing the Boeing 727 transport planes, including ownership or the possibility of leasing or chartering.

On 22 May 2002, Cabinet's Policy Committee noted that the LTDP had mentioned that, among other projects, the Boeing 727 replacement project was necessary to avoid a failure of Government policy.

A Fixed Wing Transport Review was initiated by the joint Ministry/NZDF Office of the Chief Executives on 18 July 2002 to consider the Boeing 727 replacement project and the C-130 replacement/upgrade project. In November 2002, the review report recommended that the Boeing 727s be replaced by the purchase of two secondhand Boeing 757s, modified for strategic transport tasks.

Two secondhand Boeing 757-200 aircraft were purchased from General Electric Capital Aviation Services in early 2003. They were operated by the Royal New Zealand Air Force in a passenger-only configuration while negotiations continued with potential contractors for the modification work.⁴

Singapore Technologies Aerospace/Mobile Aerospace Engineering was initially selected as the preferred prime contractor for the modifications, which were to start in 2006. However, Mobile Aerospace Engineering was selected as the prime contractor, with specialist design and support from Boeing Commercial and Boeing Integrated Defence Systems. Modification of the first aircraft started in early 2007, with modification of the second aircraft to be completed by 2008.⁵

⁴ Modification work included installing a cargo door, internal access air stairs, internal aircrew access ladder, increased engine thrust, and upgraded civil communication, navigation, surveillance/air traffic management, and military communications capabilities.

⁵ According to acquisition progress information on the Ministry of Defence's website (www.defence.govt.nz).

Cost and time frame changes for the Boeing 757 Acquisition and Modification project

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$199.3m ¹	\$220.6m (\$108.2m for purchase and \$112.4m for modification) ³	\$220.6m
Time frame	Mid-2004 ²	June 2007 ³	Both aircraft expected to be modified by June 2008

Sources

- 1 We use the figures from the Cabinet approval of 18 November 2002. The Ministry cites the \$100 million to \$200 million range from the 2002 LTDP for cost, and the 2004 LTDP figures for time frames (aircraft purchased by mid-2003 and modification complete by mid-2006).
- 2 All of the funding in the approval paper was planned for 2002/03 and 2003/04, indicating that completion was expected by mid-2004. It was also indicated that the modification of each aircraft could take four months and that the programme could be delayed until late 2004.
- 3 We use the figures from the Cabinet approvals of 18 February 2003 and 8 August 2005.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$21.3m	0	+\$21.3m
Time (months)	+36 ¹	+12	+48

Explanatory notes

- 1 We have had to assume the difference between the Approval to Commence point (mid-2004 – so we use the end of June 2004) and the Approval to Commit point (of June 2007).

Light Operational Vehicle

Project purpose and history

The purpose of this project was to acquire a fleet of Light Operational Vehicles to replace the Army's Land Rovers, which were overdue for replacement. Our analysis focused on the military vehicles purchased as part of the project.

In late 1999 to early 2000, the Ministry asked for tenders for non-military and military vehicles. The estimated cost of the project at that time was \$59.9 million (\$56.1 million for the military vehicles and \$3.8 million for the non-military vehicles). No compliant bids were received, so the Ministry asked the Army to review its statement of requirements for the vehicles.⁶ The Ministry considers that the project was cancelled, but we could not verify this through the Ministry's documentation.

After the Army completed its review of the statement of requirements, including an independent verification and validation by a consultant, the Ministry confirmed the availability of vehicles that would meet the Army's mobility requirements, and approached the market for a second time in mid-2002 with a revised specification. Tenders were sought for two alternatives: 308 vehicles capable of being fitted with armour and 36 sets of armour, or 83 permanently armoured vehicles and 225 non-armoured vehicles.⁷

After analysing the tenders, the Army reviewed the numbers and types of armoured and non-armoured vehicles required, bringing the total number of military vehicles to be acquired to 321. Tender requirements were amended to reflect these changes.⁸

While there was a clear winning bid for the non-armoured vehicles, further testing was required to gain enough assurance that the armoured vehicles from the same bidder met the "proven in service" criteria. The Minister of Defence decided to split the acquisition into two tranches because there was some urgency for the vehicles to be acquired.⁹ The Army was facing significant problems in maintaining its fleet of Land Rovers and these problems were affecting its ability to train and conduct exercises.¹⁰

⁶ Note by Minister of Defence to Chair of Cabinet External Relations and Defence Committee, 4 December 2000.

⁷ Note by Minister of Defence to Chair of Cabinet External Relations and Defence Committee, 4 December 2000.

⁸ Note by Minister of Defence to Chair of Cabinet External Relations and Defence Committee, November 2003.

⁹ Note by Minister of Defence to Chair of Cabinet External Relations and Defence Committee, November 2003.

¹⁰ Note by Minister of Defence to Chair of Cabinet External Relations and Defence Committee, November 2003.

A contract was signed with Automotive Technik Ltd in March 2004 for the supply of 188 Pinzgauer non-armoured military vehicles. After testing and evaluation confirmed that the armoured Pinzgauer met the Army's armour protection requirements, a further contract was signed with Automotive Technik Ltd in June 2004 for the supply of 133 Pinzgauer military vehicles, including 60 armoured vehicles. Deliveries to the Army began in October 2004 and were completed in 2006, except for one armoured vehicle that has been held by the supplier for testing. This vehicle was to be delivered in June 2008.

Cost and time frame changes for the Light Operational Vehicle project

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$56.1m ¹	\$93.3m consisting of the figures from the following Cabinet approvals: <ul style="list-style-type: none"> • first tranche of the military vehicles (\$46.3m)³ • second tranche of the military vehicles (\$47m)⁴ 	\$93.3m
Time frame	The capability would be effective by December 2000 ²	Third quarter of 2006	All deliveries completed in the first quarter of 2006 – delivery of one armoured vehicle held for testing by the supplier is expected June 2008

Sources

- 1 We use the figure from the Cabinet approval of 26 July 1999. The Ministry uses the \$60 million to \$110 million range from the 2002 LTDP.
- 2 We use the figure from the Army's Force Development Proposal dated 11 June 1999. The Ministry uses the mid-2006 timing from the 2004 LTDP.
- 3 We use the figure from the Cabinet approval of 3 December 2003.
- 4 We use the figure from the Cabinet approval of 16 June 2004.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$37.2m	0	+\$37.2m
Time (months)	+69 ¹	-6 ²	+63

Explanatory notes

- 1 We have had to assume the difference between the Approval to Commence point (December 2000 – so we use the end of December 2000) and the Approval to Commit point (the third quarter of 2006 – so we use the end of September 2006).
- 2 We have had to assume the difference between the Approval to Commit point (the third quarter of 2006 – so we use the end of September 2006) and the Ministry's December 2007 forecast (the first quarter of 2006 – so we use the end of March 2006).

Medium Range Anti-Armour Weapon

Project purpose and history

The purpose of this project was to acquire the Javelin “fire and forget” Medium Range Anti-Armour Weapon to negate threats from tanks and armoured vehicles at a distance of several kilometres.

The 2002 LTDP noted the need for a medium range anti-armour weapon to protect land forces from armoured threats. Cabinet granted Approval to Commence in December 2002 for a sole-source acquisition of this weapon (Javelin) through the United States Foreign Military Sales process. The Ministry started to negotiate with the United States Army in January 2003.

Approval to Commit was sought and obtained in December 2003, with Cabinet noting that the estimated cost had increased from the Approval to Commence point because of a previous reliance on 1998 cost estimates. At the Approval to Commit point, the cost of the project was estimated to be \$23.9 million.

There were two separate Foreign Military Sales agreements for the project. The first agreement was signed in December 2003 and covered the purchase and delivery of missile launchers, ammunition, and basic training and support equipment. Delivery was scheduled for July 2006 (31 months after the contract was signed). The second agreement covered the delivery of Javelin simulator equipment, training materials, and special tools. This was signed in June 2004, with delivery scheduled for January 2007 (31 months after the contract was signed). There was an intention to negotiate a third agreement for comprehensive maintenance support, but this was eventually deemed to be prohibitively expensive. Instead, additional spares were purchased.

Cost and time frame changes for the Medium Range Anti-Armour Weapon project

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$21.5m ¹	\$23.9m	\$23.9m
Time frame	Mid-2004 ²	Mid-2006	All equipment except the missiles were delivered in the second half of 2006, with the missiles delivered in October 2007

Sources

- 1 We use the figure from the Cabinet approval of 9 December 2002. The Ministry uses the \$10 million to \$22 million range from the 2002 LTDP.
- 2 The Ministry uses the 2004 LTDP for the Approval to Commence delivery timing (mid-2006) and the 2002 LTDP for the cost reference. The original Cabinet approvals do not give a time frame. Supporting papers for the Cabinet approval say that the acquisitions should ideally take place in the 2003/04 year, to coincide with the new Light Armoured Vehicle. Therefore, we use the end of June 2004.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$2.4m	0	+\$2.4m
Time (months)	+24 ¹	+16 ²	+40

Explanatory notes

- 1 We have had to assume the difference between the Approval to Commence point (mid-2004 – so we use the end of June 2004) and the Approval to Commit point (mid-2006 – so we use the end of June 2006).
- 2 We have had to assume the difference between the Approval to Commit point (mid-2006 – so we use the end of June 2006) and the Ministry's December 2007 forecast (delivered October 2007 – so we use the end of October 2007).

Improvised Explosive Device Disposal

Project purpose and history

The purpose of this project is to enhance the NZDF's existing Improvised Explosive Device Disposal (IEDD) capability and develop a credible chemical, biological, radiological, and conventional IEDD capability. Both capabilities cover detection, identification, field evaluation, rendering safe recovery, and final disposal.

In 1998, Cabinet directed the NZDF to provide the capability to render safe any explosive emergencies throughout New Zealand, including improvised explosive devices, by a specialised unit on a 24-hour basis, 365 days a year.

Cabinet directed that the NZDF should have IEDD teams located in Auckland, Wellington, and Christchurch. The desired response time was one hour for incidents within the central business districts, airports, and seaports of these cities. Cabinet also set a desired dispatch time of one hour for an IEDD team to depart to an incident anywhere else in New Zealand.¹¹

In October 2004, Cabinet approved the inclusion of an IEDD that could deal with chemical, biological, or radiological threats in the 2004 LTDP, at a cost of about \$25 million. Cabinet invited a report back from the Minister of Defence with options for an IEDD that could deal with chemical and biological threats, including more accurate costs and the source of funding, before seeking proposals from manufacturers and suppliers.

The subsequent report identified four options.¹² The estimated costs ranged between \$16.6 million and \$20.4 million,¹³ depending on the number of units required, their composition, and location.

On 7 March 2005, Cabinet approved the fourth option at an estimated cost of \$19.7 million. Cabinet also requested a report by 30 June 2005 on the need for, and the practicality and indicative cost of establishing, a radiological capability, as well as the operating and capital implications of establishing the IEDD capability

That report requested approval for capital expenditure of \$21.6 million, and operating funding up to \$8.9 million each year. It noted that, since the last Cabinet approval, the figures for the total cost of establishing a national IEDD that could deal with chemical, biological, radiological, and conventional explosive threats had been confirmed. The report also noted that training would be needed as well as the purchase of the equipment. There was likely to

¹¹ See draft Cabinet paper circulated within the NZDF before it was sent to external agencies for comment, dated 10 January 2005.

¹² Submission to the Cabinet Policy Committee "National Improvised Explosive Device Disposal Capability", pp 4-5.

¹³ We note that the costs in that Cabinet submission include GST, while other approvals exclude GST. For consistency, we express the costs without GST.

be a delay in acquiring and introducing into service some of the equipment, because of international demand. Accordingly, the delivery of the complete capability was estimated to be as late as the 2007/08 financial year. Cabinet agreed to the capital expenditure and operating funding in July 2005.

The Ministry's Evaluation Division completed a report on this acquisition (entitled *Introduction of Enhanced IEDD Capability*, dated 10 September 2007). The report concluded that the required infrastructure would be largely in place by early 2008, but because infrastructure costs were exceeding the budget there was likely to be a need for the NZDF to seek additional funds from Cabinet to complete the project.

At the time of the evaluation report, the target date for introducing the full capability into service was July 2010. The report noted that that timing was at risk because there were not enough suitably trained and qualified personnel.

Cost and time frame changes for the Improvised Explosive Device Disposal project

Costs and time frames at the Approval to Commence and Approval to Commit points, and the NZDF's forecast as at April 2008

	Approval to Commence point	Approval to Commit point	Current NZDF forecast
Cost (excluding GST)	\$19.7m	\$21.6m	NZDF advised in April 2008 that the budget of \$21.6 million was likely to be exceeded. The projected shortfall then was \$0.75 million
Time frame	No indication of timing ¹	Delivery of the complete capability was estimated to be as late as the 2007/08 financial year ²	July 2008 for the Directed Level of Operational Capability

Sources

- 1 Cabinet approval of 7 March 2005.
- 2 Cabinet approval of 25 July 2005.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to Approval to Commit point	Approval to Commit point to current NZDF forecast	Total change between the Approval to Commence point and the NZDF forecast
Cost (excluding GST)	+\$1.9m ¹	+\$0.8m ²	+\$2.7m
Time (months)	Not possible to calculate because there was no indication of timing in the Cabinet Approval to Commence	0	0

Explanatory notes

- 1 This is the difference between the figures in the March (\$19.7 million) and July (\$21.6 million) Cabinet approvals.
- 2 We have rounded the current forecast shortfall (\$0.75 million) up to one decimal place.

Very Low Level Air Defence Alerting and Cueing System

Project purpose and history

The purpose of this project was to get the Alerting and Cueing System needed to make completely operational the Very Low Level Air Defence (VLLAD) missiles and launchers that were acquired and delivered through a separate acquisition. The Alerting and Cueing System detects, identifies, and warns of approaching aircraft then assists with the aiming of the VLLAD weapons.

The VLLAD project started in 1994, with the aim of having the VLLAD operational by December 1996. The project consisted of launchers and missiles, and a VLLAD Alerting and Cueing System (VACS). Initially, the launchers, missiles, and VACS were to be acquired at the same time, from separate providers. In March 1994, the defence agencies' Joint Policy Committee decided to go to a competitive tender for the launchers and missiles. The VACS became a separate project but remained within the total funding umbrella of VLLAD.

Cabinet Approval to Commence was obtained in June 1994 for the launchers, missiles, and VACS, at an estimated cost of \$16.9 million. The VACS component was estimated to cost \$3.2 million.

Cabinet Approval to Commit was obtained in August 1996 for the VLLAD launchers and missiles and two VACS, at a cost of up to \$20.2 million. The VACS component (including Identification Friend or Foe, or IFF) was to cost \$5.8 million. The vendors estimated this cost because no "off-the-shelf" VACS was available at the time. The launchers and missiles were to be purchased from Matra Défense (the contract was signed in October 1996), while the preferred approach to VACS was a joint purchase with the Australian Department of Defence. The launchers and missiles were delivered in April 1998.

The preferred approach to purchasing the VACS was dropped because of cost and time delays. The Ministry considered that the VACS part of the VLLAD project was cancelled, but we could not verify that through the Ministry's documentation. Acquiring the VACS became a lower priority, and the NZDF considered – but rejected – the idea of disbanding the VLLAD capability altogether.

In March 2002, the Minister of Defence issued a media statement saying that he had given approval for the defence agencies to develop detailed costings and options so that the VACS project could be included in the Defence Capital Plan. The VACS project was included in the 2002 LTDP and was to be completed for \$8 million.

In December 2003, Cabinet approved the purchase of the VACS (essentially the second Approval to Commit) at a cost of up to \$13.7 million, with entry into service in December

2005. A Letter of Intent was sent to Indra Sistemas S.A. of Spain in January 2004 requesting two radars, each trailer-mounted and complete with IFF.

In May 2004, the Secretary of Defence signed a contract with Indra Sistemas S.A. for the acquisition of VACS. The IFF part of the VACS project was contracted to Thales France in October 2004.

Although delivery and training were completed in December 2006, the capability was not operational by the end of 2007. We were advised that to make it so was likely to exceed the project's budget. The Cabinet External Relations and Defence Committee later approved an additional \$0.55 million from within the LTDP to complete the project.

Cost and time frame changes for the Very Low Level Air Defence Alerting and Cueing System (VACS) project

Costs and time frames at the Approval to Commence and Approval to Commit points, and figures forecast as at December 2007

	Approval to Commence point	Approval to Commit point	Ministry's December 2007 forecast to the Committee
Cost (excluding GST)	\$8m ¹	Up to \$13.7m ²	\$13.7m ⁴
Time frame	As soon as possible ¹	End of September 2006 ³	All equipment was delivered June 2007 ⁵

Sources

- 1 We use the information on costs and time frames from the 2002 LTDP as the first reference after the project was revived. The Ministry uses the \$12 million figure from the 2003 LTDP, and the mid-2006 delivery timing from the 2004 LTDP.
- 2 This figure is from the Cabinet approval of 8 December 2003.
- 3 Although the Cabinet Approval to Commit notes that the system would enter into service in December 2005, we use the timing from the contract with the supplier. The contract refers to delivery 28 months after the contract signing date (meaning completion by the end of September 2006). The contract's timing is consistent with the timing (the end of 2006) reported by the Ministry to the Committee in December 2007.
- 4 In April 2008, the Cabinet External Relations and Defence Committee approved an extra \$0.55 million to allow for the project's completion.
- 5 Although the equipment has been delivered, in late 2007 it was not fully operational. Additional funding was sought and obtained from Cabinet in April 2008 to make it so.

Changes to costs and time frames as the project has progressed

	Approval to Commence point to the Approval to Commit point	Approval to Commit point to the Ministry's December 2007 forecast	Total change between the Approval to Commence point and the Ministry's forecast
Cost (excluding GST)	+\$5.7m	0	+\$5.7m (the April 2008 Cabinet approval of an additional \$0.55 million takes the total change to \$6.3 million (rounded))
Time (months)	+39 ¹	+9 ²	+48

Explanatory notes

- 1 We have had to assume the difference between the Approval to Commence and Approval to Commit points. The 2002 LTDP stated "as soon as possible", so we have assumed some urgency and indicated a 12-month time frame. The 39 months is the difference between the end of June 2003 and the time frame in the project's contract, which was the end of September 2006.
- 2 We have had to assume the difference between the Approval to Commit point (the end of September 2006) and the Ministry's December 2007 forecast (delivered June 2007 – so we use the end of June 2007).