MAJOR PROJECTS REPORT 2019

1 July 2018 – 30 June 2019

New Zealand DEFENCE FORCE
Te Ope Kātua O Aotearoa

MANATŪ KAUPAPA WAONGA
NEW ZEALAND MINISTRY OF DEFENCE

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FOREWORD

Foreword from the Secretary of Defence and the Chief of Defence Force

The work to compile this edition of the *Major Projects Report* began no differently to previous years, and was well underway as news began to filter out about an illness that was creating a heightened level of interest and then concern around the world. Within months, a range of terms became commonplace across all forms of media and in conversations within communities; epidemic, pandemic, coronavirus, COVID-19 and, here in New Zealand, lockdown.

So while this foreword would normally focus on the achievements and challenges that Defence-led projects in delivery phase have faced during the 2018/19 financial year, we start this edition by acknowledging the impact of COVID-19.

Of the six projects covered in this report, all experienced some measure of delay from the cumulative impact of travel and border restrictions within and between countries, supply chain issues, and companies and organisations taking steps to secure the safety of their staff and personnel through social distancing, and reducing or closing down access to worksites. Some of these steps took place ahead of New Zealand's lockdown in March 2020, continued throughout that time, and after restrictions began to be lifted.

Our project teams and the companies supplying Defence with new capability have worked together, adapting to the unfolding situation, considering options, and providing advice and guidance. This collaborative approach has focused on protecting people while seeking to deliver the capability that the New Zealand Defence Force needs to continue to operate effectively.

As a result, a great deal has been achieved:

- The Maritime Sustainment Capability project has delivered a new replenishment tanker, *Aotearoa*, to New Zealand. Working within the shipyard's restrictions and pandemic response measures of both nations, the new ship was able to sail from the Republic of Korea where she had been built just one month later than planned prior to the pandemic.
- A new NH90 helicopter flight training simulator was shipped through a series of locked down borders from Canada, via the United States and then to Auckland. Rather than waiting for travel restrictions to be lifted, the approach for installing the simulator has been modified, with a local team managing the process at RNZAF Base Ohakea, using technology to receive specialist engineering oversight from the Canadian manufacturer.
- Work restarted on infrastructure projects at RNZAF Base Ohakea and Linton Military Camp. Ohakea's infrastructure project must be completed ahead of delivery of the first P-8A Poseidon as part of the Air Surveillance Maritime Patrol project, and work continues on the new Network Enabled Army facility at Linton.
- Further modifications and operational testing and evaluation of HMNZS *Manawanui*, the new dive and hydrographic vessel, were able to proceed ahead of the ship's preparations for Ex RIMPAC.
- Work on the system upgrade of HMNZS *Te Mana* has continued, with the shipyard operating at a reduced level.

Throughout this time, safety has been the key consideration; people come first.

This has meant cancelled travel plans, site management plans to ensure social distancing requirements and operating practices are in place, increased use of technology to project manage and plan mitigations that would help to address a situation that no one could have imagined a year earlier.

Inevitably, however, expectations in relation to schedules have had to be adjusted to reflect supply chain issues, limitations on workforce access to sites, and the flow on effect on later stages of a project's life cycle, such as operational testing and integration activities for new capabilities.

Each project in this year's edition includes an outline of developments that have occurred after 30 June 2019, including some further detail in relation to the impact of COVID-19.

It is worth acknowledging that this edition of the *Major Projects Report* is the tenth one to be published. Over the past decade information about Defence has outlined its ongoing programme of work to acquire and deliver the range of major capability projects approved by Government.

More than 20 significant projects have been tracked over this time, providing an overview of the process for managing Government investment in Defence capability. These projects have delivered a wide-range of equipment, systems, ongoing through-life support, and training to develop and maintain the skills of military personnel whose use depend on it. These have included:

- The life extension programme for the C-130H Hercules fleet enabled these aircraft to continue to provide airlift and transport tasks until the expected delivery of new tactical transport capability in the mid-2020s.
- Replacing the Steyr rifles, in use since the 1980s, with the MARS-L fleet has delivered an increase in user confidence and marksmanship.
- The Strategic Bearer Network project which is delivering a high capacity network infrastructure with global reach, enabling information to be delivered to and received from our deployed forces.
- The P-3K Orion fleet's mission systems upgrade – which featured in the first Major Projects Report – and the more recent delivery of the Underwater Intelligence, Surveillance and Reconnaissance project.
- A fleet of 11 T-6C Texans is one part of the Pilot Training Capability project, which also delivered a package of modern tools to select trainees who would be most likely to succeed as military pilots, a flight simulator package and a training curriculum that – overall – has led to this project being held as an exemplar for the wider public sector.
- Delivery of new vehicle fleets to ensure the New Zealand Special Operations Forces have options of vehicles that are better suited and more fit-for-purpose for the range of tasks they are required to undertake.
- The ongoing programme of work that is extending the operational life of the Anzac-class Frigates – HMNZS *Te Kaha* and *Te Mana* – until the mid-2030s; from the already completed Platform Systems Upgrade, to the Frigate Systems Upgrade (FSU) project underway currently.

Building on this are three projects that appear for the first time:

- The delivery of a new fleet of P-8A Poseidon aircraft, a training simulator and the infrastructure at Base Ohakea to house the capability under the Air Surveillance Maritime Patrol project.
- The Dive and Hydrographic Vessel project, which has seen the addition of HMNZS *Manawanui* to the Royal New Zealand Navy's capability.

- A new flight training facility with a simulator that will provide domestic training for NH90 pilots and maintain their skills without the need to travel offshore or use flight time that can be used for operational tasking.

This report has been an important one in explaining the processes through which the Ministry of Defence and the New Zealand Defence Force have been able to realise the investment in capability, which is key to enabling the public to learn more about the work we are doing.

Andrew Bridgman
Secretary of Defence
28 August 2020

Kevin Short
Air Marshal
Chief of Defence Force
28 August 2020

BACKGROUND TO THE MAJOR PROJECTS REPORT: 2019

Background

This is the tenth edition of the Major Projects Report, a series of reports created to improve the quality, transparency, and usefulness of reporting on defence capability projects. Over the time in which these publications have been produced, a longitudinal overview of performance in the management and delivery of Defence capability projects has been created, along with a record of the outcomes achieved within these major projects. Several projects have featured in multiple editions, reflecting the long-term lifecycle of major Defence projects.

The *Major Projects Report 2019* focuses on six significant projects that are delivering defence capability across the services, providing history and definition information. It includes a qualitative and quantitative assessment of Defence's management of those projects, and performance with respect to projects' schedule, cost, and capability in the year 1 July 2018 to 30 June 2019. Financial forecasts for project costs are provided as well.

This information is provided with the context of each project's history and purpose – what it has been expected to achieve, including its policy objectives and capability requirements. Alongside this is information that outlines the acquisition phase and how the capability is being or will be introduced into service.

This edition

This edition, which covers the financial year from 1 July 2018 to 30 June 2019, includes three projects that featured in the previous year's report, with updated information in relation to their status, contract payments, risks, and schedule information. These projects are:

- Anzac Frigate Systems Upgrade, which has featured in the MPR since the 2014 edition.
- Maritime Sustainment Capability, which appears for the third time, having first appeared in the 2017 edition.
- Network Enabled Army Tranche One, which first appeared in the edition for the year ended 30 June 2015.

Through the life of this report, projects have been included based on two key criteria: the Government has authorised Defence to acquire the capability; and a project is being managed by the Ministry of Defence as a "Major" project – those with a whole of life cost in excess of $15 million. These are now referred to as Defence-led projects, but for continuity this report continues to be referred to as the Major Project Report.[1]

During the review period three projects have been added to the report:

[1] In August 2018 a change in terminology was approved for use in relation to Defence projects. There is a single Defence Capability Portfolio that includes all capability projects, regardless of scale and risk or the specific approvals and delegations within which they operate. There are two main categories within this system; Defence-led (projects led by the Ministry of Defence and governed jointly with the New Zealand Defence Force), and New Zealand Defence Force-led. This report focuses on Defence-led projects.

- Air Surveillance Maritime Patrol, which is delivering the new fleet of P-8A Poseidon aircraft to replace the current P-3K2 Orion fleet.
- Dive and Hydrographic Vessel, a project that has delivered HMNZS *Manawanui*, which was commissioned on 12 June 2019. The fourth RNZN ship to sail under the name, she replaces the former hydrographic survey vessel *Resolution*, and the diving support ship *Manawanui*.
- NH90 Simulator, a project that will increase the availability of the fleet of NH90 helicopters and crews through the installation of a flight simulator at RNZAF Base Ohakea. This will enable initial and ongoing flight training to be conducted in New Zealand.

The criteria for removing projects from the *Major Project Report* is when the project finishes its acquisition phase.

On that basis four projects that featured in the 2018 *Major Projects Report* have been removed from the 2019 edition:

- Individual Weapons Replacement: this project has replaced the Steyr rifles, which had been in use since the 1980s, and 40mm grenade launcher with a new individual weapon and grenade launcher. The new MARS-L (Modular Assault Rifle System – Light) was selected and over 9,000 units delivered and introduced into service.
- Special Operations Vehicles: has delivered a range of vehicles that better support the range of tasks undertaken by New Zealand's Special Operations Forces, and that are more fit for purpose, whether endurance, mobility or protection.
- Strategic Bearer Network: this project has delivered access to military satellite communications equipment to support information exchange with and between deployed forces.
- Underwater Intelligence, Surveillance and Reconnaissance: this project has restored the underwater surveillance capabilities, required for submarine detection, across the P-3K2 Orion fleet to contemporary standards.

SUMMARY OF PERFORMANCE

This section provides an overview of the six projects included in this edition of the Major Projects Report. Performance has been considered across three metrics: schedule, cost, and capability.

Defence's approach, throughout all phases of a project, is to ensure that the capability and benefits sought can be realised within the approved budget, delivered within a reasonable timeframe, and in compliance with the contractual requirements that align with government policy.

The first Major Projects Report, published in 2010, discussed the difficulty experienced in meeting targets across all three of these performance metrics for the projects in that Report. If two of these are held steady, pressures may often be felt on the third. Where possible, Defence's preference is to hold steady on cost (through fixed price contracts) and performance. This means for legacy projects, often schedule has taken the pressure if contractors fail to meet contractual timeframes.

However, operational consequences may result from this approach, impacting on platform availability, scheduled maintenance, and training which require careful management and an integrated approach between the Ministry of Defence and the New Zealand Defence Force.

To mitigate this, Defence's objective has been to ensure no schedule slippage through options such as buying capability "off the shelf", while minimising where possible the need to undertake configuration changes. This approach reflects and is consistent with comments made in 2010 by the Controller and Auditor-General for improving project management.

Where a project is complex in nature, "off the shelf" solutions may not be possible, but where a supplier has proven experience in delivering a solution, their existing approach or methodology may help in planning and delivering to the standard sought across all three metrics.

PERFORMANCE IN THE 2018/19 YEAR

Schedule

During the 2018/19 financial year the Network Enabled Army Tranche One project saw its Full Operational Capability (FOC) date move to December 2021. The 2018 edition of the *Major Projects Report* had reported the FOC date as June 2020. Developments noted in the report that took place in the 2018/19 financial year had reported that Requests for Proposals received for the project's MTCS core radio work stream had made it clear that the timeframes required to deliver the MTCS capability would push the Tranche One critical path out to July 2021.

As at 30 June 2019, as the work stream had commenced, the project was able to report that it anticipated a further five month delay in achieving full operational capability, this brings the cumulative schedule delays for the project to 41 months, and reflects the complexity of the design and build process for core radio network.

The Frigate Systems Upgrade project was reporting a variation within the timeline of four months, however this was in relation to the acceptance date for the first ship, HMNZS *Te Kaha*, only. The individual ship delay did not affect the overall baseline date for the project as, at the time, the final acceptance date for the second ship, HMNZS *Te Mana*, was on schedule to take place in May 2021.

Cost

No cost pressures were reported during the financial year covered by this report.

Capability

Overall, there has been no change in capability requirements for the three projects carried over from the 2018 Major Projects Report and no capability changes.

The following information summarises the projects across the three metrics and operational impact as well as listing cumulative schedule variations since the beginning of each project.

Summary for the year to 30 June 2019

The new projects

During the 2018/19 financial year there were no reported cost pressures, variations to key project milestones or changes in expected capability for the three new projects (Air Surveillance Maritime Patrol, Dive and Hydrographic Vessel, and NH90 Simulator). For the three projects carried over from the 2018 edition:

Anzac Frigate Systems Upgrade

Cost pressures	None
Schedule variation or update	None
Cumulative schedule variations since original contract forecast	The cumulative 39 month delay from the project implementation business case baseline, reported in the 2018 edition, remained unchanged.
Capability changes	None.

Maritime Sustainment Capability

Cost pressures	None
Schedule variation or update	None
Cumulative schedule variations since original contract forecast	None
Capability changes	None
Operational impact of delay	No impact.

Network Enabled Army Tranche One

Cost pressures	None
Schedule variation or update	By 30 June 2019, Tranche One Operational Release was scheduled to be completed by December 2021.
Cumulative schedule variations since original contract forecast	41 months
Capability changes	None
Operational impact of delay	None

CONTINUOUS IMPROVEMENT IN PERFORMANCE

When the first Major Projects Report was published a series of improvements, enhancements or scrutiny were outlined in the areas of governance and leadership, project management, process and execution of projects. Identified from information contained in project data sheets, observations of project staff, and independent reviews of acquisition projects, they spanned governance structures, the critical importance of resourcing projects with the right people, risk reduction and awareness of the perspective of industry.

The Defence Capability Change Action Programme was implemented following an investment in funding in Budget 2015, and in 2018 the first of a series of external reviews were completed of the policies and practices the Ministry of Defence follows for major Defence-led capability projects.

The first of two reviews published to date were undertaken by Sir Brian Roche in 2018, with a follow-up report published in June 2019 by Sir Brian and PwC that was intended to be read in conjunction with the first report.

The first review found that the capability management system is well led, has inbuilt checks and balances to mitigate risk, operates within a well-defined structure and governance regime with clear delegations and accountabilities in place. The report indicated strong inroads were being made into embedding what was still a new way of working.

The follow up review reported that the findings of the 2018 Review remain relevant; that the reviewers remained comfortable with the level of risk mitigation taking place across the Capability Management System that operates within Defence, and that DCCAP has the ability to successfully manage risk in major military acquisitions.

Further progress was able to be observed, specifically:

- DCCAP has continued to instil a strong risk management culture across both the Ministry and the NZDF in the management of major capability acquisitions, with no impact from core NZDF leadership changes of the preceding 12 months.
- The capability of project staff and the quality of procurement advice has increased
- Decision makers' trust and confidence in the military procurement system has been built.

The follow up review noted that since the initial review, DCCAP had acted as the basis for achieving the confidence of external third parties such as the Treasury, with high results in the Investor Confidence Rating across the Capability portfolio.

These reports are available on the Ministry of Defence website under its Publications section:

- *Review of Defence Procurement Policies and Practices for Major Capability Projects* (April 2018) (Procurement Review Cabinet papers)
- *Follow-up Review: Defence Procurement Policies and practices for Major Acquisitions* (June 2019).

CAPABILITY INTEGRATION

In previous editions of this report the term Introduction into Service (IIS) was used. The IIS phase was one of six phases in the Defence Capability Life Cycle[2] described in the *Defence Capability Plan 2016*. IIS Plans were produced as part of a project's lifecycle to capture an outline of the organisational management effort required to introduce new capabilities into NZDF service.

Development of Defence's Capability Management System is reflected in adjustments to methodology, practices and terminology. One example is the replacement of IIS plans with Capability Integration Plans. The latter are single cohesive plans that pull together all of the planning and activities that need to be undertaken by the project, the owners of the capability and those who are working with Defence to ensure the capability is integrated". These groups work from and contribute to this plan. Each CIP is a living document that is updated regularly.

During the year in review in this report, the final project that had been using Introduction into Service plans – Frigate Systems Upgrade – drafted a Capability Integration Plan and this term has now replaced IIS. Points to note for the 2018/19 year in relation to Capability Integration Plans for the platforms or systems new to the Major Projects Report are:

- Air Surveillance Maritime Patrol: an initial Capability Integration Plan was approved in June 2018 but, as a living document, it is designed to be updated over time if areas of planning and coordination need to be amended.
- Dive and Hydrographic Vessel: The Capability Integration Plan for the new ship was approved in December 2018 and included elements such as crew training and maintenance training, modifications, and operational testing and evaluation.
- NH90 Simulator: the Capability Integration Plan was approved in June 2019 recording the process to bring the simulator into service.

And updates for the projects that have appeared previously:

- Anzac Frigate Systems Upgrade: the re-baseline of the project established a new schedule for delivery of the vessels. An introduction into service plan and high level plan was approved by the Project Board, with a Capability Integration Plan in development by the end of June 2019.
- Maritime Sustainment Capability: The Introduction into Service Plan has been superseded by a Capability Integration Plan. The first version of the plan, which was being circulated for stakeholder review at the end of the 2017/18 financial year, was approved by the Project Board in April 2019. An updated version is in development.
- Network Enabled Army Tranche One: as part of an overarching Capability Integration Approach developed for the NEA Programme, plans for integrating new capability delivered under this tranche's work streams include a range of acceptance and operational testing and evaluation activities proposed to take place from September 2019 to October 2021.

[2] The six stages in the *Defence Capability Plan 2016* were Strategy and Policy, Capability Definition and Selection, Acquisition, Introduction into Service, In Service, and Disposal.

INDEPENDENT REVIEW REPORT

AUDIT NEW ZEALAND
Mana Arotake Aotearoa

INDEPENDENT REVIEW REPORT TO THE READERS OF THE MINISTRY OF DEFENCE AND NEW ZEALAND DEFENCE FORCE'S MAJOR PROJECTS REPORT FOR THE YEAR ENDED 30 JUNE 2019

We have carried out a review of the project status reports included in the *Major Projects Report 2019* prepared by the Ministry of Defence and the New Zealand Defence Force (together referred to as "Defence"). The purpose of this report is to express a conclusion on whether any matters have come to my attention to indicate that the project status reports provided by Defence are not fairly disclosed.

We have used our staff and resources to carry out the review.

The project status reports on pages 17 to 96 cover the following acquisition projects:

- Air Surveillance Maritime Patrol;
- Dive and Hydrographic Vessel;
- NH90 Simulator;
- ANZAC Frigate Systems Upgrade;
- Maritime Sustainment Capability;
- Network Enabled Army Tranche One.

These projects are collectively referred to as "the specified acquisition projects".

Review work carried out

The review was carried out under section 17 of the Public Audit Act 2002 and in keeping with the Auditor-General's Auditing Standard 5: *Performance audits, other auditing services, and other work carried out by or on behalf of the Auditor-General* and the External Reporting Board's International Standard on Assurance Engagements (New Zealand) 3000 (Revised): *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*. The review was also carried out in keeping with the Auditor-General's Statement on Quality Control, which requires compliance with the External Reporting Board's Professional and Ethical Standard 3 (Amended): *Quality Control*.

A review provides limited assurance, which is substantially lower than the assurance that would have been provided had an audit been performed. The procedures performed in a review vary in nature and timing from, and are less in extent than for, an audit.

The review involved carrying out procedures and making enquiries in order to reach my conclusion. These procedures and enquiries included:

- reconciling the non-financial information in the project status reports to supporting documentation provided by Defence;

- reconciling financial information in the project status reports to the supporting Capability Management Group financial reporting provided by Defence;
- reconciling selected financial information in the project status reports to the Ministry of Defence's audited financial statements for the year ended 30 June 2019;
- seeking explanations from Defence staff for any questions arising from the reconciliations; and
- considering the effect of events subsequent to 30 June 2019 on the fair disclosure of the project status reports up to the date of this independent review report.

Inherent uncertainty in the project status reports

The project status reports contain certain future-focused disclosures about expected achievements, planned time frames, forecast expenditure, and intended capability requirements. There are also disclosures about project risks. This information is, by its nature, inherently uncertain.

The review was limited to reconciling such disclosures to reliable supporting documentation and, where necessary, obtaining satisfactory explanations from Defence staff. Some forecast information relies on the expert judgement of the Defence staff involved in each project and assumptions about future events and management's actions. Whether those forecasts will prove accurate depends on future events or circumstances. Because of that uncertainty, what takes place might be materially different from what is forecast in the project status reports.

Responsibilities of Defence

The Secretary of Defence and the Chief of Defence Force are responsible for preparing the *Major Projects Report 2019* to fairly disclose information about the specified acquisition projects. It is therefore their responsibility to decide what information is included in the report and what is not. The project status reports are expected to include:

- a description of the project;
- the status of the project as at 30 June 2018;
- financial performance against the budgets approved by Cabinet;
- expected achievements;
- planned time frames;
- forecast expenditure; and
- intended capability requirements.

Fair disclosure of the project status reports requires that the information, where applicable, is:

- relevant;

- faithfully represented;
- understandable;
- timely;
- comparable; and
- verifiable.

Audit New Zealand's responsibility

Our responsibility was to review the project status reports and to reach an independent conclusion about whether the project status reports are fairly disclosed based on the review procedures and enquiries that have been carried out.

Independence

The review was carried out in keeping with the Auditor-General's Statement on *Code of Ethics for Assurance Practitioners*, which requires compliance with the External Reporting Board's Professional and Ethical Standard 1 (Revised): *Code of Ethics for Assurance Practitioners*.

Audit New Zealand is independent of the Ministry of Defence and the New Zealand Defence Force. Audit New Zealand also performs functions and exercises powers under the Public Audit Act 2001 as the auditor of the Ministry of Defence and the New Zealand Defence Force on behalf of the Auditor-General. Other than the audits of the Defence entities, Audit New Zealand has no relationship with, or interests in, the Ministry of Defence or the New Zealand Defence Force.

Conclusion

Based on the review, nothing has come to my attention that causes me to consider that the project status reports included in the *Major Projects Report 2019* have not been fairly disclosed.

Lyn Daken
Associate Director, Specialist Audit and Assurance Services
Audit New Zealand

28 August 2020

PROJECT STATUS REPORTS

The project summaries contained in this part of the Major Projects Report provide a concise, simple and high level overview of each major project. The summaries include a description of each project's policy objectives and capability requirements; the current status with respect to capability, schedule and cost; active high level risks and issues; recent developments; and financial performance.

READERS' GUIDE

The following keys should be used when reading the current project status and active risks tables contained within each summary.

Key for Risk and Current Status	
	On track. The risks or issues that exist will have little or no impact on the ability to deliver project outputs, objectives or goals. Little or no resource allocation or management effort is required.
	Medium. The risks or issues that exist may temporarily degrade the ability to deliver project outputs, objectives and goals. A moderate level of resource allocation or management effort is required.
	High. The risks or issues that exist could degrade the ability to deliver project outputs, objectives and goals. A high level of resource allocation or management effort is required.
	Critical. The risks or issues that exist could significantly degrade or prevent the ability to deliver project outputs, objectives and goals. Significant resource allocation or management effort is required.

EXPLANATION OF TERMS

BETTER BUSINESS CASES:

Project Charter: Defence project initiation was guided initially by the *Defence White Paper 2010* and the *2011 Defence Capability Plan*. Projects commenced following notification to the Minister of Defence and approval of a project charter by an internal Defence Capability Management Board.

Project Initiation Document: This brings together all of the key information about how the project is being managed. It defines the project, and forms the basis of its management and an assessment of its overall success. It gives the direction and scope of the project.

Approval of Indicative Business Case (IBC): Attained when Cabinet agrees to the strategic context for an investment and agrees to progress a short list of capability options to the Detailed Business Case stage.

Approval of Detailed Business Case (DBC): Attained when Cabinet agrees to a refined capability requirement and authorises Defence to commence formal engagement with industry (through a request for proposal or request for tender) on a preferred capability option.

Approval of Project implementation Business Case (PIBC): Attained when Cabinet agrees that Defence can conclude a contract based on the preferred supplier, the negotiated services, the maximum funding level and the arrangement to manage the project and the ongoing delivery of services.

GOVERNMENT APPROVAL MILESTONES

Project Initiation: Occurs once a capability requirement has been identified by Defence and a broad assessment of the options for meeting the capability requirement has been authorised by the Chief Executives and noted by the Minister of Defence.

Approval to Initiate: Attained when Cabinet agrees to the project's inclusion on the capital acquisition plan and authorise Defence to engage with industry to refine its initial assessment with more accurate information.

Approval to Commence: Attained when Cabinet agrees to the refined capability requirement and authorises the Ministry of Defence to commence a formal tender and tender evaluation process.

Approval to Negotiate: Attained when Cabinet agrees to the selection of a preferred tender, specifies funding limits, and authorises the Ministry of Defence to enter into contract negotiations.

Approval to Commit: Attained when Cabinet agrees to the final contract and authorises the Ministry of Defence to sign the contract and commit funding.

PROJECT PHASES:

The capability definition phase: During the capability definition phase, capability and operational requirements are assessed and refined. Stakeholder needs are considered. Scenarios may be used to identify requirements. Hypothetical options which include a rough order of costs are used to analyse affordability and evaluate requirements. A capability requirement is a description of the ability needed to achieve the policy objective. An operational requirement is a description of a component of what is required to complete a task. Options analysis in the capability definition phase is used as a tool to compare, assess, and evaluate capability and operational requirements. Options analysis in the acquisition stage identifies the best procurement solution to deliver the capabilities required.

The acquisition phase: procures the capability solution. Deeper analysis of requirements and options may be required once defence industry is engaged. Included in this stage are processes for tendering, contract negotiation and acceptance of what will be delivered.

The capability integration phase: develops the force elements required to generate NZDF outputs at a specific level of capability. Part of this stage is the operational test and evaluation process, which demonstrates the capability has met specific standards of safety and is operationally effective in accordance with the suite of operational concept documentation.

COMMONLY USED TERMS

- Interim Operational Release/Initial Operational Capability: the point at which the inherent capability is understood so that it can be most effectively employed on operations.
- Operational Release/Full Operational Capability: final acceptance from the New Zealand Defence Force for the capability.
- Interoperable: the ability of military forces to work alongside civil agencies and other nations' militaries through having compatible doctrine, equipment and training, as well as the compatibility of communications and command and control systems.
- Non-cash Technical Adjustment: this term is found in the Budget section of some projects' status reports. New Zealand's accounting rules require payments in foreign currency to be recorded at exchange rates at the date of the transaction, rather than a hedged rate. This non-

cash technical adjustment increases the appropriation to account for the movement in exchange rates because costs at the spot exchange rates need to be recorded for accounting purposes.

NEW TO THE MAJOR PROJECTS REPORT

AIR SURVEILLANCE MARITIME PATROL

Project Description: The primary objective of this project is to replace the New Zealand Defence Force's aging P-3K2 Orion aircraft, which need to be retired by 2025. The new fleet will be capable of delivering the maritime patrol function for the next generation, and this project will also deliver the infrastructure needed to support this new capability.

THE PURPOSE OF THIS PROJECT

Along with the four P-8 Poseidon aircraft that will be replacing the P-3K2 Orion maritime patrol aircraft (MPA) this project is delivering infrastructure at RNZAF Ohakea, where the new capability will be based. This infrastructure includes an aircraft hangar, squadron headquarters, and operations centre. Airfield works include runway and taxiway strengthening, lighting for maintenance operations at night, the apron where the aircraft will be parked, and an aircraft rinse facility that will be a key maintenance requirement for the new fleet over the years to come.

This Air Surveillance Maritime Patrol (ASMP) project was part of a wider scope of work initiated in 2015, the Future Air Surveillance Capability project, which included exploring options for a complementary capability that would support the work of government agencies, such as search and rescue or fisheries surveillance. The decision was made to investigate options for delivering the support for this civilian capability under a separate project[3] that, during the 2018/19 financial year, was not in its acquisition phase (and therefore is not included in this edition of the report).

The P-3K2 Orion fleet, New Zealand's maritime patrol aircraft (MPA), have played a significant role in promoting security for more than 50 years, patrolling the ocean to protect New Zealand's sovereignty, trade routes and the international rules-based order. They have also supported search and rescue, resource and border protection, disaster response and engagement with our key security partners.

Government policy has stressed the importance of maritime patrol over many decades. In April 2017 Cabinet noted the policy value of New Zealand's maritime patrol aircraft[4], and most recently the *Strategic Defence Policy Statement 2018* stated that MPA:

- provide a key maritime combat capability that can also support other government agencies on a range of domestic contingencies;
- enable the Government to offer a highly valued capability to international coalition operations; and
- provide a wide area surveillance capability that is critical to maintaining awareness of activities in New Zealand's maritime domain.

CAPABILITY REQUIREMENTS

The capability requirements that were identified as necessary to support these policy objectives are:

[3] The Enhanced Maritime Awareness Capability project
[4] [CAB-17-MIN-0137] 7 April 2017.

The ability to multi-task: New Zealand has a small air force by international standards and therefore its assets are required to perform multiple roles.

Community size/Close relationship with user community: Being part of a group of partner countries with the same platform provides access to critical mission and logistics support in different locations. It was considered best for New Zealand to participate in as large a user community as possible, with as many friends as possible, for support.

Already developed: Maritime patrol uses sophisticated technology that requires significant R&D investment to achieve. It was therefore considered that New Zealand should look to identify a capability which had already been developed and worked from the get-go.

Successful introduction into foreign markets: Maritime patrol involves complex systems which tend to be more demanding to keep operational than basic ones. It was therefore considered best for New Zealand to go with a proven capability.

Support for technology growth path: The Strategic Defence Policy Statement 2018 states, *"As partners acquire ever-more sophisticated capabilities, contributing to coalition operations will require high-level network interoperability and contributions that do not present a defensive liability to them…To retain New Zealand's reputation, freedom to act, and mitigate risks to mission and personnel, Defence must strive to keep pace with technological evolutions"*.

In the context of maritime patrol technology rapidly advancing, and becoming increasingly IT-based and therefore requiring regular upgrades, it was considered that New Zealand should look to a platform which will be fully supported through the upgrade path and where upgrade costs could be shared with other users.

BETTER BUSINESS CASE MILESTONES

Prior to the approval of an Indicative Business Case for the project, Boeing and the US Government advised that the last chance for New Zealand to guarantee the reduced price being offered for the P-8A was to make an order by June 2017 (this was subsequently extended at New Zealand's request to 30 November 2017, and then 14 July 2018). In relation to the 14 July 2018 deadline Boeing and the US Government advised that if New Zealand delayed beyond July 2018 price increases were expected.

It was therefore necessary to accelerate consideration of the P-8A to preserve that option for the Government. In December 2016 Cabinet invited the Minister of Defence to report back in June 2017 with an Implementation Business Case on which Ministers could make a decision on whether to conclude the Letter of Acceptance for the P-8A. Hence the business case took the approach of considering whether an alternative to the P-8A would be available in the same timeframe if Cabinet were to decide not to acquire the P-8A. Information was used from open source or provided by companies in response to a formal Request for Information; except for the P-8A which was sourced from the Letter of Offer provided by the United States Government. On assessing that there was no alternative to the P-8A in meeting all of New Zealand's requirements in the timeframe, a full Implementation Business Case recommending the acquisition of the P-8A was developed for the Government's consideration.

Date	Approved By	Approval
29 February 2016	Vice Chief of Defence Force and Deputy Secretary (Policy)	**Strategic Assessment**

7 December 2016	Cabinet EGI-16-MIN-0338	**Authorised** New Zealand to issue a Letter of Request to the US Government for detailed cost and availability information for the P-8A; and **Invited** the Minister of Defence to report back in June 2017 with an Implementation Business Case on which Ministers could make a decision on whether to conclude the Letter of Acceptance for the P-8A.
7 April 2017	Cabinet CAB-17-MIN-0137	**The Policy Value of New Zealand's Maritime Patrol Aircraft**
2 July 2018	Cabinet CAB-18-MIN-0305	**Implementation Business Case**

CAPABILITY DEFINITION PHASE

How Defence identified and assessed operational requirements

In addition to the above capability requirements, the following key user requirements were developed following consultation across NZDF and the Ministry of Defence in March and July 2017:

Operate: The user shall be able to conduct missions worldwide as directed.

Process and Exploit: The user shall be able to process and exploit all data collected by the MPA.

Interoperability: The user shall have the capability to interoperate with organisations, platforms, systems and applications in a manner necessary to fully utilise the MPA.

Communicate: The user shall have the means with which to receive and disseminate information and intelligence to military and other government agencies, platforms, systems and applications.

'Find, Fix, Track, Target, Engage and Assess' for **Anti-Submarine Warfare (ASW):** The user shall be able to conduct effective and persistent ASW.

'Find, Fix, Track, Target, Engage and Assess' for **Anti-Surface Warfare (ASuW):** The user shall be able to conduct effective and persistent ASuW.

Support Search & Rescue and Surveillance of South Pacific and Southern Ocean: The user shall be able to conduct search and rescue including the ability to deploy survival equipment in the New Zealand and Fiji Search and Rescue Regions (Maritime). The user shall be able to conduct surveillance operations in the regions of the South Pacific and Southern Ocean of interest to New Zealand. The user shall be able to conduct maritime reconnaissance operations for vessels of interest within the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR, April 1982) areas of interest to New Zealand.

Defend from Threats: The user shall be able to defend themselves from threats to the capability.

Support the capability: The user shall have the capability to support the MPA.

How Defence analysed the requirements options in the Capability Definition phase

The project team considered each MPA option available in the market and the indicative costs for each derived from the Request for Information data and US Letter of Offer for the P-8A.

It was assessed that there were a number of a smaller class of MPA in the market that had insufficient range for New Zealand's vast ocean region and that would not meet New Zealand's MPA requirements. There were also satellites and remotely piloted aircraft systems which offered the potential to assist the MPA platform with some lower order, civilian surveillance tasks but could not perform the full range of MPA functions.

It was assessed that only large, manned MPA (like the P-3 Orions being replaced) had the full package of speed, endurance and sophisticated military functions necessary to meet New Zealand's demanding requirements. That market was limited to three options:

- **US Boeing P-8A Poseidon** – the US investment in a replacement for its Orion fleet.
- **Japanese Kawasaki P-1** – Japan's investment in a replacement for its Orion fleet.
- **A concept aircraft**, exemplified by the Lockheed Martin "Sea Hercules" - a design proposal based on the well-known military transport aircraft.

How Defence considered interoperability

Interoperability was one of the key considerations of the ASMP project as reflected in the third key user requirement (as noted above) and the capability requirement for the MPA replacement to have a large community size to allow access to critical mission and logistics support in different locations (also noted above).

How Defence considered through-life costs and issues

Maintaining the capability throughout its life will require ongoing upgrades, replacement and planning for obsolescence. An ongoing and planned schedule of upgrades is the preferred approach, rather than major injections of capital funding, as and when obsolescence becomes a pressing requirement.

In general, the ASMP project is replacing the existing MPA with a contemporary version. In considering the available options it was recognised that one way to reduce through-life costs was to share these with other users. It was known that the P-8A was also being acquired by Australia, the United Kingdom and the United States, and that operating the same capability as used by allies and partners has advantages. These include sharing costs of the through-life support options that are available through operating the common platforms, and the ability to share the development costs for upgrades over the life of the capability with Defence partners. Without a wide pool of operators to share development costs, New Zealand would need to fund a higher proportion of such costs; what this would amount to would depend on the number of other users of the capability, and whether they would be willing to enter into a shared costs approach.

Estimates for through-life capital sustainment and operating costs were considered, including hardware and software refreshes, major aircraft and engine restoration and overhauls, and personnel costs for operating, maintaining and sustaining the proposed delivery of outputs from the P-8A capability.

REQUIREMENTS ANALSYSIS IN THE CAPABILITY DEFINITION PHASE

The P-8A was the only capability of the three options that met all of the criteria. It was also the lowest capital cost and lowest risk option.

Schedule of Capability Definition Phase

Dates	Duration	Note
4 March 2015 to 2 July 2018	40 months	From the approval of the Project Charter to approval of the Implementation Business Case by Cabinet.

Expenditure in Capability Definition/Source Selection Phase

	Expenditure (NZ$)	
Definition Phase	2014/15	5,690
	2015/16	59,351
	2016/17	990,651
	2017/18	247,014
	2018/19	736,149
	Total	2,038,855
Explanation	Expenditure during the definition phase, prior to Cabinet approval.	

ACQUISITION PHASE

How Defence decided to acquire the Capability Solution

Procurement of the P-8A capability was only possible from the United States Government via the Foreign Military Sales (FMS) process. FMS is a programme that allows our government to purchase defence articles and services as well as design and construction services, from the United States Government. This programme is operated on a “no-profit” and “no loss” basis to US Government.

Following Cabinet Approval in December 2016, Defence issued a formal Letter of Request to the US Government for supply of the P-8A and associated systems.

The final Letter of Offer was issued from the US Government on 1 June 2018. Following Cabinet approval, the Letter of Offer was accepted by the Secretary of Defence on 9 July 2018.

Contract Status (as at 30 June 2019):

Prime contractor	The Government of the United States of America (via Foreign Military Sales)

ASMP PROJECT BUDGET

Budget variation

	Date approved	Total (NZ$ million)
Original budget at Approval to Commit	2 July 2018	2,285.0
Current approved budget	19 November 2018	2,318.6
Variation on original approved budget		33.6

Explanation of major budget variations

Date of individual variation	Total (NZ million)	Explanation
19 November 2018	33.6	Non-cash technical adjustment to reflect the payments in foreign currency at exchange rates on the day the transaction took place.

Project expenditure to 30 June 2019

Total (NZ$ million)	
Life to date expenditure (cumulative)	19.6
Remaining balance of approved budget	2,298.9
Forecast commitments	2,205.6

Total forecast expenditure

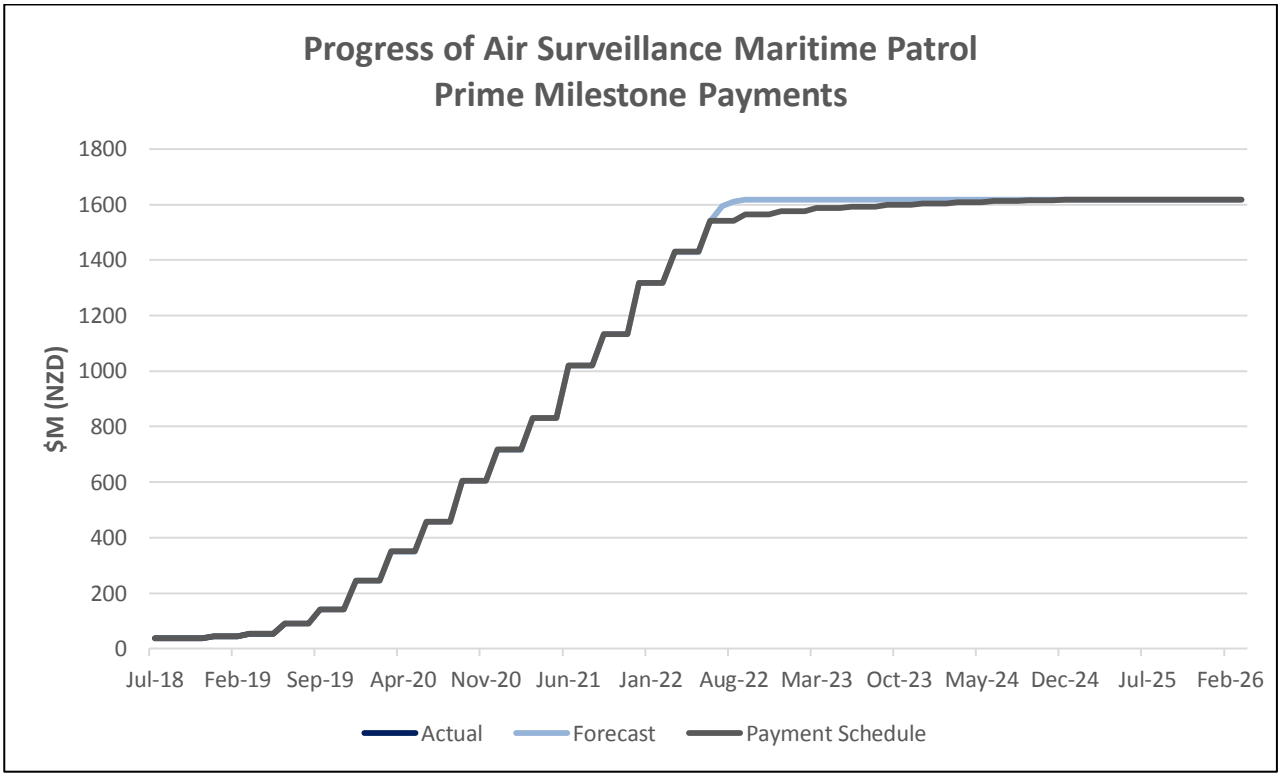
Total (NZ$ million)	
Approved budget	2,318.6
Total forecast expenditure	2,305.4
Gross project variation (forecast)	13.2
FOREX impact	(11.5)
Actual project variation (forecast)	1.7
Variance explanation	Impact of reduction to FMS case admin fee and reassessment of required personnel support.

Project Contingency as at 30 June 2019

Contingency information for this project has not been included in this edition as tender processes were in progress and the information is commercial in confidence.

SCHEDULE/TIMEFRAME PROGRESS

Progress of ASMP Prime Milestone Payments



ASMP PROJECT STATUS AS AT 30 JUNE 2019

	Capability: There have not been any changes to the capability, as signed off in the Business Case.
	Schedule: The project is currently on schedule to meet projected delivery dates.
	Cost: The project is performing within approved budget allocations.

ASMP CAPABILITY INTEGRATION PHASE

Description of Capability Integration Phase

The first Capability Integration Plan (CIP) was released for review mid-2017 and approved in June 2018. The plan is developed as a living document to ensure the full benefits of the P8A capability are realised by the NZDF. It identifies major areas of planning and coordination that are required to deliver all elements of the capability, ensuring operational release takes place as needed.

Activities within the Capability Integration Plan include:

Infrastructure: construction of new squadron headquarters and facilities to support aircrew, mission support and maintenance personnel, hangar facilities and the operational apron area in front of the hangar for four P-8A aircraft at RNZAF Base Ohakea.

Mission Support: ensuring the ground functions required to plan a mission are in place.

Training: aircrew, mission support personnel and maintenance staff will be qualified to operate, support and maintain the P-8A aircraft with training from US Navy and contractor instructors.

Airworthiness: there are required certification activities that will ensure the RNZAF can safely operate and maintain the P-8A capability, and meet safety and legislative obligations. These activities relate to design acceptance of the aircraft and simulators (technical airworthiness), and organisational approvals to ensure the RNZAF can safely operate the aircraft in a mission environment (operational airworthiness). These approvals come from the NZDF Airworthiness Authority.

Progress Towards Operational Milestones

Infrastructure: Aurecon was appointed as the prime contractor for delivering key infrastructure work, including facility design, supporting procurement of a construction contractor and providing ongoing engineering services throughout the construction phase. During the year the preliminary design was completed, and initial cost estimates were received.

Airworthiness: The P-8A Project Design Acceptance Strategy (PDAS) was approved on 4 July 2018, it details the NZDF strategy for Design Acceptance of the P-8A aircraft in accordance with the requirements of Defence Force Order 92, Defence Force Orders for Airworthiness.

Schedule of Capability Integration

	Initial Estimate	30 June 2019 Forecast/Actual	Variance (months)
Delivery of first P-8A to NZ	April 2023	April 2023 (Forecast)	N/A
Achieve Initial Operational Release 1	July 2023	July 2023 (Forecast)	N/A
Achieve Operational Release and available for overseas deployment	2025	2025 (Forecast)	N/A

OPERATIONAL CAPABILITY

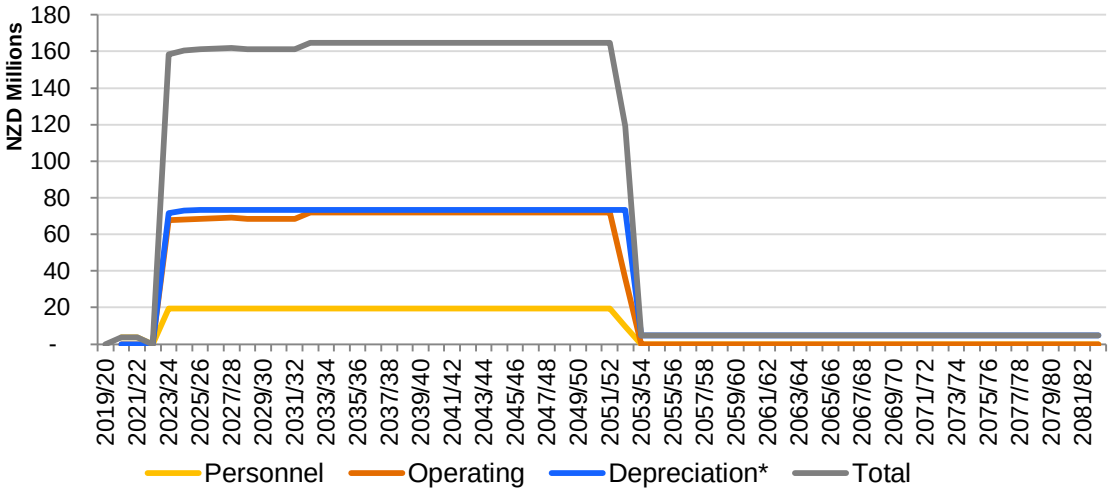
Progress Towards Delivery of Capability Operational Requirements

Operational Requirements:	Likely to be met:	Explanation:
Construction of new capability infrastructure at RNZAF Ohakea	Yes	Horizontal works RFP to be released August 2019.
Personnel conversion training	Yes	Flight and mission support crews and maintenance staff
Mission Support systems	Yes	
Training Devices	Yes	
Sparing available in NZ	Yes	Aircraft and Training Device spares
ASSESSMENT: Contracts to achieve all of the above operational requirements have not yet been awarded. Benefits realisation is scheduled for full implementation in 2025.		

SUMMARY OF ASMP THROUGH LIFE OPERATING COST ESTIMATES

The P-8A operating costs (including personnel) are estimated to be $25 million per annum higher than current baseline funding of $62 million for the Orions once full operational output capability is reached in 2025.

Air Surveillance Maritime Patrol: Through Life Operating Costs



*Depreciation of $5m per annum continues out until 2082/83 for infrastructure with 60 year useful economic life

DEVELOPMENTS IN THE ASMP PROJECT POST 30 JUNE 2019

- Following the release of the Request for Proposal for the first phase of infrastructure work at Base Ohakea, in August 2019, a contract was signed with Fulton Hogan Limited in November 2019. A formal ground-breaking ceremony at the end of November 2019 marked the start of the first phase, which includes construction of airside apron pavements and services, as well as landside civil infrastructure.
- A notice was released on the Government Electronic Tender Service in September 2019, advising industry of the opportunity to submit a registration of interest for the vertical works contract opportunity. This included information on security clearance requirements that need to be met for this phase of the infrastructure project.
- Requests for proposals for the vertical works package were sought from two respondents that were confirmed as qualified for the works, based on experience and security level.
- With confirmation of COVID-19 infections in New Zealand, the declaration of Alert Level 4 and associated lockdown, the construction site at Ohakea was shut down and reopened when the nation transitioned to Alert Level 3 at the end of April 2020. Site personnel of the contractor Fulton Hogan completed an induction process that focused on the site's COVID-19 management plan that had been put in place to manage operations safely and in compliance with national requirements. The response timeframe for the vertical works Request for Proposals was also extended to June 2020 to accommodate the disruption to industry operations, and the challenges that would be faced under Alert Level 3 conditions.

DIVE AND HYDROGRAPHIC VESSEL

Project Description: The primary objective of the Dive and Hydrographic Vessel project was to deliver a hydrographic and deep diving support capability. This resulted in the purchase, modification and commissioning of the fourth vessel to sail under the name HMNZS *Manawanui*.

THE PURPOSE OF THIS PROJECT

The Dive and Hydrographic Vessel (DHV) project was set up to acquire replacement capability for the Royal New Zealand Navy's diving support and hydrographic functions. The hydrographic survey vessel *Resolution* retired in 2012 and the diving support vessel *Manawanui* was decommissioned in 2018. The replacement vessel will deliver the capability to conduct a range of operational and military tasking including hydrography (mapping of the littoral surface and subsurface environment), deep diving[5] operations and other specialist tasks including support to the New Zealand Police and other government agencies.

THE ORIGINS OF THIS PROJECT

The DHV project's origins are linked with those of an earlier project, the Littoral Operations Support Capability (LOSC). Initiated in 2013, LOSC aimed to identify options to ensure the NZDF had the equipment to support and enable its operations in the littoral environment and to replace *Manawanui* and *Resolution*, the vessels that were – at the time – supporting the Navy's hydrographic, mine countermeasures and diving capabilities.

Options for replacing the two vessels were investigated between the end of 2013 and mid-2017, and information developed as part of LOSC has been used to inform recommendations and decisions made in relation to DHV and is outlined here to provide background.

The LOSC project's work included seeking information from industry and developing documentation to support the project and business case development:

- In October 2013 a request for information (RFI) sought to develop an initial set of user requirements with a target delivery date of mid-2017.
- In November 2014 the Secretary of Defence and Chief of Defence Force approved the project charter.
- In April 2015, Cabinet agreed that two options from the LOSC Indicative Business Case were to be taken forward for consideration during the *Defence White Paper 2016* process: a dive and hydrographic tender that would offer the baseline level of capability; and the enhanced capability of a Littoral Operations Vessel.
- In June 2015 a further RFI released to the market included a refined statement of user requirements, updated project schedule and contract delivery date, enabling Defence to assess the commercial information it was holding, given changes in the ship design and construction market, and the global economy at the time. This information was used to inform the development of the Detailed Business Case.

[5] Deep diving refers to dive operations approximately 30m below the surface, used in salvage, ship repair, search and recovery, and underwater clearance tasks.

- In July 2016, Cabinet considered the Detailed Business Case and agreed that a Littoral Operations Vessel was the preferred solution, authorising the Secretary of Defence to undertake a competitive tender, which was released in September 2016. The request for tender sought a ship suitable for supporting littoral operations, along with a range of documentation, manuals and data, training, spares, support and test equipment. It closed at the end of November that year and an assessment and evaluation process was undertaken of the tenders received.
- By April 2017 costs had been assessed and due diligence activities undertaken to refine costs. During this time options were considered for addressing a funding shortfall within the wider Defence portfolio and LOSC was identified as part of an option for addressing the shortfall, which would reduce the project's funding and scope.

By the end of 2017, Cabinet had reprioritised $148 million from LOSC to the Frigate Systems Upgrade project and directed Defence to report back with costed options for a Dive and Hydrographic Vessel. The LOSC project team was refocused to source a dive and hydrographic vessel.

THE DHV PROJECT

The overarching benefits of the Dive and Hydrographic Vessel are:

- Underwater operational competencies are generated and maintained (including the achievement of diving and hydrography seaworthiness, surface supplied breathing apparatus diving, and multi-beam echo sounder).
- The NZDF has the capacity and capability to support domestic operations, including deep diving and hydrography capabilities.
- Regional partners are supported in specialised areas, with improved options for the Government to provide underwater support.

CAPABILITY REQUIREMENTS

The capability requirements that were included in the scope of the DHV project are:

- Deep diving
- ship-based military hydrography (including large-area hydrographic survey and precise and accurate data gathering on weather conditions)
- Mine countermeasures
- Search and rescue and
- Support to other Government agencies.

BETTER BUSINESS CASE MILESTONES

Date	Approved By	Approval
LOSC milestones		
13 November 2014	Secretary of Defence & Chief of Defence Force	**LOSC Project Charter**

13 April 2015	CAB Min (15) 11/7	**Indicative Business Case** Cabinet agreed that two options be taken forward for further consideration – a Dive Hydrographic Tender and a new Littoral Operations Vessel.
4 July 2016	CAB-16-MIN-0313	**Detailed Business Case** Cabinet agreed a Littoral Operations Vessel was the preferred solution and authorised the Secretary of Defence to undertake a competitive tender.
11 December 2017	CAB-17-MIN-0539	**Change of Scope** Cabinet reprioritised $148 million of funding to the Frigate Systems Upgrade project, reducing this project's scope from a Littoral Operations Vessel to a Dive and Hydrographic Vessel.
Dive and Hydrographic Vessel project		
18 June 2018	CAB-18-MIN-0281	**Single Stage Business Case** Cabinet agreed to the purchase and modification for a second-hand commercial offshore support vessel to provide continued support for the NZDF's dive and hydrographic capabilities. Cabinet delegated to Joint Ministers (Finance and Defence) authority to commit funds for the purchase, modification, and entry into service of the Dive and Hydrographic Vessel.
19 August 2018	Ministers of Finance and Defence	**Project Implementation Business Case** Joint Ministers agreed to the procurement and modification of a Dive and Hydrographic Vessel.

CAPABILITY DEFINITION PHASE

How Defence identified and assessed capability and operational requirements

With the project scope refocused in the last quarter of 2017, work began on identifying suitable vessels that could meet Defence Force dive and hydrographic capability requirements.

A range of capability and operational requirements identified within the broader LOSC project's scope remained valid under the reduced scope of the DHV project, including:

- dynamic positioning to support use of remotely operated vehicles
- engines that are able to operate a low speed for extended periods of time to support hydrographic surveying
- a ship's crane designed for larger load lifts and operating on a platform that is fixed in location by either multiple ship's anchors (four point mooring) or a dynamic positioning system
- deep diving below 30m which is required by New Zealand law to be undertaken from a vessel that has a precise-position-keeping system, as well as with hyperbaric support on site to provide divers with a safe environment in which to recover.

In sourcing a vessel from the commercial market, it was noted that capabilities delivered and supported by the NZDF's former dive ship and hydrographic vessel would be available in an existing offshore support vessel designed to support offshore oil and gas activities.

How Defence analysed the requirements options in the Capability Definition phase

The project considered three options for acquiring a suitable vessel; commissioning a new build, leasing and modifying a vessel, and buying and modifying a second-hand vessel.

A range of available ships was assessed against requirements (eg speed, deck area, build quality, accommodation, suitability for conversion to a military vessel, and price). Another key consideration was seakeeping and stability. Seakeeping refers to a vessel's motion responses to various sea conditions and is generally expressed in terms of crew comfort and workability, potential for damage to cargo and structure, and equipment/system availability.

An evaluation of shortlisted ships was conducted in early 2018 to evaluate the condition of the vessels and evaluate their suitability for modification, and discussions were held with ship designers to build understanding of the costs and risks of modification.

The comparative assessment of each option resulted in a recommendation in the Single Stage Business Case to acquire a second-hand vessel. Cabinet agreed to this recommendation in June 2018.

How Defence considered interoperability

Defence considered interoperability in the communications capabilities of the vessel, and the ability to conduct vertical replenishment and boat transfer operations with partners.

How Defence considered through-life costs and issues

The DHV through-life costs were assessed using a range of data sources, including:

- operating costs for the platform supplied by the ship owner
- modification costs, based on quotes from the ship owner and estimates from contractors
- personnel costs estimated based on a crew of 39 full-time equivalent personnel
- general operating costs based on costs from *Manawanui*, adjusted to take account of the greater complexity of the vessel and higher number of sea days.

REQUIREMENTS ANALYSIS IN THE CAPABILITY DEFINITION PHASE

The systems required for a Dive and Hydrographic Vessel to meet New Zealand Defence Force requirements are listed in the table below, along with the capabilities these systems support:

Description of the Capability and Operational Requirements

Table 1: System requirements to deliver capability

	Dynamic Positioning System	Dive System	Hydrographic Survey System	Heavy Lift Crane	Military Communications System	Weapons and Armoury
Hydrographic Survey			■		■	
Rapid Environmental Assessment			■	■	■	
Route Survey	■	■	■	■	■	
Mine Counter Measures		■			■	■
Underwater Search and Recovery	■	■	■	■	■	
Explosive Ordnance Disposal		■	■		■	■
Maritime Presence[1]					■	■
Training	■	■	■	■	■	■

[1] "Maritime Presence" covers generic maritime capabilities such as search and rescue and defence diplomacy.

Schedule of Capability Definition Phase

Dates	Duration	Note
Aug 2013 - Nov 2014	15 months	Project Initiation to Project Charter
Nov 2014 – April 2015	5 months	LOSC Charter to LOSC IBC
Apr 2015 – Jul 2016	15 months	LOSC IBC to LOSC DBC Approval

Jul 2016 – Dec 2017	17 months	LOSC DBC Approval to carry out a request for tender. Work refocused in at the end of 2017 to define options for a dive and hydrographic vessel.
Dec 2017- Jun 2018	6 months	Reprioritisation of funding from LOSC to FSU and consequent change of scope. Cabinet directed that Defence report back by July 2018 with costed options for a dive and hydrographic vessel. Defence conducts assessment of available second-hand vessels.
Jun 2018 - Aug 2018	2 months	Defence negotiates the purchase of a preferred second-hand vessel, the *Edda Fonn.*

Expenditure in Capability Definition/Source Selection Phase

	Expenditure (NZ$)	
Definition Phase	FY 2017/18	$342,310.56
	FY 2018/19	($3,108.31)
	Total	$ 339,202.25
Explanation	The expenditure during this period relates to the work undertaken by the project to develop the Business Case, and includes travel (international and domestic), legal services, contractor fees, and sundry expenses relating to the Dive and Hydrographic Vessel. The contract was signed in August 2018 so FY 2018/19 only includes two months and the positive amount reflects an adjustment to invoicing by contractors in the previous financial year.	

History of Cost Estimates in the Capability Definition Phase

Date	30 June 2018 (DHV)	30 June 2019 (DHV)
Costs (NZ$ m))	103.416	103.416

Estimates of Acceptance Date made in the Capability Definition Phase

Estimates	Initial	At Contract Signing (August 2018)	30 June 2019 Forecast/Actual
DHV: Vessel delivery commences	January 2019 (start of voyage to New Zealand)	March 2019	March 2019 (Actual)
Vessel delivered	May 2019	May 2019	21 May 2019 (Actual)

ACQUISITION PHASE

Description of DHV Acquisition Work

Following the reprioritisation of funding, the diving and hydrographic vessel option became the preferred option for acquisition.

How Defence Decided to Acquire the Capability Solution

The project had noted that, due to a downturn in the oil and gas industry, purchasing a second-hand offshore support vessel for conversion to a dive and hydrographic vessel was comparable on a cost-benefit basis to purchasing a new purpose-built vessel.

Therefore options that were considered were:

- Commission a new build vessel
- Lease and modify a vessel
- Purchase and modify a second-hand vessel.

A market study was commissioned, which confirmed that the market at the time for offshore support vessel was at an historic low for both lease and purchase, and that – at the time the Ministry of Defence was looking for a suitable vessel – there were early signs of a recovery in the market that would affect ship availability and pricing.

Acquisition and modification of a second-hand vessel was recommended as the preferred acquisition option to ensure the project remained within budget and schedule, and to limit risk.

A commercial shipbroker provided an initial list of offshore support vessels that were available to the market. This was refined to around 150 vessels that had the potential to be suitable for conversion and use as a dive and hydrographic vessel, based on a number of requirements including accommodation on board, speed, deck area, build quality and price.

A further detailed assessment and evaluation process resulted in a shortlist of six vessels with the MV *Edda Fonn* identified as the preferred vessel in April 2018.

Risk reduction, clarification and due diligence activities

Risk reduction and clarification activities had taken place during February and March 2018, and the project team met with ship designers and equipment manufacturers, allowing the Project to:

- undertake due diligence activity in relation to the six shortlisted vessels
- monitor the market while the project was progressing towards contract
- assess customisation costs
- engage early with the Fleet Personnel Training Organisation to ensure sufficient suitably qualified and experienced personnel would be available to crew the ship.
- plan for the development of a support agreement.

Following identification of MV *Edda Fonn* as the preferred vessel, the vessel was assessed further prior to purchase. The Project Team, enhanced with RNZN personnel and supported by Babcock NZ (the Prime System Integrator), carried out a detailed inspection of the ship. A marine survey of the MV *Edda Fonn* was also conducted by an independent ship surveyor and marine consultant. These surveys confirmed the material condition of the vessel was very good, with the survey company stating the vessel was equivalent to a ship aged five to ten years younger.

An initial comparative seakeeping analysis was also undertaken by an independent contractor to explore the ship's seakeeping characteristics against those of HMNZS *Canterbury* and the RNZN offshore patrol vessels. The analysis assessed the expected characteristics of the vessel were it to

be operated in the high to extreme sea conditions that occur in New Zealand's maritime area. It was concluded that the vessel's seakeeping performance was favourable when compared to *Canterbury* or the Otago Class offshore patrol vessels in most sea states, for a given speed and heading. The RNZN Naval Engineering Authority agreed that the initial seakeeping analysis showed *Edda Fonn* exhibited acceptable seakeeping characteristics for New Zealand waters.

The opportunity was taken for Project personnel to take part in 'sea-rides', embarking on the ship when it was carrying out commercial operations in the North Sea in September and October 2018. This greatly added to the knowledge of the vessel, and helped with the development of procedures for when the ship is in service with the RNZN.

Contractual arrangements

On 20 August 2018 a Memorandum of Agreement was signed between the Chairman of Østensjø Rederi's Board and the Secretary of Defence. The MOA included:

- The purchase of MV *Edda Fonn*
- Completion of stage one modifications to the vessel by Østensjø Rederi, including changes to the moon pool, installation and integration of a Surface Supplied Breathing Air diving system, installation and integration of a Remotely Operated Vehicle and associated systems and stations, and installation of a Multi Beam, and Single Beam Echo Sounder.
- Specific training in systems and equipment.
- The ship's delivery to New Zealand.

Stage 2 modifications – focused on specific communication and military systems and equipment – were not subject to contract at 30 June 2019.

Contract Status (at 30 June 2019):

Ship acquired from	Østensjø Rederi (completed)
Stage one modifications	Østensjø Rederi (completed)
Stage two modifications	Not under contract.

DHV PROJECT BUDGET

Approved budget and expenditure

	Total (NZ$ million)
Approved budget	106.2
Life to date expenditure	67.0
Total forecast expenditure	102.2
Gross project variation (forecast)	3.9
Foreign exchange impact	(3.3)
Actual project variation (forecast)	0.7

Budget variation

	Date approved	Total (NZ$ million)
Original budget at Approval to Commit	18 June 2018	103.4
Variation on original approved budget		2.8
Approved budget		106.2
Explanation of variation		Allowance for foreign exchange movements

Project expenditure to 30 June 2019

	Total (NZ$ million)
Life to date expenditure (cumulative)	67.0
Remaining balance of approved budget	39.2
Forecast commitments	35.2

Total forecast expenditure

	Total (NZ$ million)
Approved budget	106.2
Total forecast expenditure	102.2
Gross project variation (forecast)	3.9
FOREX impact	(3.3)
Actual project variation (forecast)	0.7

Project Contingency as at 30 June 2019

	Total (NZ$ million)
Contingency built into the budget	5.3
Total contingency expended	0.3
Remaining Balance	4.9

Explanation of major contingency draw downs

Draw down	Total (NZ$ m)	Explanation

10 June 2019	0.1	Higher than projected costs of biosecurity compliance regulations and inspections ahead of entry into the shipyard were met through contingency.
22 January 2019	0.2	Funding for a number of items including support to produce a diving manual specific to the vessel's systems, enhancements to the hydrographic system, relocation of port side stores crane and preparations for vessel commissioning.
Total remaining contingency	**4.9**	

Progress of DHV Milestone Payments

A series of milestone payments were agreed on the basis that instalments were to be made when specific conditions described in the Memorandum of Agreement (MOA) between the Crown and Østensjø Rederi were achieved. The milestones documented in the MOA related to the purchase, completion of Stage 1 modification and equipment installation, and delivery of the vessel to New Zealand. The initial deposit was scheduled and paid in August 2018. The final payment was scheduled and paid in May 2019 on delivery of the ship to Devonport.

SCHEDULE/TIMEFRAME PROGRESS

The initial dates for completion of the activities in the table below were estimates at the time approval to commit to the purchase of the MV *Edda Fonn* was given by the Minister of Defence and the Minister of Finance.

	Estimate at approval to commit 19 August 2018	As at 30 June 2019 (Forecast/Actual)	Variation in acquisition phase (months)
Vessel purchased	August 2018	August 2018 (Actual)	0
Completion of Stage One modifications	March 2019	March 2019 (Actual)	0
Delivery of Vessel to New Zealand/Transfer of ownership to Crown	May 2019	May 2019 (Actual)	0
Completion of Stage 2 modifications	November 2019	November 2019 (Forecast)	0
Interim Operational Release	April 2021[6]	April 2021 (Forecast)	0
Operational Release	April 2021[7]	April 2021 (Forecast)	0

DHV PROJECT STATUS AS AT 30 JUNE 2019

	Capability: The overall project status was Yellow, reflecting that – while a significant proportion of the project had been completed at this point – the project recognised that confirming a contract for the delivery of Stage 2 modifications was taking longer than anticipated, as noted below.
	Schedule: The Stage 2 modification schedule was slightly behind schedule at this point (2-3 weeks), reflecting the time required for contract negotiations to be concluded and that – while a significant proportion of the project had been completed at this point – there was the potential for this to affect the project's schedule.
	Cost: Project operating within budget.

[6] IOR was forecast to commence November 2019 and end April 2021.
[7] Operational Release was forecast to start March 2021 and conclude the following month.

DHV CAPABILITY INTEGRATION PLAN[8]

As part of project's Capability Integration Plan, a Test and Evaluation Master Plan (TEMP) was developed, detailing the range of test and evaluation requirements. The document is usually comprised of a number of supporting test and evaluation plans, which cover the progression of the project's phases.

For the DHV project, developmental testing and evaluation was conducted as part of Stage 1 modifications to the vessel, which were completed ahead of its delivery to New Zealand. This phase included observation by the project team of factory acceptance trials for systems being fitted into the ship.

Completion of installation of Stage 1 modifications led to the start of the acceptance test and evaluation (AT&E) phase. Harbour and Sea Acceptance Trials were completed in March 2019, confirming the materiel fulfilled the requirements and specifications of the contract. AT&E for this project is being completed progressively, with further Harbour and Sea Acceptance Trials to be completed following the Stage 2 modifications.

Operational test and evaluation will test systems in operating conditions to ensure an accurate evaluation of the capability can be made. For this vessel there will be a focus on:

- evaluating the ship's readiness for service
- identifying any issues with individual equipment, sub-systems or systems that may need to be addressed
- evaluating the support system (including training, safety and sustainability)
- validating the standard operating procedures that are being developed for the vessel and crew
- helping in the development of plans for the ship's operational use.

DHV OPERATIONAL CAPABILITY

Progress towards Delivery of Operational Requirements as at 30 June 2019

Note: these are subject to change as the project progresses and solutions are implemented.

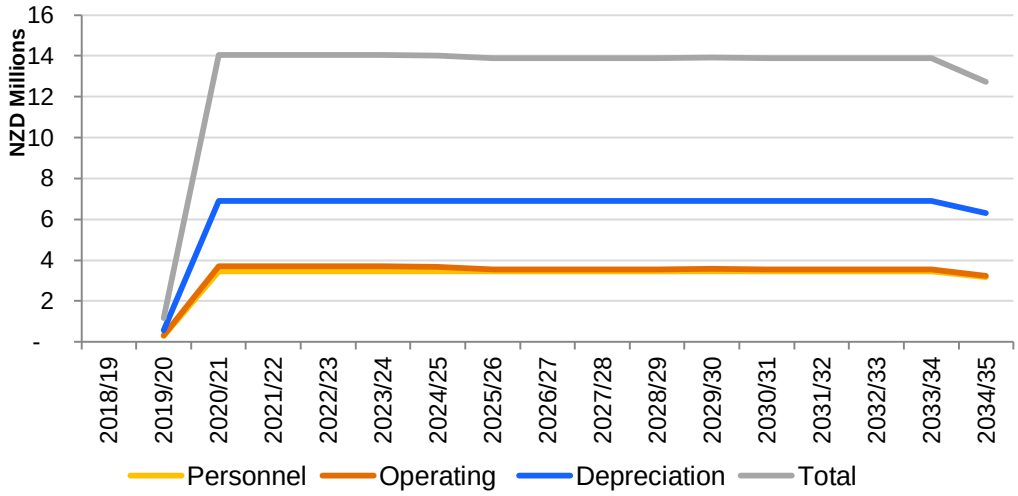
Operational Requirements	Requirement likely to be met	Comment
• Hydrographic Survey	Yes	
• Rapid Environmental Assessment	Yes	
• Route Survey	Yes (supporting capability)	*Manawanui* will provide support for delivery of these capabilities.
• Mine Countermeasures	Yes (supporting capability)	

[8] Capability Integration Plan (CIP) replaced the Introduction Into Service Plan, which is a term used in projects elsewhere in this publication. The CIP is a single, cohesive plan that details all planning and activities that need to be undertaken to properly integrate the capability. It is a 'living document' that is updated regularly.

Operational Requirements	Requirement likely to be met	Comment
• Underwater Search and Recovery	Yes	
• Explosive Ordnance Disposal	Yes	
• Maritime Presence (including search and rescue)	Yes	
• Training	Yes	
Benefits realisation is scheduled for full implementation by March 2024.		

SUMMARY OF DHV THROUGH LIFE OPERATING COST ESTIMATES

Dive and Hydrographic Vessel: Through Life Operating Costs



DEVELOPMENTS IN THE DHV PROJECT POST 30 JUNE 2019

- At the start of the new financial year the project was anticipating signing a contract for the first of two phases of equipment installation as part of the second stage of modifications to *Manawanui* and in August 2019 a contract covering some of the Stage 2 modifications was signed with Babcock NZ, and work orders covering the Stage 2A (communications) works issued. A request for tenders (RFT) was released that same day for the remaining modifications (military). Babcock NZ was also the successful tenderer in that instance and the Stage 2B modifications were added to the first contract with Babcock, and additional work orders issued.
- The Test and Evaluation Master Plan, which is discussed more in the section above, was approved in September 2019.
- On 17 February 2020 *Manawanui* sailed under the command of the Royal New Zealand Navy for the first time; the start of a two week Operational Test and Evaluation Phase. Both general seamanship and specific systems tests were undertaken. A phased Interim Operational Release for *Manawanui* was approved on 26 February, earlier than the schedule date of April 2020 reported at 30 June 2019, and was achieved as part of a wider schedule adjustment to enable the vessel to participate in Exercise RIMPAC in 2020.

- With the emergence of the COVID-19 pandemic, scheduled work on the ship was suspended and *Manawanui* was prepared for deployment if required to support the Government's response during Alert Level 4.

NH90 SIMULATOR

Project Description: This project seeks to increase the availability and sustainability of NH90 aircraft and crews for operational tasking by procuring a simulator, which will be located at RNZAF Base Ohakea.

THE PURPOSE OF THIS PROJECT

This is the second project related to the delivery of the fleet of NH90 medium utility helicopters. The original project, which focused on the fleet acquisition, featured in the first seven editions of the *Major Projects Report*. The 2016 edition of the Report stated that all nine NH90 helicopters[9] had been delivered and that RNZAF-managed flying operations had been underway since February 2012.

The NH90 fleet has fully replaced the Iroquois as the Air Force's major rotary wing aircraft capability, and provides logistical support, including troop transport and sustainment. It is capable of carrying far bigger loads, further and faster than the previous fleet.

However, the level of capability available to government from this fleet is limited by the number of NH90 pilots the NZDF can train and sustain. Current training is provided through a combination of NH90 flight hours in New Zealand, and through the use of NH90 simulators in Germany and Australia. Simulators are used for training for situations that cannot be performed safely on the actual helicopter, such as engine failures, and to work through complex tactical scenarios. However, the existing training approach was recognised as not capable of generating and sustaining sufficient pilots to meet the level of capability required by government.

With no simulator available in New Zealand, crews and instructors have to travel overseas to conduct this training, leaving a reduced number of pilots available to operate the aircraft. Having to train pilots extensively overseas also results in extra costs. Increasing simulation-based training is the most effective way of generating and sustaining sufficient pilots

Acquisition of a simulator to meet the need for training has been planned and included in Defence Capital Plans since 2009. However, emphasis had been on completing NH90 development, getting the support arrangements in place and getting the fleet into service. It was also recognised that NH90 simulators had not yet matured to the point where there was a competitive simulator market available. With the NH90 development completed, NH90 simulators are now commercially viable.

Three investment objectives were identified for this project:

- Ensure the Defence Force can produce and sustain a sufficient number of helicopter pilots capable of operating the NH90 to meet required outputs.
- Increase NH90 medium utility helicopter availability for NZDF operations and government agency tasks.
- Ensure NH90 simulator-based pilot training is resource efficient in terms of both crew availability and cost.

[9] This included one NH90 that was acquired and broken down to form the majority of the spares and logistics package.

CAPABILITY REQUIREMENTS

RNZAF No. 3 Squadron operates eight NH90 helicopters at Ohakea, with an overall planned output of 2,667 aircraft flying hours per year. It provides for:

- Three aircraft continuously available for domestic tasks and training, including national contingencies
- Three aircraft available for deployment overseas
- An additional two aircraft, which covers the fleet for scheduled or unscheduled maintenance.

This allows helicopters to be rotated through maintenance, and sustain the ongoing commitment of up to six machines at any given time. Missions include search and rescue, support for Police and counter-terrorism, Government transport, evacuation, disaster relief, and operational support for military tasks including supporting partners. Two helicopters are always available at short notice to support urgent tasks in New Zealand.

When the Squadron gets to full strength, it is planned to have 12 crews. Sustaining this number of crews requires 29 qualified NH90 pilots, but achieving and sustaining that number requires a different approach to training. Greater and easier access to simulation is needed.

The NZDF had a number of over-arching requirements for the NH90 Simulator:

a. A solution in place by 2019.

b. A minimum of 1500 hours of simulator use per year over 25 years.

c. The simulator provider to have all necessary agreements with NATO Helicopter Industries, allowing for the simulator configuration to be updated to remain comparable with the New Zealand NH90 aircraft as it is modified over time.

d. The simulator to be European Aviation Safety Agency certified to a minimum of CS-FSTD(H) Flight Training Device Level 3, with documentation delivered that is required for the NZDF to award a Permit To Operate.

e. A simulator that replicates the New Zealand version of the NH90 helicopter closely.

f. An assessment of the training activities that can be conducted on the simulator in order to gain training credits.

g. The simulator contractor to conduct logistics support activities in accordance with a framework acceptable to the NZDF Airworthiness Authority.

h. The simulation of a variety of training components, including emergency scenarios.

BETTER BUSINESS CASE MILESTONES

Date	Approved By	Approval
2 February 2016	Secretary of Defence & Chief of Defence Force	**NH90 Simulator Project Charter**
10 July 2017	Cabinet	**Approval to issue a tender and delegate financial approval to Joint Ministers (Finance and Defence)**
25 July 2018	Joint Ministers (Finance and Defence)	**Approval to Commit To Contract**

CAPABILITY DEFINITION PHASE

How Defence identified and assessed capability requirements

In late 2016 the project worked with key stakeholders to gain a better understanding of investment drivers and the need to invest in change. Through an Investment Logic Mapping exercise, it was determined that changes to the simulation-based training regime were required.

By the end of that year a wide range of options had been generated and a long list of in-scope options developed under five dimensions.

a. Scale: what levels of coverage are possible?

b. Location: Where can services be provided?

c. Ownership: How can government acquire services?

d. Service solution: How can services be provided?

e. Funding: How can services be funded?

The long-list options in each of the dimensions were assessed against critical success factors, and a short-list developed. The following options were carried forward:

- **Option 0: Status quo.** NH90 pilots continue to travel to Europe and Australia to conduct the minimum required of simulation-based training.
- **Option 1: Increased use of Australian simulators.** NH90 pilots continue to travel to Europe for simulation-based conversion training, but qualified NH90 pilots conduct increased simulation-based training in Australia.
- **Option 2: Purchase of a New Zealand-based simulator.** NH90 pilots conduct the maximum amount of simulation-based training in a Defence purchased simulator located at Base Ohakea.
- **Option 3: Lease of a New Zealand-based simulator.** NH90 pilots conduct the maximum amount of simulation-based training in a simulator leased by Defence located at Base Ohakea.

How Defence analysed the requirements options in the Capability Definition phase

The ability of each short-list option to meet the project's goals was assessed. The major benefits assessed were the abilities to:

- enable Defence to raise and sustain 29 pilots for 12 NH90 crews
- increase the NH90 flying hours available for tasking
- have NH90 pilots available at Base Ohakea for tasking
- maximise instructor availability at Base Ohakea.

Each short-listed option was assessed as to whether it met the desired investment objective, then compared to whole-of-life-cost.

How Defence considered interoperability

Interoperability of the simulator with other aircraft and tactical simulators was considered and was assessed in the tender, however it is not a key consideration of this project.

Integration of the simulator with the current NH90 helicopter mission planning system was a key outcome of the project.

How Defence considered through-life costs and issues

Payment to the supplier would be made in instalments, as milestones around production, testing, acceptance and delivery are achieved.

The main change to operating expenditure will be the adoption of a through life support agreement with CAE New Zealand. This additional expense will be offset by an annual saving in costs related to overseas simulator use.

REQUIREMENTS ANALYSIS IN THE CAPABILITY DEFINITION PHASE

	Option 0: Status quo	Option 1: Increased overseas simulation	Option 2: Purchase NZ simulation	Option 3: Leased NZ simulation
Total Pilot Training Whole of Life Cost (NPV) (NZ$ million)	577.5	444.6	317.2	330.3
Increases NH90 aircraft availability	X	O	O	O
Produces sufficient NH90 pilots	X	X	O	O
Resource efficient	X	X	O	O
Conclusion	***Eliminate***	***Eliminate***	***Preferred***	***Not Preferred***

Option 2 ‘procure a New Zealand based simulator’ was preferred as it meets all investment objectives at the best value for money of the short-list options.

Option 2:

a. enables Defence to sustain 29 NH90 pilots, allowing for a sustained international deployment of NH90 aircraft while concurrently maintaining the ability to respond to contingencies in New Zealand.
b. is resource efficient as it increases the actual availability of NH90 pilots, particularly instructors, at Ohakea by eliminating the need to travel abroad frequently to access simulators.
c. releases aircraft hours for performing tasks through increased use of simulation-based training.

While Option 3 also offers similar benefits as Option 2, it does so at a higher whole of life cost, and is therefore not the preferred option.

Description of the Capability Requirements

Capability Requirements necessary to support policy objectives include:
1. Increase NH90 medium helicopter availability for NZDF operations and Government agency tasks 2. Ensure the Defence Force can produce and sustain a sufficient number of helicopter pilots capable of operating the NH90 to meet required outputs 3. Ensure NH90 simulator-based pilot training is resource efficient in terms of both crew availability and cost.

Schedule of Capability Definition Phase

Dates	Duration	Note
Feb 2016		Project Charter
Feb 2016 – July 2017	17 months	NH90 Sim Project Charter to SSBC (approval to issue request for tender)
July 2017 – July 2018	12 months	Request for tender to approval of PIBC (approval to commit to contract)

Expenditure in Capability Definition/Source Selection Phase

	Expenditure (NZ$)	
Definition Phase (pre SSBC approval)	2015/16	6,656
	2016/17	41,754
Source Selection (post SSBC approval)	2017/18	314,620
	Total	363,030
Explanation	Expenditure during the definition phase, prior to Cabinet approval of Project Implementation Business Case.	

History of Cost Estimates in the Capability Definition Phase

Date	2017	2018
Costs (million)	42.4	42.7
Explanation	The Single Stage Business Case in 2017 estimated the cost of the project at $42.4M (including $4M project contingency and $4.4M FX contingency.	

Estimates of Acceptance Date made in the Capability Definition Phase

The Single Stage Business Case estimated the Operational Release (Acceptance) of the simulator as Q1 of 2020.

ACQUISITION PHASE

Description of acquisition work

In July 2017 Cabinet gave approval to issue a tender. The procurement strategy was to hold an open competitive tender for the provision of an NH90 pilot training simulator under a purchase contract.

How Defence decided to acquire the Capability Solution

A Request for Tender was issued on the Government Electronic Tenders Service (GETS) on 19 July 2017. Participants were provided with tender documents, including a draft procurement contract prepared by Defence.

Five tenders were received by the September 2017 deadline. All proposed a newly built simulator.

The tender evaluation was conducted in three phases in October 2017:

- overall check that each tender was compliant with the request for tender
- detailed evaluation of each tender
- comparison and ranking of tenders.

Four of five tenders were found to be compliant with the basic tender requirements and were carried forward to phase two.

In Phase two, specialist working groups scored each tender against requirements on technical and logistics aspects, and commercial risk. These scores were weighted and combined to give an overall weighted non-financial score.

In Phase three, the Tender Evaluation Management Group reviewed the specialist working group assessments and compared tenders to provide a value for money recommendation. Three tenders were subsequently down selected for additional due diligence information gathering.

Due diligence visits were conducted during November 2017, based on questions and additional information requirements raised during the second and third phases. The information received from the due diligence visits was the basis to making a final recommendation to the Defence Acquisition Review Board which approved the project team's recommendation of the Canadian-based company CAE as preferred tenderer, and directed that initial negotiations commence in January 2018.

Contract Status (as at 30 June 2019):

Prime contractor	CAE, Montreal, Canada

NH90 SIMULATOR PROJECT BUDGET

Approved budget and expenditure

	Total (NZ$ million)
Approved budget	43.3
Life to date expenditure	26.5
Total forecast expenditure	42.5

Gross project variation (forecast)	0.8
Foreign exchange impact	(0.4)
Actual project variation (forecast)	0.4

Budget Variation

	Date approved	Total (NZ$ million)
Original budget at Approval to Commit	10 July 2017	42.7
Variation on original approved budget		0.6

Explanation of major budget variations

Date of individual variation	Total (NZ million)	Explanation
19 November 2018	0.6	Additional NZ$0.6 million approved as a non-cash technical adjustment for foreign exchange movement.

Project expenditure to 30 June 2019

Total (NZ$ million)	
Life to date expenditure	26.5
Remaining balance of approved budget	16.8
Forecast commitments	16.0

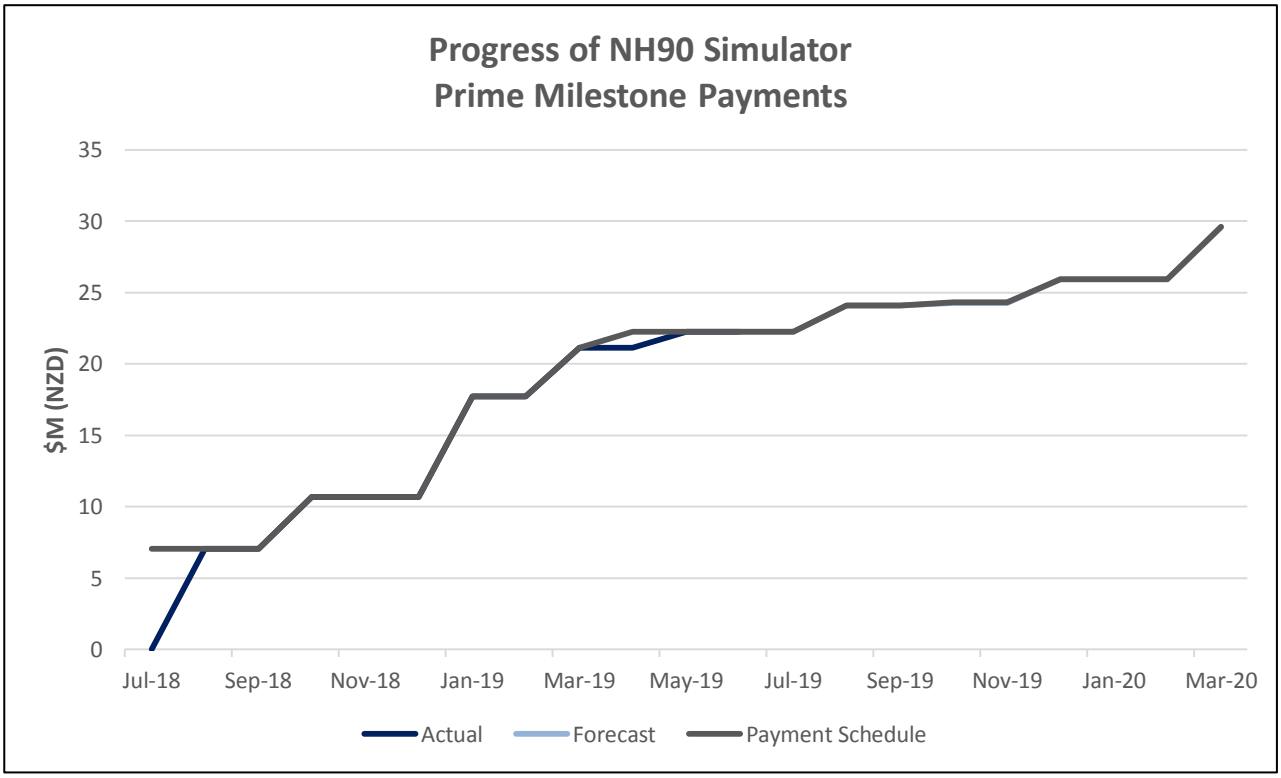
Total forecast expenditure

Total (NZ$ million)	
Approved budget	43.3
Total forecast expenditure	42.5
Gross project variation (forecast)	0.8
FOREX impact	(0.4)
Actual project variation (forecast)	0.4

Project Contingency as at 30 June 2019

	Total (NZ$ million)
Contingency built into the budget	3.8
Total contingency expended	0.0
Remaining Balance	3.8

Progress of NH90 Simulator Prime Milestone Payments



SCHEDULE/TIMEFRAME PROGRESS

	Original forecast at Approval to Commit	30 June 2019 Forecast/Achieved	Variation (months)
Contract signed	August 2018	July 2018	-1
Completion of Detailed Design Review	April 2019	December 2018 (Actual)	-4
Handover to Test	May 2019	March 2019 (Actual)	-2
Handover to Integration	June 2019	May 2019 (Actual)	-1
Completion of In-House testing	November 2019	September 2019 (Forecast)	-2
Facility Readiness[10]	November 2019	September 2019 (Forecast)	-2
Completion of In-Field Testing	June 2020	March 2020 (Forecast)	-3
Ready for Training (Acceptance)	July 2020	May 2020 (Forecast)	-2
Comment	Initial schedule estimates were made at the time the Project Implementation Business Case was submitted. At the time the contract was awarded, dates were firmed up as much as possible prior to completion of preliminary and detailed designs.		

NH90 SIMULATOR PROJECT STATUS AS AT 30 JUNE 2019

	Capability: The training development tasks were underway and on track, infrastructure is the key to delivery of the simulator to Ohakea. No issues identified.
	Schedule: All scheduled tasks including infrastructure were on track against baseline.
	Cost: The project was performing within approved budget allocation.

[10] A new building to house the NH90 simulator is a project deliverable.

NH90 SIMULATOR CAPABILITY INTEGRATION PHASE

Description of Capability Integration Phase

A Capability Integration Plan (CIP) was approved in June 2019 and was developed to identify and schedule the tasks and activities, including the qualification processes required to bring the NH90 Simulator into operational service. It records the process that will see the NH90 Simulator transition from the delivery phase to being in-service.

Schedule of Capability Integration

	PIBC	30 June 2019 Forecast	Variance (months)
Initial Operational Capability	May 2020	May 2020	0
Operational Release	July 2020	July 2020	0
Benefits Realisation	May 2022	May 2022	0

NH90 SIMULATOR OPERATIONAL CAPABILITY

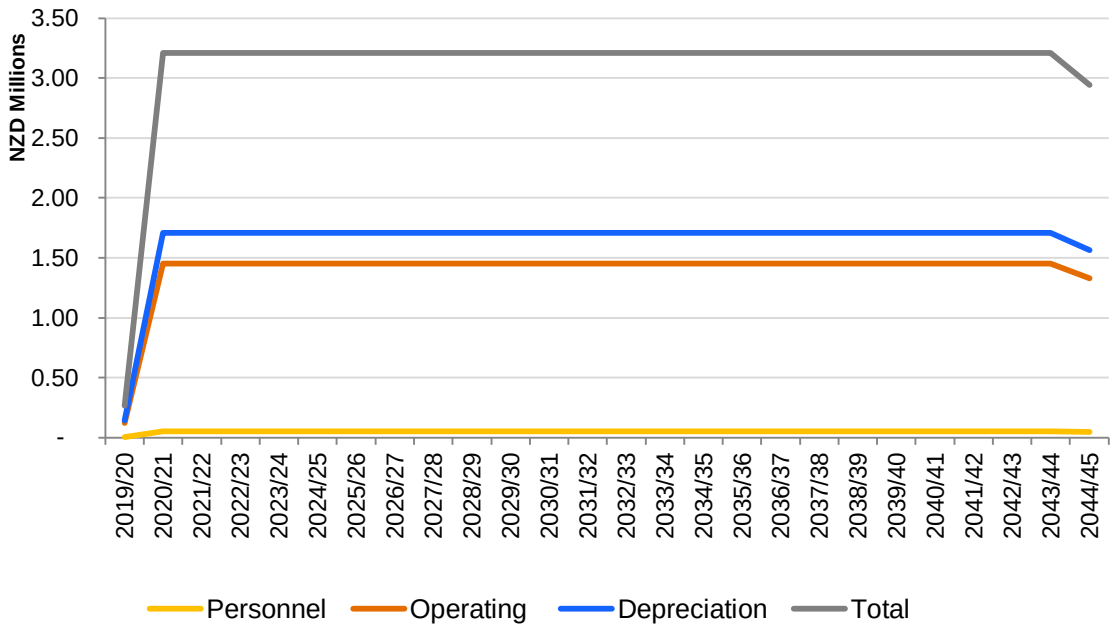
Progress towards Delivery of Operational Requirements as at 30 June 2019

Note: these are subject to change as the project progresses and solutions are implemented.

Operational Requirements	Requirement likely to be met	Comment
• NH90 flight training device • High fidelity training system qualified (as a minimum) as an EASA CS-FSTD(H) level 3 device with Level D Visual Display system.	Yes	Contracted requirement with CAE
• Separate On board and off Board Instructor operating Stations	Yes	Contracted requirement with CAE
• Mission Planning System	Yes	Contracted requirement with Airbus Helicopter
• Tactical Scenario Generating System	Yes	Contracted requirement with CAE
• Initial operating and maintenance/support training	Yes	Contracted requirement with CAE
• Delivery of a facility to house, operate and support the simulator at RNZAF Base Ohakea	Yes	Build underway
• NH90 Flight Training Device logistics support agreement (supporting the capability throughout its service life)	Yes	Contracted requirement with CAE
Benefits realisation is scheduled for full implementation by December 2028.		

SUMMARY OF NH90 SIMULATOR THROUGH LIFE OPERATING COST ESTIMATES

NH90 Simulator: Through Life Operating Costs



DEVELOPMENTS IN THE NH90 SIMULATOR PROJECT POST 30 JUNE 2019

- The infrastructure to house the simulator and training facility was completed in November 2019.
- During the year in review, the project had been progressing to schedule, in September 2019 CAE Canada advised a six-week delay to the simulator's In House Acceptance Testing (IHAT) dates. During this time it was expected that the simulator would be made ready for the test to be run. When the IHAT activity took place in November 2019 it became evident that further work was required.
- IHAT was completed successfully in February 2020, and Defence authorised CAE Canada to power down the simulator and prepare it for shipment to New Zealand. Variations to other remaining project milestones are completion of in-field testing, which will be conducted at the new facility at RNZAF Base Ohakea in October 2020, and the Ready For Training date of September 2020.
- A further delay to the Ready for Training date was confirmed in April 2020, as a result of international travel restrictions affecting both Canada and New Zealand in response to the COVID-19 pandemic. While the simulator arrived in New Zealand on 1 May 2020, and installation commenced at Ohakea on 11 May, rather than being undertaken by a team of engineers from CAE Canada, this work was undertaken by a small team of local installers, with virtual engineering support supplied by CAE Canada.

MAJOR PROJECTS THAT APPEARED IN THE 2018 EDITION

ANZAC FRIGATE SYSTEMS UPGRADE

Project Description: The primary objective of the Anzac Frigate Systems Upgrade Project is to restore the frigates' ability to fulfil credible combat roles and provide high quality surveillance products in the contemporary and emerging security environment. This will ensure that the Government retains the ability to deploy the frigates to the Pacific and beyond, enabling them to operate with confidence in low- to medium-threat environments.

THE PURPOSE OF THIS PROJECT

The Frigate Systems Upgrade Project (FSU), originally known as the Self Defence Upgrade, was initiated in 2007. The Royal New Zealand Navy had advised that the Anzac frigates, HMNZS *Te Kaha* and *Te Mana*, were over 10 years old and that many of the surveillance and combat systems were becoming obsolete and in need of replacement. Threats in the maritime environment had also changed, with new technology once only available to larger countries now becoming available to small states and other groups.

This project will ensure that the mission and weapon systems on board the Anzac class frigates continue to contribute towards their combat viability, addressing the erosion of capability that has continued to occur through a combination of system obsolescence and emerging threats.

By maintaining the combat effectiveness and efficiency of the Anzac frigates over their remaining lives this will sustain and enhance the Naval Combat Force's contribution toward government options for:

- defending New Zealand's sovereignty, its Exclusive Economic Zone and territorial waters
- operating with the Australian Defence Force to discharge our obligations as an ally of Australia
- contributing to peace and stability operations in the South Pacific
- contributing to whole-of-government efforts at home in resource protection
- participating in Five Power Defence Arrangements and other multilateral exercises or operations
- providing a physical demonstration of New Zealand's commitment to regional and global security, including protecting sea lines of communication.

The *Defence White Paper* published in 2010 had reiterated the requirement of the Government at the time that the frigates will provide effective, credible combat capabilities, and for the frigates to be given a self-defence upgrade by 2017[11] to address obsolescence and to improve their defensive capability against contemporary air and surface threats.

CAPABILITY REQUIREMENTS

The capability requirements necessary to support these policy objectives include:

[11] Since publication of the Defence White Paper 2010, changes to the project's schedule have seen the completion date updated (see page 66, Schedule of Capability Integration)

- **Participation:** the ability to participate in national, allied and coalition activities to the Combined Force Commander in order to maximise the effective contribution made.
- **Strategic Situational Awareness:** the ability to achieve situation awareness of electromagnetic emissions to the Combined Force Commander and specified agencies in support of tactical and strategic objectives.
- **Air Threat to Others:** an ability for a defended surface unit to operate in an area under an air threat to the Combined Force Commander in order to undertake its designated mission.
- **Surface Threat to Others:** the ability to deliver the neutralisation of a surface delivery platform prior to its weapon launch to the Combined Force Commander in order for a defended unit in close proximity to be able to continue with its mission.
- **Effects Ashore:** the ability to deliver effects ashore from organic weapons to the Combined Force Commander in order to support land operations.
- **Through Life:** the Logistics Commander (Maritime) is able to deliver availability to the Commander Joint Forces New Zealand of a platform that can complete a mission throughout its remaining life.

FSU'S BETTER BUSINESS CASE MILESTONES

Date	Approved By	Approval
June 2007	Secretary of Defence & Chief of Defence Force	**Original Project Charter.**
29 March 2012	Secretary of Defence & Chief of Defence Force	**Revised Project Charter.**
6 August 2008	Cabinet POL Min (08)14/6	**Approval of Indicative Business Case.** Cabinet agreed that all five options be fully developed for a main gate business case that will be prepared by officials.
12 November 2012	Cabinet CAB Min (12) 40/5A	**Approval of Detailed Business Case.** Cabinet approved Option 4[12] and authorised the Secretary of Defence to issue Requests for Tender.
14 April 2014	Cabinet CAB Min (14) 13/14	**Approval of Project Implementation Business Case.** Cabinet agreed to proceed with the FSU and authorised the Secretary of Defence to conclude contracts.

[12] Option 4 is described below.

6 December 2017	Cabinet CBC-17-MIN-0037	**Approval of additional funding.** Cabinet agreed to $148 million additional funding to complete equipment installation.

CAPABILITY DEFINITION PHASE

How Defence identified and assessed capability and operational requirements

The project team carried out an analysis to identify the technical requirements for the FSU.

A number of mission systems were identified as facing imminent obsolescence and their support was becoming increasingly difficult and expensive. An Indicative Business Case (IBC) was developed and presented to Cabinet in which a range of options of increasing complexity and cost were identified.

Cabinet agreed in August 2008 that all five options should be developed and costed in the Detailed Business Case (DBC). Shortly after work on the DBC had begun, the Government announced work on a new Defence White Paper. Work on the FSU was paused until the White Paper had been completed in 2010 and the future of the frigates had been confirmed.

The DBC developed four options. The fifth option presented in the IBC, to counter higher levels of threats, was not advanced in the DBC due to its higher cost. An additional option that closely replicated the upgrade being planned for the Royal Australian Navy was included in the options analysis as an upper bound comparator.

The systems considered for upgrade or replacement were:

- Combat Management System
- Tactical Radar Systems
- Defensive Missile Systems
- Infrared Search and Track
- Radar Electronic Support Measures
- Underwater sonar
- Tactical datalinks
- Decoys
- Torpedo Defence System
- Combat System Trainer.

How Defence analysed the requirements options in the Capability Definition phase

The project team developed a cost-benefit model in order to compare various combinations of core combat system components, user requirements and the indicative costs for each system derived from Request for Information data. It assessed the contribution of each component to the benefits and then compared costs. The most cost-effective packages were grouped into four options that presented the greatest benefit for that level of cost.

How Defence considered interoperability

Interoperability was one of the key considerations of the FSU project. The frigates need to remain interoperable with our partners, especially Australia. The Anzac frigates are part of a joint capability programme between New Zealand and Australia. As a result, the frigates comprise New Zealand's main contribution toward naval combat force Anzac operations and exercises.

Under the original Anzac acquisition programme, New Zealand and Australia laid the foundations for joint management and support of the ships throughout their lives. This was formalised through the 1991 signing of an Implementing Arrangement for the Management of Assets and the In Service Support of the Anzac class frigates and shore facilities.

The Royal Australian Navy has an upgrade project for their Anzac class frigates underway, and systems common to both navies were incorporated in the options considered. Each of the options was designed to retain interoperability with Australia and other partners while providing a useful level of complementary capabilities.

How Defence considered through-life costs and issues

In general, the FSU project is replacing existing systems with contemporary versions. In many capability areas, the systems have been simplified in both architecture and quantity while increasing capability. There are, however, also new technologies that will be introduced which are not currently in service.

Changes in through-life costs were estimated from a range of sources, including historic costs and industry information. From this broad base of information a cost model was developed resulting in a discounted net present cost for each option, allowing a financial comparison between options.

REQUIREMENTS ANALYSIS IN THE CAPABILITY DEFINITION PHASE

Options considered	Cost Estimates (NZ$ million)	Advantages	Disadvantages
Option 0: No upgrade	$0	No capital cost.	Does not meet policy expectations.
Option 1: Surveillance Capability This option would allow the ships to conduct surveillance missions but only in a low threat environment in the Southwest Pacific and to a limited extent elsewhere.	$253-271	Meets intelligence, surveillance and reconnaissance (ISR) requirements in low threat environments in the Southwest Pacific.	Does not meet ISR requirements, nor combat and protection roles outside the Pacific.
Option 2: Air Threat Capability This option undertakes most of the upgrades listed in Option 1 plus it provides the minimum requirements to defend the ship against air threats.	$298-318	Meets ISR requirements in all regions plus a minimum air defence capability.	Does not meet combat and protection roles outside the Pacific region.
Option 3: Limited Multi-Threat Capability This option builds on Option 2 by including an obsolescence upgrade to the existing sonar and the missile decoy system.	$313-332	Meets ISR requirements in all regions. Meets underwater surveillance and missile decoy requirements.	Does not meet combat and protection roles outside the Pacific region, including detection and defence against torpedoes.

Options considered	Cost Estimates (NZ$ million)	Advantages	Disadvantages
Option 4: Multi-threat Capability In addition to Option 3, this option provides a practical and sustainable level of defence against torpedo threats and increases the number of missiles in the anti-ship missile system.	$354-374	Meets all policy expectations for ISR, combat and protection.	Higher capital cost than other options.

An additional option was developed to replicate as closely as possible the Australian Anzac frigate upgrade. This comparator was used to compare costs, benefits and risks.

Option 5: Australian Upgrade Comparator This option matches closely the upgrade path being pursued for the Australian Anzac frigates.	$411-431	Meets all policy expectations for ISR, combat and protection. Builds on development work undertaken by Australia.	High capital cost. Likely to incur higher support and maintenance costs. The result is an option of high cost and lower overall benefit compared to Option 4.
ASSESSMENT: Option 4 was assessed to be the best solution. It restores the frigates to their original baseline against contemporary threats and updates all obsolete equipment. It would give the Government the confidence to deploy the frigates either alone or as part of a joint task force to regions where credible threats are likely to be faced. Option 4 achieves significantly increased deployment options for the frigates, via a relatively small marginal increase in cost over Options 1-3. Option 5 would provide an upgrade at higher cost and lower overall benefit.			

Description of the Capability and Operational Requirements

Capability Requirements necessary to support policy objectives include:	**Operational Requirements** necessary to support the capability include:
1. Participation: The Command shall be able to deliver the ability to participate in national, allied and coalition activities to the Combined Force Commander in order to maximise the effective contribution made. 2. Strategic Situational Awareness: The Command shall be able to achieve situation awareness of electromagnetic emissions to the Combined Force Commander and specified agencies in support of tactical and strategic objectives. 3. Air Threat to Others: The Command shall be able to deliver an ability for a defended surface unit to operate in an area under an air threat to the Combined Force Commander in order to undertake its designated mission.	Combat Management System (CMS). The CMS is the human-machine interface used to control weapons and sensors in manual, semi-automatic and automatic modes. It provides the display mechanism for all ship sensors allowing disparate information from numerous sources to be fused into a single picture. The ship cannot operate in an ISR, intelligence or combat role without the CMS. Intelligence Systems. These are highly sensitive radio and radar receivers able to direction find and analyse emissions to aid in identification. They contribute to both tactical and strategic outputs. Radar Systems (Surveillance and Reconnaissance). Military radars use

4. Surface Threat to Others: The Command shall be able to deliver the neutralisation of a surface delivery platform prior to its weapon launch to the Combined Force Commander in order for a defended unit within 4 km to be able to continue with its mission. 5. Effects Ashore: The Command shall be able to deliver effects ashore from organic weapons to the Combined Force Commander in order to support land operations. 6. Through Life: The Logistics Commander (Maritime) shall be able to deliver availability characteristics to the Commander Joint Forces NZ in order to enable completion of a mission throughout the life of the platform.	sophisticated technologies that allow the tracking of small and fast objects against a background of land and in the presence of a cluttered electromagnetic environment. Optronics (Surveillance and Reconnaissance). Use of both the visible and infrared spectra provides a significant passive means of detection, tracking and identification. Infrared Search and Track (IRST) systems provide near continuous 360° observation. The infrared component of these sensors allows a high level of capability to be maintained at night and in poor atmospheric conditions. Air Defence. Air defence against attacking aircraft or missiles is local area and point defence. They span a range from approximately 2km to 30km from the ship and can include the ability to defend protected units (usually other vessels) within a limited range. This defence is considered credible for a general purpose frigate and is achieved using Point Defence Missile Systems. Closer in defence is conducted at ranges less than 2km and uses systems such as the Phalanx Close-in Weapons System (CIWS) and missile decoys such as chaff. Anti-Surface. Existing weapons provide strike capability for anti-surface warfare. The FSU project will need to bridge the capability gap in the sensors necessary to optimise the performance of these weapons. Under Sea Warfare. FSU User Requirements are for detection of and defence against a torpedo launched at the ship. Frigates' sensor-sharing capability will usually deter a submarine from undertaking surveillance near the ship. Support to Joint Task Force (JTF). The *Defence White Paper 2010* emphasised the NZDF being able to respond to security events in the Pacific region and further afield into Asia. NZDF frigates have an important role to provide defence for a task group and to provide multi-source high quality surveillance and reconnaissance data.
NOTE: The operational and capability requirements listed here were those identified in the suite of requirement documents produced during the Capability Definition Phase. During the tender and contract negotiation process these requirements are converted into function and performance specifications (FPS) that become the contracted deliverables. During the contract negotiation process the operational requirements have to be balanced against cost or viability considerations.	

Schedule of Capability Definition Phase

Dates	Duration	Note
June 2007 to February 2009 November 2010 to November 2012	44 months	Work on the project was suspended from about February 2009 to November 2010 pending the outcome of the Defence White Paper.

Expenditure in Capability Definition/Source Selection Phase

	Expenditure (NZ$)	
Life of Type Study	N/A	
Definition Phase	Up to June 2011 +	$69,772
	2011/12	$604,739
	2012/13	$930,477
	2013/14	$745,290
	Total	$2,350,278

History of Cost Estimates in the Capability Definition Phase

Date	2004	2008	2012
Costs (million)	$300	$287-845	354-374
Explanation	The early estimate was based on an assumed scope for the upgrade, before any planning work had been undertaken. The 2008 range included a high end option as a comparator that was not proceeded with.		

Estimates of Acceptance Date made in the Capability Definition Phase

Estimates	Initial	At Contract Signing	30 June 2019 Forecast/Actual
Date	Around 2010	Ship 1: *Te Kaha* March 2017 Ship 2: *Te Mana* February 2018	Ship 1: September 2020 (forecast) Ship 2: May 2021 (forecast)
Explanation	The new forecast acceptance date at June 2019 reflects two major changes: 1. Changes to the start date for the installation phases of this project for both ships, which was agreed in the Installation Contract Change Proposal signed in December 2017. 2. Changes to the Acceptance date for *Te Kaha*, notified by Lockheed Martin, were a result of delays with installation phase work.		

ACQUISITION PHASE

Description of acquisition work

On 6 November 2012 the Cabinet Committee on State Sector Reform and Expenditure Control authorised the Secretary of Defence to:

a. Issue Requests for Tender for the lead contractor, supply of components and other items as required to deliver the capability level; and
b. Include in the Requests for Tender an option of acquiring a full combat inventory of missiles.

How Defence decided to acquire the Capability Solution

Requests for Tender were issued in February 2013. Evaluation of the five tenders for the Combat System Integrator (CSI) resulted in a clear preferred supplier. Two respondents offered a baselined[13] solution that was approximately 15 – 20% less expensive than the other three. The higher cost proposals would have resulted in a compromise in capability to maintain the total project cost within that agreed to at the Detailed Business Case stage. Of the two lower cost solutions, one tender had a noticeably lower evaluation score, and posed a higher level of project and schedule risk. Conversely, the Lockheed Martin Canada (LMC) tender was a thorough response with a lower level of risk reflective of FSU being an extension of LMC's existing Halifax Class Frigate upgrade for the Royal Canadian Navy.

A number of preferred Original Equipment Manufacturers (OEMs) were also evaluated and identified as being able to provide the stand-alone systems not offered by the CSI, but which are required to meet the level of capability directed by Cabinet.

On 14 April 2014, Cabinet approved the Project Implementation Business Case and authorised the Secretary of Defence to award contracts to LMC and others as required for equipment and services not forming part of the LMC contract. Cabinet approved NZ$446.193 million of capital expenditure for the acquisition and introduction into service of the FSU project (based on foreign exchange rates as at 1 April 2014). This included up to $20 million as a special contingency against risk in the design and installation stages.

In December 2017, following the detailed design phase of the project identifying higher than expected installation costs for the project, Cabinet authorised the Secretary of Defence to commit and approve additional expenditure of $148 million for the Frigate Systems Upgrade project bringing the total approved budget to $639.0 million. A contract change proposal for the installation phase was signed with Lockheed Martin Canada in December 2017. The project schedule and costs have been re-baselined to reflect these changes.

Contract Status (as at 30 June 2019):

Prime contractor	Lockheed Martin Canada

[13] In order to evaluate on an equitable basis, responses were baselined by adding or subtracting components and costs from the responses where they differed.

FSU PROJECT BUDGET

Approved budget and expenditure at 30 June 2019

	Total (NZ$ million)
Approved budget	638.9
Life to date expenditure	455.7
Total forecast expenditure	610.6
Gross project variation (forecast)	28.4
Foreign exchange impact	(27.7)
Actual project variation (forecast)	0.7

Budget variation (original/current)

	Date Approved	Total (NZ$ million)
Original budget at Approval to Commit	14 April 2014	446.2
Current approved budget	6 December 2017	638.9
Variation on original approved budget		192.7

Explanation of major budget variations

Date of individual variation	Total (NZ million)	Explanation
16 November 2015	44.7	Additional NZ$44.7 million approved as a non-cash technical adjustment for FX movement 2015 October Baseline Update
6 December 2017	148.0	Additional $148 million funding approved to complete equipment installation.

Project expenditure to 30 June 2019

	Total (NZ$ million)
Life to date expenditure (cumulative)	455.7
Remaining balance of approved budget	183.3
Forecast commitments	154.9

Total forecast expenditure

	Total (NZ million)
Approved Budget	638.9
Total forecast expenditure	610.6
Gross project variation (forecast)	28.4
Foreign exchange impact	(27.7)
Actual project variation (forecast)	0.7

Nature of variation (forecast)	Total ($million)	Explanation
Actual project variation	28.4	Foreign exchange impact
Foreign exchange impact	(27.7)	
Total	0.7	

Project Contingency as at 30 June 2019

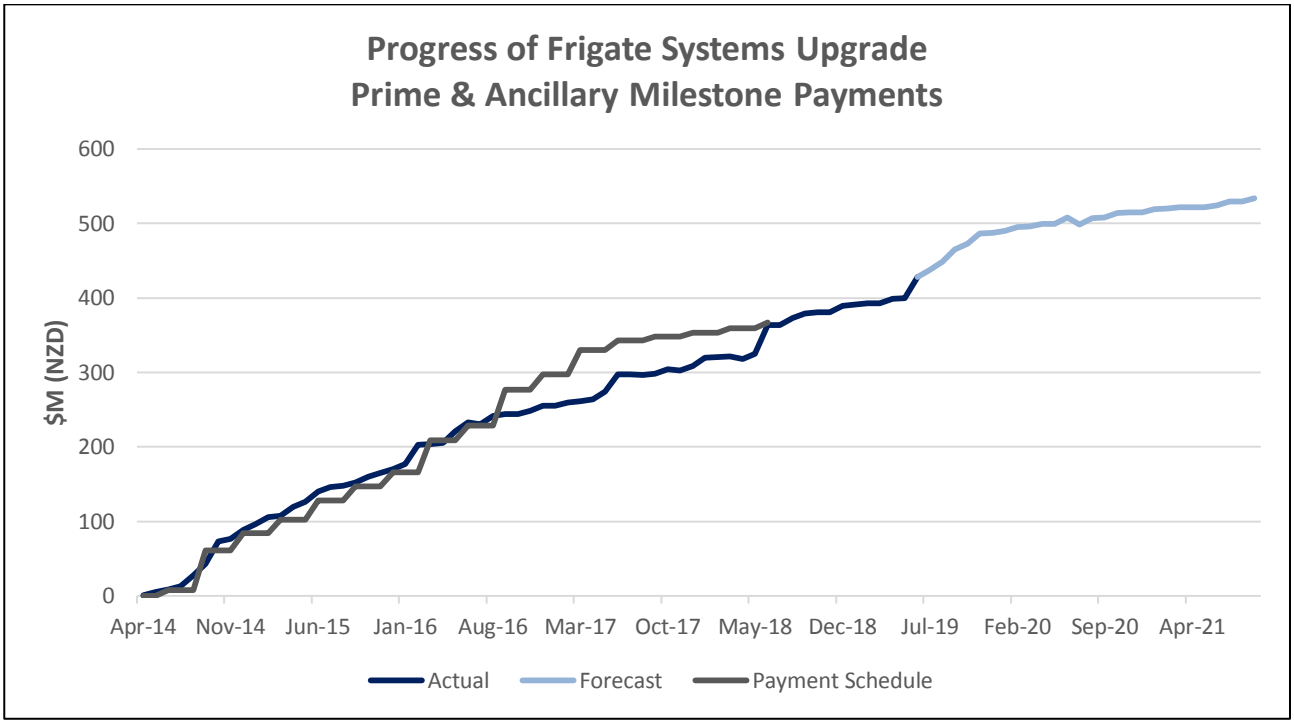
	Total (NZ$ million)
Contingency built into the budget	26.0
Total contingency expended	1.0
Remaining Balance	25.0

Explanation of major contingency draw downs

Draw down	Total (NZ$ m)	Explanation
17 October 2018	0.25	Equipment disposal: deconstruction and disposal in Canada of equipment that cannot be salvaged and returned to New Zealand.
22 March 2019	0.72	Customisation of the ship design was undertaken to manage variations identified between the two ships.
Total remaining contingency	**25.0**	

Progress of Anzac Frigate Systems Upgrade against the Milestone and Ancillary Payments Schedule[14]

NOTE: This displays the project's progress by comparing actual milestone payments against the milestone payments schedule agreed to in the prime contact. Milestone payments are made upon the contractor's provision of key deliverables and are therefore a good way to identify timing and size of schedule slippage.



SCHEDULE/TIMEFRAME PROGRESS

Variations in forecast acceptance date

		Original forecast at Approval to Commit	30 June 2019 Forecast/Actual	Variation (months)
Acceptance Date	Ship One	March 2017	September 2020 (Forecast)	42
	Ship Two	February 2018	May 2021 (Forecast)	39
Comment		The initial schedule estimates were made at the time the Project		

[14] This graph represents the Prime contract and Ancillary contract. It does not include the $12 million Project Management or the $26 million contingency.

	Implementation Business Case was submitted. At the time the contract was awarded, the dates were firmed up as much as they could be prior to the completion of the preliminary and detailed designs. Following completion of the detailed design phase, approval for additional funding and a re-baselining of the schedule was received from Cabinet in December 2017. The June 2019 Forecast reflects the re-baselined schedule from December 2017, including revised installation start dates of May 2018 for Ship 1 (*Te Kaha*), and May 2019 for Ship 2 (*Te Mana*) both of which were achieved. It also reflects the revised schedule for *Te Kaha* provided by Lockheed Martin in March 2019. Due to delays in the industrial phase work for *Te Kaha* a new Acceptance date of 10 September 2020 has been advised by Lockheed Martin Canada. There is no change to *Te Mana's* Acceptance date.

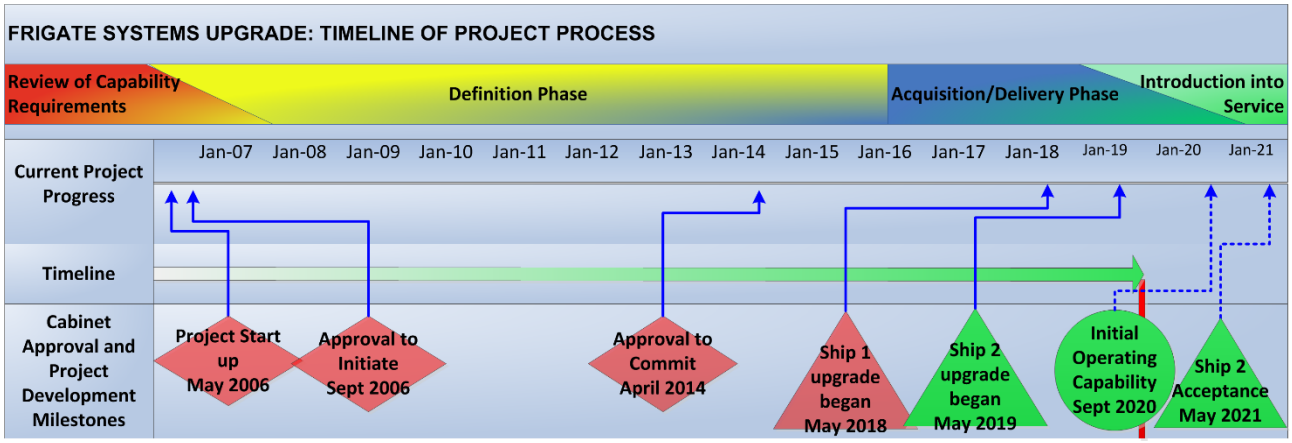
History of variations to schedule

Date of individual variation	Variation length (months)	Explanation
6 December 2017	38	Ship One: the forecast variation to the acceptance date as a result of the re-baselining of this project in December 2017. Completion of the Detailed Design for the installation phase had identified that a revised schedule was required.
6 December 2017	39	Ship Two: as with Ship One, the new acceptance date was set as a result of the project's schedule re-baselining in December 2017.
March 2019	42	Ship one: Due to delays with the industrial phase work for *Te Kaha*, a revised Acceptance date was provided by Lockheed Martin in March 2019.

FSU PROJECT STATUS AS AT 30 JUNE 2019

	Capability: The Frigate Systems Upgrade project is designed to maintain the frigates' surveillance, combat and self-defence capabilities through to their end of life. All the capability outlined in the PIBC will be delivered. *Te Kaha* is nearing the end of the installation phase for new capability and later in 2019 will enter her reactivation and trials phase. *Te Mana* started her capability installation phase on 1 May 2019.
	Schedule: The installation phase for ship 2 commenced on 1 May 2019 meeting agreed contractual milestones and the revised baseline schedule (approved December 2017). *Te Mana* is under care and custody of Lockheed Martin and work has begun on the removal and disposal of old equipment, ahead of new system installation starting later in 2019. *Te Kaha's* schedule has been revised from Acceptance in May 2020 to September 2020. Despite this schedule delay, the industrial phase for *Te Kaha* is progressing. Preparations are underway for the arrival of *Te Kaha's* crew in September 2020 in time for Handover, when the Crown regains care and custody of *Te Kaha* from Lockheed Martin and their subcontractor, Victoria Shipyards Ltd.

	Cost: The project is performing within approved budget allocations.



FSU CAPABILITY INTEGRATION PHASE

Description of Capability Integration Phase

An Introduction into Service Plan was developed to coordinate the test and evaluation processes required to bring the upgraded frigates back into operational service with the following main activities:

Engineering change process: The overarching framework is the RNZN Engineering Change Process. This is a well-established structured process which ensures all elements are completed.

Data Management and Documentation Deliveries: documentation delivered by the contractors will be reviewed and then entered into the Logistic Information Management System.

Acceptance Testing: Acceptance testing will be based on the Royal Australian Navy (RAN) Test and Evaluation procedures. Testing will include Factory, Harbour and Sea Acceptance Tests. Acceptance testing of the Sea Ceptor missile system will include a significant amount of modelling analysis that will be achieved through collaboration with partner navies.

Operational Test and Evaluation: will be conducted by the NZDF in order to satisfy that the delivered suite of products meets the original intent. Additionally it baselines the delivered systems and identifies its capabilities and limitations.

Training: Three types of training deliverables will be provided; training systems, training data/documentation and training courses. These deliverables will be managed by the project's ILS manager liaising with the end users.

Leveraging Partner Defence Force Relationships: In order to both meet system requirements and provide through life support, arrangements will be leveraged with partner defence authorities. Implementation Arrangements are now in place with both Canada and the UK.

Safety case data will be provided by the FSU Project to allow Defence to raise relevant safety cases for approval by the Naval Capability and Armament Certification boards as appropriate. Similarly, prior to classified data being held on any delivered system, the system must be certified to recognised security standards.

Schedule of Capability Integration

	Initial Estimate	30 June 2019 Forecast/Actual	Variance (months)
Date Platform accepted by Crown	Ship 1 March 2017 Ship 2 February 2018	Ship 1: *Te Kaha* September 2020 (Forecast) Ship 2: *Te Mana* May 2021 (Forecast)	42 39
Achieve Initial Operational Capability	May 2017	September 2020 (Forecast)	40
Commence Operational Test and Evaluation	May 2017	May 2021 (Forecast)	48
Finish Operational Test and Evaluation	February 2018	July 2022 (Forecast)	53
Full Operational Capability	TBC	July 2022 (Forecast)	-
Explanation	The initial schedule estimates were at the time of submitting the Project Implementation Business Case in 2014. A contract change proposal for the installation phase was signed with Lockheed Martin Canada in December 2017 post Cabinet approval of additional funding. The project schedule was re-baselined at that point. In addition, in March 2019 Lockheed Martin advised the Crown of a delay to *Te Kaha's* acceptance date. Since December 2017 further planning and analysis has been done relating to the scope and scale of the Operational Test and Evaluation Phase (OT&E), including alignment with international exercises that are required for OT&E, and ship maintenance activities that have been delayed due to the upgrade programme. This results in a revised date for both the end of OT&E and achieving Full Operational Capability of July 2022. Unless stated all dates are for Ship 1 only.		

FSU OPERATIONAL CAPABILITY

Progress towards Delivery of Operational Requirements as at 30 June 2019

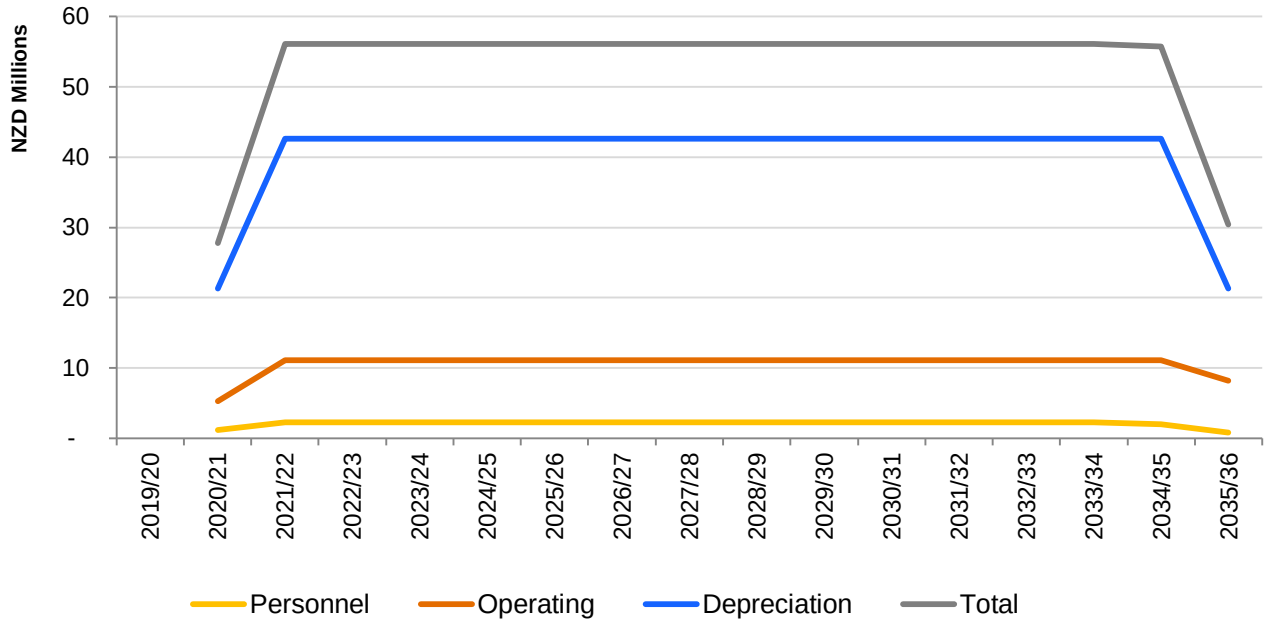
Note: these are subject to change as the project progresses and solutions are implemented.

Operational Requirements	Requirement likely to be met	Explanation
Combat Management System (CMS)	Yes	The Lockheed Martin CMS 330 represents a significant upgrade over the current system that will integrate all the necessary sensors being provided under FSU.

Operational Requirements	Requirement likely to be met	Explanation
Intelligence Systems	Yes	Both Radio and Radar electronic support measures will be enhanced by the provision of separate systems that will bring the Signals Intelligence capability up to date.
Radar Systems (Surveillance and Reconnaissance)	Yes	Provision of Thales SMART S 3 Dimensional Multi Function Radar and SharpEye surface surveillance radar will address obsolescence issues and provide systems capable of detecting modern threats.
Optronics (Surveillance and Reconnaissance)	Yes	A Sagem Vampir Infra Red Search & Track (IRS&T) system will provide additional surveillance plus target indication for the air defence missile system.
Air Defence	Yes	The Sea Ceptor active missile system will provide state of the art defence against the latest types of anti-ship missile.
Anti-Surface	Yes	The new surveillance sensor package combined with improved Command and Control will improve the ship's ability to defend itself against asymmetric surface threats. A new 5 inch gun control system will contribute to this as well as providing additional flexibility for Naval Fire Support to troops ashore.
Under-Sea Warfare	Yes	Modernisation of the Hull Mounted Sonar (HMS) will significantly enhance performance of the detection and tracking of submarines. The introduction of the Sea Sentor Torpedo Defence system will provide for the first time the ability to detect, classify and track torpedoes whilst responding with an integrated set of defensive measures.
Support to Joint Task Force	Yes	The overall upgrade will generate an escort that is capable of maintaining a presence in a contemporary threat environment. It will be able to significantly contribute to the Intelligence, Surveillance and Reconnaissance objectives of a task force commander and provide local area air defence to high value units.
Contracts to achieve all of the above operational requirements have been awarded. Benefits realisation is scheduled for full implementation in 2022.		

SUMMARY OF ANZAC FSU THROUGH LIFE OPERATING COST ESTIMATES

ANZAC Frigate Systems Upgrade: Through Life Operating Costs



DEVELOPMENTS IN THE FSU PROJECT POST 30 JUNE 2019

- The project continued with the industrial phase for *Te Kaha*. Around 100 *Te Kaha* crew arrived into Victoria, BC from New Zealand in September 2019 to support set to work and trials. The plan had been for the crew to remain in Canada until the ship's return to New Zealand in late-2020.
- Handover of *Te Kaha* back to Crown custody was achieved in early November 2019. This enabled the next phase to begin; set to work of new and legacy systems and preparations for the sea trials in 2020. *Te Kaha* moved from the Victoria Shipyards dock across the harbour to the Canadian Navy's Fleet Maintenance Facility where she will remain until the end of her trials phase.
- The refit of *Te Mana* was also progressing with completion of the removal of old equipment and commencement of the fitting and installation of new equipment, systems and cabling. *Te Mana* went into dry dock in late-2019 where her new masts were fitted and larger items of combat systems equipment were installed.
- The impact of COVID-19 has affected the work programmes for both ships, however with ongoing international uncertainty caused by the pandemic, the extent of the impact – at the time of writing – has not been determined.

MARITIME SUSTAINMENT CAPABILITY

Project Description: The Maritime Sustainment Capability (MSC) will replace the Navy's replenishment tanker HMNZS *Endeavour*. The replacement vessel will provide an enhanced capability which is better able to support land operations and is polar code compliant, allowing the ship to operate to Antarctica in the summer season.

THE PURPOSE OF THIS PROJECT

HMNZS *Endeavour* played a key supporting role in the delivery of the Defence Force's principal roles, as discussed in the Defence White Paper 2016. *Endeavour's* role has been particularly significant due to New Zealand's unique geostrategic environment. No other country of comparable size and political and economic standing has at a minimum to be able to deploy equipment and personnel from the Equator to Antarctica. The naval tanker has extended the endurance and range of the Defence Force's naval vessels, significantly increasing the utility of the Defence Force's naval combat capability.

The Maritime Sustainment Capability will maintain the Government's options to contribute to operations outside New Zealand's immediate region by providing a continued ability to sustain Defence Force and coalition platforms deployed further afield. The overarching benefits of the Maritime Sustainment Capability are:

- Provision of an independent and complementary Maritime Sustainment Capability to New Zealand and its security partners.
- An improved ability to shape and react to events in New Zealand, Australia and the South Pacific.
- The provision to government of a greater flexibility in response options to threats and emergencies.
- The provision to government of support to New Zealand's civilian presence in Antarctica.

CAPABILITY REQUIREMENTS

- Conduct maritime force logistic support
- Maintain deployable bulk fuel reserves
- Provide an effective and appropriate maritime platform
- Provide support to other government agencies with specific fitted capabilities.

MSC'S GOVERNMENT APPROVAL MILESTONES[15]

Date	Approved By	Approval
26 Jan 2011	Deputy Secretary (Policy), Ministry of Defence & Vice Chief of Defence Force	**Approval of Original Project Charter**
23 October 2012	CAB (12) 37/4	**Approval of Indicative Business Case** Cabinet invited the Minister of Defence to progress to a Detailed Business Case, which would present Cabinet with a short-list of options.
30 June 2014	CAB Min (14) 22/9	**Approval of Detailed Business Case** Cabinet agreed that a medium-level capability option be taken forward for detailed design as part of a Project Implementation Business Case
4 July 2016	CAB-16-MIN-0313	**Approval of Project Implementation Business Case** Agreed that the replacement Maritime Sustainment Capability include winterisation and ice-strengthening, and authorised the Secretary of Defence to conclude contracts. This confirmed the decision of the Cabinet Economic Growth and Infrastructure Committee on 29 June 2016 [EGI-16-MIN-0141].

CAPABILITY DEFINITION PHASE

How Defence identified and assessed capability and operational requirements

Originally called the Maritime Projection and Sustainment Capability (MPSC) project, preparatory work lasting several years led to the issue of a Project Charter in 2011. Under this, the project would seek to procure and introduce into service a Maritime Sustainment Capability that satisfies user requirements, replacing the Defence Force's naval tanker HMNZS *Endeavour*.

Introduced into service in 1988, *Endeavour* had an expected service life of 20 years. Non-compliance with international maritime regulations and obsolescence of critical ship systems saw *Endeavour* retire from service in 2018. Without a replacement capability the retirement of

[15] These are generic titles for Cabinet approval points in the capability definition process. Whilst the actual titles of Cabinet Papers have varied, the approvals and direction they were seeking from Cabinet has been broadly consistent with the definitions provided.

Endeavour would result in the Defence Force being unable to conduct maritime sustainment, and support maritime projection for both its own operations and those conducted with partners.

The 2010 Defence White Paper signalled that a capability to replace *Endeavour* would be acquired. It also signalled the possibility that the replacement vessel would incorporate some sealift capability to supplement HMNZS *Canterbury*, the Defence Force's multirole vessel.

An Indicative Business Case was approved by Cabinet in October 2012. This paper outlined two broad options for the project; a like-for-like replacement of *Endeavour*, or a replacement which would provide both sustainment and sealift capabilities.

A Detailed Business Case was approved by Cabinet in June 2014, eliminating the option of including sealift capability to allow funding to be prioritised to other capital projects. If additional sealift was required by the Defence Force this would be met through commercial charter. After this decision the project became the Maritime Sustainment Capability.

The option selected by Cabinet in the Detailed Business Case enhanced the Defence Force's maritime sustainment capability by providing a ship with:

- increased fuel storage over that provided by *Endeavour*
- the ability to transport ammunition
- the ability to operate and support helicopters up to the size of an NH90, and
- the ability to transport aviation fuel allowing it to sustain operations by multiple helicopters.

The estimated capital cost was $452 million.

Cabinet also noted that Defence was in discussion with Antarctica New Zealand on the benefits and costs of winterisation, and that the estimated additional cost of this would be $15 million.

In the Defence White Paper 2016 Ministers took a decision to ice-strengthen and winterise the replacement for *Endeavour* to increase New Zealand's ability to replenish New Zealand and other countries' Antarctic programmes.

Cabinet selected a medium-level Maritime Sustainment Capability, as recommended in the Detailed Business Case, with the addition of winterisation and ice strengthening. The estimated capital cost was $493 million, including $64 million for winterisation of the vessel.

How Defence analysed the requirements options in the Capability Definition phase

Options available for the replacement of *Endeavour* were assessed against the key benefits identified during the business case process.

Each of the options available for the replacement of *Endeavour* was assessed against its ability to deliver these benefits.

The cost of each option, indicated through a Request for Information and other unsolicited proposals, was then compared with the deliverable benefits.

This led to the selection of the replacement option that offered the greatest level of benefits for the Defence Force within the available funding.

How Defence considered interoperability

Interoperability was considered a key attribute for the MSC project. *Endeavour* made an important contribution to the defence alliance with Australia as one of only three replenishment tankers in the combined fleets. Just under 40% of fuel delivered by *Endeavour* had been provided to Australian ships.

The replacement capability has a requirement to operate seamlessly with Australian assets and those of other security partners. As such the capability was required to have NATO compliant replenishment at sea capacities, and to transport NATO standard fuels.

How Defence considered through-life costs and issues

The Maritime Sustainment Capability through-life costs have been based on the historical average operating costs of *Canterbury* and *Endeavour*. These historic costs were applied to the Maritime Sustainment Capability platform expected utilisation of 160 days a year.

REQUIREMENTS ANALYSIS IN THE CAPABILITY DEFINITION PHASE

Options assessed for delivering the Maritime Sustainment Capability and operational requirements

Option	Cost estimates (NZ$ million)	Advantages	Disadvantages
Option 1: 'Renew' naval tanker	$358-$418	Delivers the same level of capability as *Endeavour* provided when it entered into service in 1988. It would be a new commercial naval tanker, optimised for military operations, able to replenish multiple naval vessels and, to a lesser extent, deployed land forces. Additional sealift would be provided by commercial charter if needed.	Does not provide for the expected fuel needs associated with deploying a full scale, amphibious-capable Joint Task Force. It has a limited aviation capability, reduced number of supply classes and lack of ability to support the use of landing craft.
Option 2: 'Renew' off-the-shelf tanker	$355-$410	Delivers a new commercial naval tanker with selected features designed for Norwegian military. It is not optimised for the New Zealand Defence Force and comes with limited equipment and system installation (in order to reduce its capital cost), although these systems could be fitted at a later date if required. Additional sealift would be provided by commercial charter if needed.	Provides a lower level of capability than Option 1. Should the strategic environment change, this option has the advantage of providing Government with an ability to increase the ship's capability in the future because of its 'fitted for but not with' design. The cost of retrofitting later, however, would be significantly more than if the systems were included during the initial build.

Option	Cost estimates (NZ$ million)	Advantages	Disadvantages
Option 3: 'Enhanced' naval tanker	$389-$452	Delivers a commercial naval tanker with selected military features. It would effectively upgrade the New Zealand Defence Force's maritime, land and air replenishment capability to be able to support a large-scale, amphibious-capable Joint Task Force. In addition to the capabilities offered by Options 1 and 2, it could transport ammunition, operate and support a helicopter up to the size of an NH90, and store a comparatively larger amount of fuel, including sufficient aviation fuel to sustain the deployment of multiple helicopters. Additional sealift would be provided by commercial charter if needed.	It could not support amphibious sealift operations and would not have the ability to operate in Antarctic waters.
Option 4: 'Enhanced' naval tanker with organic, amphibious sealift	$429-$495	Builds on the capability of option 3, adding design features that allow the ship to act as an organic, amphibious sealift and Humanitarian Assistance and Disaster Relief response vessel. This includes 260 lane metres for vehicle or container transport, faster vessel speed, a role 2 medical facility, two Landing Craft Medium (LCM) to enable amphibious lodgement of equipment and personnel, and a deck crane to enable lifting and stowage of two LCMs. This option would supplement *Canterbury's* sealift capabilities and capacities, providing an alternative deployment option to *Canterbury* if it was unavailable.	It would not have the ability to operate in Antarctic waters. Higher capital cost than other options.

Option	Cost estimates (NZ$ million)	Advantages	Disadvantages
Option 5: Additional bolt on option (Antarctic support option)	Additional $64 million for ice features – Total of $493 million	The addition of winterisation and ice strengthening features to Options 1, 3 and 4 would increase the versatility of the vessel to support operations in Antarctic waters, including resupply of New Zealand and American bases.	Highest capital cost out of all the options. Would present a potential opportunity cost as employment of the ship in this way would need to be balanced against other tasks, such as support to other New Zealand Defence Force vessels or responding to a Humanitarian Assistance and Disaster Relief event.

Description of the Capability and Operational Requirements

Capability Requirements necessary to support policy objectives include:

The roles of the Maritime Sustainment Capability (MSC) are derived from the Operational Concept Document with the exception of Operational Need 4, which is derived from the requirements for support to Antarctica New Zealand. The roles are categorised as:

- **Operational Need 1** - Conduct maritime force logistic support.
- **Operational Need 2** - Maintain deployable bulk fuel reserves.
- **Operational Need 3** - Provide an effective and appropriate maritime platform.
- **Operational Need 4** - Support to other government agencies with specific fitted capabilities.

MSC Vessel Roles

- The primary roles of the MSC are:
  - Replenishment of naval ships.
  - Sustainment of land/air forces.
  - Maintain naval fuel reserves.
  - Sustainment of New Zealand Antarctic base
- The secondary roles of the MSC vessel are:
  - Assistance to civil authorities.
  - Aviation training.
  - Collection of environmental data.
  - Defence diplomacy.
  - Defence training exercises and activities.
  - Generic at sea Core Mariner training.
  - Humanitarian Assistance and Disaster Relief (HADR).
  - Maritime disaster pollution control assistance.
  - Multi-Agency Operations and Tasks.
  - Search and Rescue.
  - Surveillance.
- Logistic support primarily exists to ensure that combat forces can meet readiness levels and be deployed, sustained and re-deployed to meet the operational aims of Command. Logistic support includes provision of the stores and spare parts required by units, the supply and resupply of fuel and lubricants, ammunition and food, and provision of medical support, maintenance support, personnel support and hotel services.
- An Auxiliary Oiler Replenishment Helicopter (AORH) platform of the New Zealand Defence

Force enables all Royal New Zealand Navy platforms to have greater endurance and to remain 'on station' longer by the provision of fuels, stores, rations and ammunition. The endurance of both the Anzac frigates and the Offshore Patrol Vessels are limited both by the space available to carry food (maximum of 28 days) as well as their fuel capacities. While both vessels have relatively long endurance the support of an AORH allows Command greater operational flexibility when employing these vessels.

Operational Requirements necessary to support the capability include:

The key operational requirements are:

- Conduct Maritime Force Logistic Support/Maintain Deployable Bulk Fuel Reserves.
  - Replenishment at Sea (RAS), including light jackstay, and RAS(L) systems.
  - Organic Aviation systems, including Vertical Replenishment (VERTREP), Helicopter In-flight Refuelling (HIFR) and maintenance support systems for organic helicopter.
  - Stowage and distributions systems for bulk supply Classes:
    - 1 (food and water)
    - 2 (general stores)
    - 3 (petroleum, oils, liquids)
    - 5 (ammunition)
    - 9 (repair parts)
- Provide an Effective and Appropriate Maritime Platform.
  - Endurance, speed and range.
  - Navigation and manoeuvring systems.
  - Communications systems.
  - Engineering and logistics management systems.
  - Basic Damage Control systems.
  - Role 1 Medical Facility.
  - Quality of Life systems.
- Provide a Maritime Platform that can integrate effectively with a military force.
  - Self protection systems.
  - Local Intelligence, Surveillance Reconnaissance (ISR) systems.
  - Military communications/network systems.
- Advanced Damage Control systems.
- Provide support to Land Operations
  - Support to Embarked Force systems.
  - Stowage and distributions systems for bulk supply Classes:
    - 1 (food and water)
    - 2 (general stores)
    - 3 (petroleum, oils, liquids)
    - 5 (ammunition)
    - 9 (repair parts)
- Support maintenance systems for non-organic helicopters.

NOTE: The operational and capability requirements listed here were those identified in the suite of requirement documents produced during the Capability Definition Phase. During the tender and contract negotiation process these requirements are converted into function and performance specifications (FPS) that become the contracted deliverables. During the contract negotiation process the operational requirements have to be balanced against cost or viability considerations.

Schedule of Capability Definition Phase

Dates	Duration	Note
23 October 2012 to 30 June 2014	**20 Months**	Cabinet Approval of IBC to Cabinet Approval of DBC
1 July 2014 to 29 June 2016	**24 Months**	Cabinet Approval of DBC to Cabinet Approval of PIBC – included Capability and Industry Review Activity

Expenditure in Capability Definition/Source Selection Phase

	Expenditure (NZ$ million)	
Life of Type Study	Not Applicable	
Definition phase	FY 2012/13	1.00
	FY2013/14	0.33
	FY 2014/15	0.62
	FY 2015/16	0.44
	Total	2.39
Explanation	Cabinet approved $1.016 million for FY 2014/15 and $1.403 million (including $0.783 million of Capital) for FY 2015/16 (CAB Min (14) 22/9).	

History of Cost Estimates in the Capability Definition Phase

Date	30 June 2014	29 June 2016	Contract Signing
Costs (NZ$ m)	467	493	492
Explanation of variance	The Detailed Business Case estimate of $467 million included a provision of $15 million to upgrade the vessel for Antarctic support. The cost of the Antarctic support option at source selection was $64 million of the $492 million.		

Estimates of Acceptance Date made in the Capability Definition Phase

Estimates	Initial	At Contract Signing	30 June 2019 Forecast/Actual
Ship Acceptance	May 2020[16]	May 2020	May 2020 (Forecast)

[16] On 4 July 2016 Cabinet confirmed approval of the MSC Project Implementation Business Case, and agreed that the replacement Maritime Sustainment Capability was to include winterisation and ice-strengthening. The MSC project replaced the Maritime Projection and Sustainment Capability project, which did not have an Antarctic Support Option.

ACQUISITION PHASE

Description of acquisition work

In July 2016 Cabinet approved the Implementation Business Case for the Maritime Sustainment Capability, and authorised the Secretary of Defence to commit to contracts and authorise expenditure of public money.

Following this, the Secretary of Defence signed contracts with Hyundai Heavy Industries (HHI) on 25 July 2016. HHI was the preferred supplier of the four shipyards that participated in the tender process and will act as the Prime Contractor for the design, build, acceptance and delivery of the ship. HHI carries full responsibility and risk for any subcontract agreements that it makes with other suppliers.

How Defence decided to acquire the Capability Solution

Tender Process

Following Cabinet approval to proceed to tender as part of the Detailed Business Case, the Ministry of Defence issued a Request for Tender based on detailed technical requirements (specification) for a Maritime Sustainment Capability. Included in the Request for Tender was a costed option for support to Antarctica.

Tender responses were received from four shipyards. A fifth company provided an un-costed proposal. The responses were assessed in accordance with the Maritime Sustainment Capability Tender Evaluation Plan, and following this two companies were down-selected for further evaluation.

Risk reduction and clarification activities

Risk reduction and clarification activities were undertaken in September 2015, which complemented the best and final offer process. The risk reduction activities provided the Project with:

- confidence that both Shipyards could deliver a credible solution;
- clarification of the achievability of the Maritime Sustainment Capability requirements; and
- an opportunity to ask questions regarding the Project Team's observations of their Tender response.

Following risk reduction activities, a tailored request for Best and Final Offer was submitted to the two down-selected companies.

Best and final offer process

The best and final offer process addressed the following issues with the two down-selected companies, prior to selection of the preferred proposal:

- addressed clarification questions that had been generated from the Tender evaluation activities;
- committed to equipment selection for key systems, aligned with the Project's Makers List or agreed alternatives; and
- provided a firm Antarctic support option, with an amended cost structure, project schedule and technical specification.

The evaluation of the best and final offers identified Hyundai Heavy Industries as the preferred Tenderer to provide an enhanced naval tanker and an Antarctic support option.

Due diligence

Due diligence was undertaken with Hyundai Heavy Industries at their shipyard in Ulsan, South Korea. The due diligence activity provided further opportunity to clarify the vessel requirements, view key shipbuilder's internal processes and systems, and support the selection of cost saving options in preparation for contract negotiations.

Contractual arrangements

At contract negotiations, the Crown and Hyundai Heavy Industries negotiated an agreed Contractor's Technical Specification, logistic support including Life Cycle Costing Analysis, an acceptance regime and preliminary selection of major items of equipment (significantly lowering the risk to both the Contractor and the Crown). This strategy supported the aligning of both parties' expectations as well as minimising contingency components built into the negotiated price. The accurate and comprehensive project costs and data were then incorporated in the Implementation Business Case.

Separate tenders and contracts will be established with suppliers of services or systems; examples of this will be the shipyard superintendence services and the supply of government furnished equipment. The Project Team will be responsible for the facilitation and management of these contracts.

Prime Contractor for enhanced naval tanker and Antarctic support option	Hyundai Heavy Industries

MSC PROJECT BUDGET

Approved budget and expenditure

	Total (NZ$ million)
Approved budget	505.2
Life to date expenditure	342.2
Total forecast expenditure	508.1
Gross project variation (forecast)	(2.9)
Foreign exchange impact	3.6
Actual project variation (forecast)	0.6

Budget variation

	Date approved	Total (NZ$ million)
Pre-contract capital	30 June 2014	0.8
Original budget at approval to commit	29 June 2016	492.1
Variation on original approved budget		12.3

Explanation of major budget variations

Date of individual variation	Total (NZ million)	Explanation
19 November 2018	9.4	Additional NZ$9.4 million approved as a non-cash technical adjustment for FX movement 2018 October Baseline Update.
25 March 2019	2.9	Funding was transferred for efficiencies of managing and performing upgrade to the wharf at Devonport Naval Base to accommodate the new vessel.

Project expenditure to 30 June 2019

	Total (NZ$ million)
Life to date expenditure (cumulative)	342.2
Remaining balance of approved budget	163.0
Forecast commitments	166.0

Total forecast expenditure

	Total (NZ$ million)
Approved budget	505.2
Total forecast expenditure	508.1
Gross project variation (forecast)	(2.9)
Foreign exchange impact	3.6
Actual project variation (forecast)	0.6
Variance explanation	As hedges are in place the actual project variation is lower than the gross project variation accounted for at spot rates.

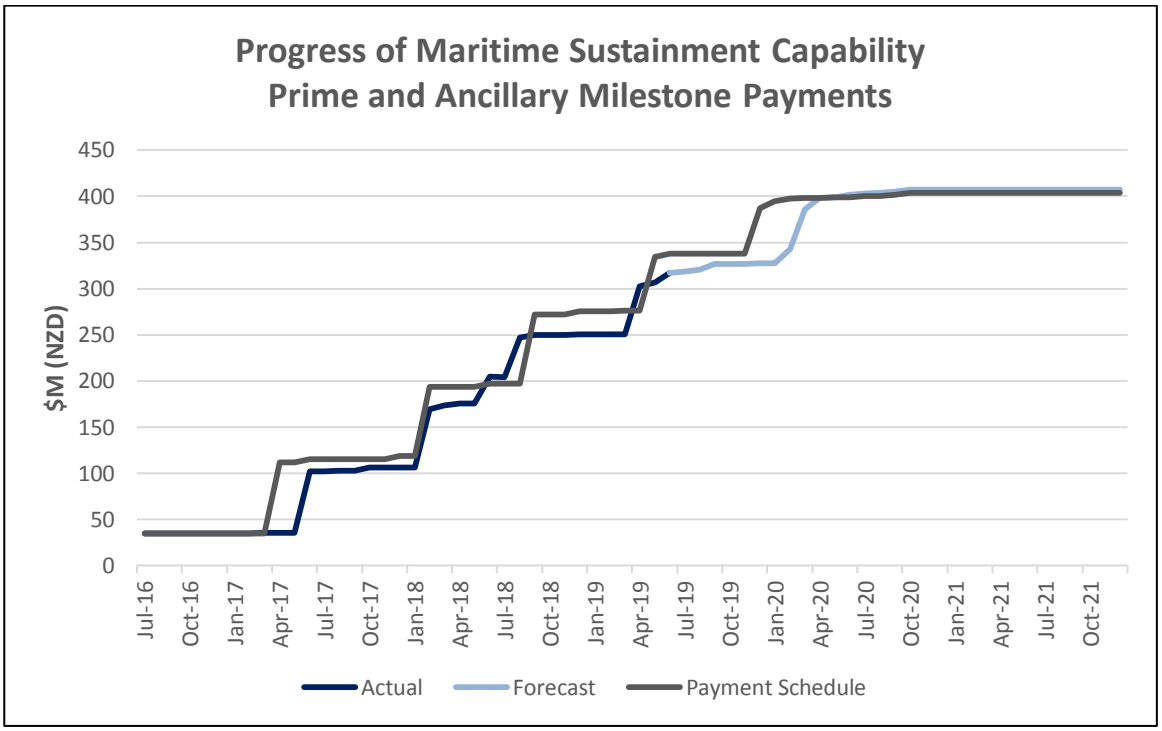
Project Contingency as at 30 June 2019

	Total (NZ$ million)
Contingency built into the budget	45.0
Total contingency expended	15.1
Remaining balance	29.9

Explanation of major contingency draw downs

Draw down	Total (NZ$ m)	Explanation
5 March 2018	7.8	Approved by the Secretary of Defence to fund: • Upgraded contracted paint specification to meet the amended Naval Coating Standard in accordance with the Technical Airworthiness requirements for carriage of aviation fuels. • Costs associated with the introduction of an Integrated Project Team (IPT) for the project. • Extension of the posting duration of the IPT Design Manager until the end of the spatial design review and on site administrative support to end of build period.
31 October 2018	5.5	Approved by the Secretary of Defence to fund increased scope of work for Calliope South Wharf upgrade, including upgrading the wharf electrical power supply.
14 February 2019	1.9	Approved by the Secretary of Defence to fund: • Acquisition, installation and testing of a weapon station. • Installation, Check out, Integration and Tests (ICIT), HATs (based on 2 OEM technicians, for 5 working days). • Estimate for customisation contractor support, including set-to-work and operational testing (SAT) was provided by Babcock (NZ) Ltd.
Total remaining contingency	**29.9**	

Progress of Maritime Sustainment Capability Milestone Payments



SCHEDULE/TIMEFRAME PROGRESS

The following dates are those in the Memorandum of Understanding and those for contract acceptance of acquisitions.

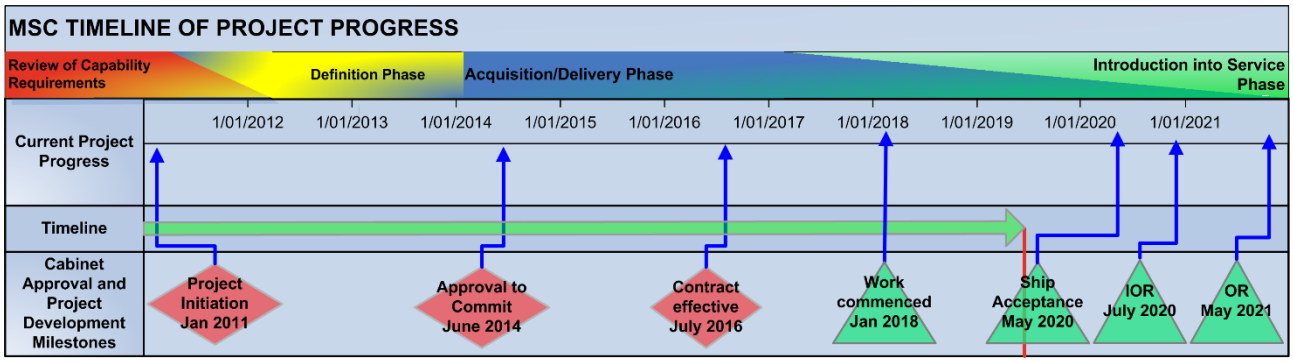
		Original forecast at Approval to Commit	30 June 2019 Forecast/Actual	Variation in acquisition phase (months)
Acceptance Date	Contract Award	July 2016	July 2016 (Actual)	0
	Preliminary Design Review	April 2017	October 2017 (Actual)	6
	Detailed Design Review	February 2018	June 2018 (Actual)	4
	Work Commences	February 2018	January 2018 (Actual)	-1

History of variations to schedule

Date of individual variation	Variation length (months)	Explanation
October 2017	6	Preliminary Design Review: The scheduled completion date (April 2017) for the PDR was not met and in May that year the project was forecasting anticipated completion by end June. This was achieved in October 2017. While key elements of the PDR were not completed until October 2017, HHI continued with the detailed design review of main elements in parallel with this process.
June 2018	4	Detailed Design Review completion: although this milestone was achieved four months later than scheduled, it did not impact the commencement of production, which occurred when steel cutting commenced in January 2018. The launch (flooding of the dry dock) has been delayed until April 2019 but the overall schedule remains within baseline. HHI advised that it was quicker to complete a greater level of outfitting before construction blocks are assembled in the dry-dock.

MSC PROJECT STATUS AS AT 30 JUNE 2019

	Capability: Production is continuing to advance. Overall, progress is at 66.3% against a plan of 67.0% as stated in the revised Integrated Build Master Schedule. At the June 19 Project Review Meeting, HHI advised it remains confident that it will meet the forecast delivery date in Korea of early April 20. AOTEAROA was successfully launched at a ceremony to mark the occasion on 24 April 2019.
	Schedule: The IPT is forecasting minor risk to the delivery of the next production milestone - Main Engine Start. Overall, the project remains within the PIBC schedule baseline and therefore schedule performance remains Green.
	Cost: It is anticipated that the project will be able to manage costs throughout the life of the project and ensure no overall overspend.



CAPABILITY INTEGRATION

Description of Capability Integration phase

At the time the Project Implementation Business Case was being developed, it was envisaged that the Introduction into Service Stage, as it was referred to at the time, would run concurrently with some earlier stages of the project and increase in tempo as the emphasis increased on the NZDF being able to receive and safely operate the MSC.Introduction into Service would be at its peak after Sea Trials[17].

During these trials the Defence Force test and measure 'total system performance' against the original User/System Requirements and will use this to advise whether or not the originally envisaged capability has been delivered[18].

Introduction into Service would be completed when Operational Release was reached and where the Project Sponsor (Chief of Navy) agreed that the project outcome reflects the User Requirements Document.

Status of the Capability Integration Plan

Version one of the MSC Capability Integration Plan (CIP), which has replaced the proposed Introduction into Service Plan was approved by the MSC Project Board in April 2019. Version two is now under development.

Schedule of Capability Integration

	PIBC	30 June 2019 Forecast	Variance (months)
Initial Operational Release	December 2020	July 2020	-5
Operational Release	November 2021	May 2021	-6
Benefits Realisation	January 2022	July 2021	-6

[17] Sea trials took place in the first half of 2020.
[18] Some systems will be tested following the ship's arrival in New Zealand.

MSC OPERATIONAL CAPABILITY

Progress towards Delivery of Operational Requirements as at 30 June 2019

Note: these are subject to change as the project progresses and solutions are implemented.

Operational Requirements	Requirement likely to be met	Comment

Conduct Maritime Force Logistic Support/Maintain Deployable Bulk Fuel Reserves
Replenishment at Sea (RAS), including light jackstay, and RAS(L) systems.
• Organic Aviation systems, including Vertical Replenishment, Helicopter In-flight Refuelling and maintenance support systems for organic helicopter.
• Stowage and distributions systems for bulk supply Classes:
  • 1 (food and water)
  • 2 (general stores)
  • 3 (petroleum, oils, liquids)
  • 5 (ammunition)
  • 9 (repair parts).
	Yes	All operational requirements will be satisfied during Operational Testing and Evaluation between Initial Operational release in July 2020 through to full operational release in May 2021.

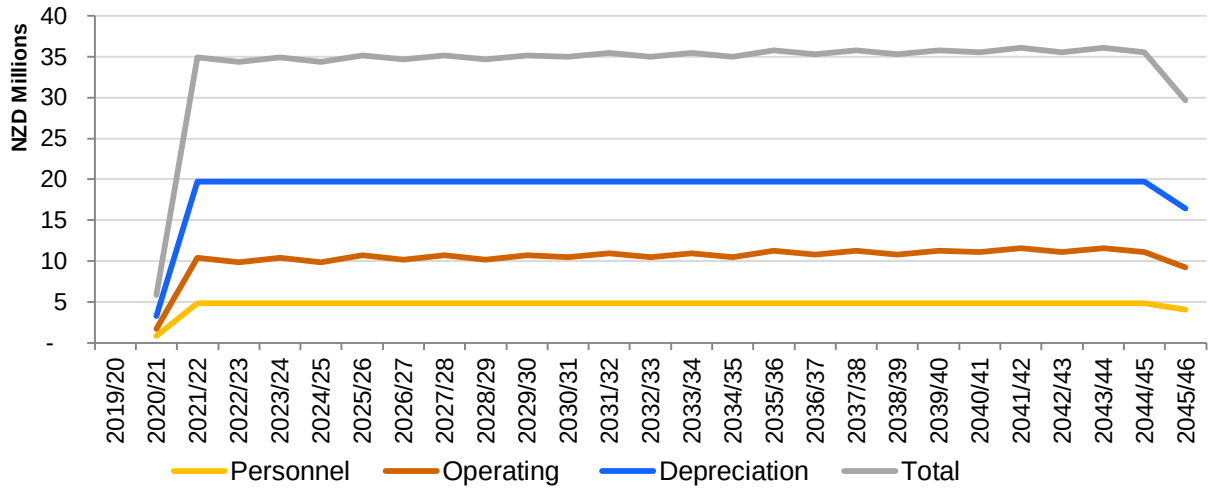
Provide an Effective and Appropriate Maritime Platform. • Endurance, speed and range. • Navigation and manoeuvring systems. • Communications systems. • Conduct maritime force logistic support • Basic Damage Control systems. • Role 1 Medical Facility. • Quality of Life systems.		
Provide a Maritime Platform that can integrate effectively with a military force. • Self protection systems. • Local Intelligence, Surveillance Reconnaissance (ISR) systems. • Military communications/network systems. • Provide organic anti-piracy self defence.		

Provide support to Land Operations:
• Operate and be interoperable with other NZDF naval and allied/coalition naval forces and non naval NZDF/non naval allied/coalition forces.
• Stowage and distributions systems for bulk supply Classes:
  ○ 1 (food and water)
  ○ 2 (general stores)
  ○ 3 (petroleum, oils, liquids)
  ○ 5 (ammunition)
  ○ 9 (repair parts)		

Support maintenance systems for non-organic helicopters.		
Benefits realisation is scheduled for full implementation by January 2022.		

SUMMARY OF MSC THROUGH LIFE OPERATING COST ESTIMATES

Maritime Sustainment Capability: Through Life Operating Costs



DEVELOPMENTS IN THE MSC PROJECT POST 30 JUNE 2019

- Internal fit-out work continued on *Aotearoa* along with the completion of Harbour Acceptance Trials (HATs) and milestones such as Main Engine start.
- The Ship's Naming Ceremony was held in Ulsan, South Korea on 25 October 2019 attended by Ship's Sponsor the Governor-General, Her Excellency Dame Patsy Reddy and the Prime Minister of the Republic of Korea, Lee Nak-yeon.
- In December 2019 Hyundai Heavy Industries undertook builder's sea trials. These allowed the company to balance the complex electro-diesel propulsion system and undertake testing and refinement ahead of Sea Trials in February 2020.
- In March 2020, in response to the COVID-19 pandemic, Defence personnel were repatriated from South Korea. Some project and Royal New Zealand Navy personnel remained in Ulsan to continue with sea trials.
- On 8 June 2020, the ship was provisionally accepted for delivery to New Zealand. This was one month after *Aotearoa* had been scheduled to be accepted for delivery. Two days later on 10 June 2020, *Aotearoa* set sail from the port of Ulsan, escorted by the Republic of Korea fleet support tanker *Daecheong*, for Devonport Naval Base, and arrived on 26 June 2020. The commissioning ceremony was held on 29 July 2020, when the ship became HMNZS *Aotearoa*.
- Following a fleet integration period, Initial Operational Release is expected to be achieved by mid-November 2020, rather than July 2020 as forecast at 30 June 2019.

NETWORK ENABLED ARMY TRANCHE ONE

Background: Network Enabled Army (NEA) Tranche One is to deliver modern communications to the land force units most often deployed by the Government – Special Operations Forces (SOF); and a land force commitment, including infantry, a Task Group Headquarters and communications personnel, of around 200 personnel. It is part of a wider NEA Programme.

THE PURPOSE OF THIS PROJECT IN THE CONTEXT OF THE NEA PROGRAMME

The NEA Programme addresses limitations of current Army and Special Forces Command, Control, Communications, Computers (C4), Intelligence, Surveillance and Reconnaissance (ISR) capabilities. The importance of modern networking capabilities has been underscored by recent operational experiences, particularly in Afghanistan.

The Programme's origins lie within several projects that have evolved over time. Starting as the ISR Project in 1994, this merged with the Communications Project in 2004 to become Land C4ISR. In 2010 the project combined with three others; Electronic Warfare, Combat Net Radio Replacement and Special Operations to become what is known today as the NEA Programme.

The Programme will provide the technology the Army needs, along with the concepts, training and support that are needed to make it work. It prioritises the needs of front line soldiers and their commanders, giving them the capabilities they need without burdening them with unnecessary equipment and capability. It allows for expansion and development over time.

The strategic C4 benefits of the NEA Programme are:

- Improved interoperability
- Improved Common Operating Picture (COP)
- Improved ability to plan
- Improved information management
- Improved ability to pass data
- Improved situational awareness
- Improved ability to exercise C2.

The Programme is planned to roll out in four discrete tranches through to 2025- 2026. Each tranche will provide a capability increase in itself, as well as building more capability on what is already in place. Managing NEA in successive tranches allows new technologies to be introduced as they mature, ensures that there are ongoing 'off ramps' to evaluate progress and if necessary change priorities, and ensures that the programme progresses at a rate that can be managed effectively and does not overwhelm the users.

Tranche One

In April 2015 Cabinet approved capital funding of $106 million for Tranche One. Operating costs of $36.4 million were also approved in 2015 to spend over the next four years.

At the completion of Tranche One the basic network architecture for future tranches will be in place, including key software, battle management systems and communications methods. The required levels of interoperability with Army's Joint, Interagency and Multinational partners will have been achieved for the force elements receiving the NEA Capability in Tranche One.

The Tranche One funded NEA C4 Project is equipping Special Operations Forces, a deployable Task Group Headquarters, and a Light Infantry Company. This covers the requirements of most land deployments. It also includes smaller headquarters units, and training rotation forces for extended deployments. It puts in place the overall architecture to allow expansion and development over time; provides support, evaluation and testing processes; and establishes key supplier relationships.

Tranche Two

While Tranche One has been underway the NEA Programme commenced the definition phase for Tranche Two. This second tranche of funding will enable the continued delivery of Tranche One capability. The second tranche of funding will also expand the focus to ISR capabilities.[19]

ACQUISITION PHASE

The 2015 Cabinet decision approved NEA Tranche One funding for new digital radios and associated equipment as part of the NEA Programme (CAB Min (15) 11/7 refers).

Delivery of the NEA C4 project funded by Tranche One comprises five related capability sets, which have been summarised below, under *Description of Acquisition Work*.

In September 2017 the date for the Full Operating Capability for Tranche One was revised from June 2018 to 29 June 2020. This milestone was re-baselined within the updated NEA Programme Business Case approved by the Defence Capability Management Group in September 2017.

In 2019 the Tranche One timeline was re-baselined, and is now approved to deliver its combined capability in the fourth quarter of 2021.

How Defence decided to acquire the Capability Solution

The range of five inter-linked capability sets are being delivered through a series of acquisitions. They were developed through the overarching NEA Programme Business Case. This was referred to the Minister of Defence and provided the basis for Tranche One approval by Cabinet.

Description of acquisition work

Integration, Testing, Training, Evaluation and Experimentation: This includes most of the programme services that support the overall development of NEA, such as testing and evaluation of potential hardware and software, integration between capability sets, training for the operation and support to NEA, configuration management for the overall system and related services. It includes a physical test, reference and evaluation centre, based initially at Linton Camp (the main operational unit base) and with staff at Devonport and Papakura providing training, capability systems support, and transition services. A contract for construction of the new User Centre was signed with Southbase Construction in June 2019 and as at 30 June 2019 the earthworks for the new User Centre were underway at Linton to directly support reference and evaluations and training.

An Engineering Centre has been established at Trentham Camp (as this is the site for the broader support elements for the Army) to provide deeper support to acquisition, integration and test and evaluation activities; including research and integration of NEA capabilities with Land, Air,

[19] The approval of the Business Case for the second tranche of the Network Enabled Army Programme 2019 as announced in August 2019.

Maritime, and Special Forces. A new Engineering Centre – the Test, Reference and Evaluation Capability (TREC) Centre – was built at Trentham and opened in September 2018.

Common Universal Bearer System (CUBS): The CUBS system essentially combines strategic and tactical communications systems with computer infrastructure to provide the means of transmitting and receiving voice and data communications between the command posts, command teams and liaison teams within the land force Task Groups and deployed Special Operations Forces (SOF) elements. It interconnects force elements through terrestrial and/or satellite bearer systems and provides the necessary infrastructure to host collaboration and information services. The CUBS computer infrastructure will be, in essence, a deployable node of the Defence Information Environment.

In February 2019 a Framework Agreement was signed with GATR Technologies Inc for this work stream, with statements of work used to define specific deliverables and/or services to be provided. Following this, a Statement of Work (SOW) was established for delivery of the Tranche One Tactical Network (TNet).

Common Command Post Operating Environment (CCPOE): The CCPOE project establishes a set of standard operating procedures, equipment, and service applications suitable for land forces and SOF and that are interoperable with the NZDF and other allied systems. These will be underpinned by an information infrastructure that hosts a set of information services over a number of different networks. The key components of CCPOE are:

a. The IT systems (e.g. computers, displays and software required to access, manage and display the information carried across the CUBS).
b. The operational and tactical core services that will provide a battle management system for use at the Task Group and Sub Unit Headquarters layer.
c. The command post infrastructure, including shelters, generators, environmental management and furniture. As at 30 June 2019 the decision had been made for the Command Post Service Trailer to be delivered by a range of providers including Tidd Ross Todd for the trailers and Eniquest for the power generation.
d. A training environment that will enable skill levels across the Army. This includes establishing a training centre of excellence, the delivery of training to Headquarters staff and providing access to battle management systems to officers and soldiers when they are in garrison and during field training.

Mobile Tactical Command Systems (MTCS): The MTCS capability consists of enhanced network-capable digital combat radios and their peripherals, combined with a battlefield management system, to allow secure mobile communications networks in support of high tempo, dispersed operations. The digital combat radio environment includes line of sight and beyond line of sight technology to connect soldiers, platforms and command post at all levels of a Task Group/Battalion Group. MTCS will deliver a mobile tactical internet providing voice, data and position location indication. Interoperability with the NZ Army's Command Post level C4 systems, and joint partners is of particular importance.

Registration of Interest (for the core radios) received on 29 May 2017 were evaluated. A Request for Proposals (RFP) process for the Core Radios has resulted in the engagement of the preferred respondent. In February 2019 a contract was signed with Harris Defence Australia for a new tactical communications network. Under the $40 million contract a network will be designed and delivered, with software, systems and a connecting 'family' of radio equipment that will include new portable radios for soldiers.

Special Forces Electronic Warfare Refresh: This Electronic Warfare refresh was handled as an Urgent Operational Requirement, with the NZDF Defence Capital Acquisitions staff undertaking acquisitions. This work has now been completed.

All Tranche One NEA capabilities are being delivered concurrently to the Special Forces. This ensures functional interoperability whilst allowing the specific Special Forces requirements to be

met. It also ensures that the experience and learnings from Special Forces operations feed back through NEA to support the wider Army.

In summary

Each of the above capability sets are in turn broken down into smaller projects, to ensure that a functional capability that meets user requirements is delivered, that risk is mitigated, advantage can be taken of ongoing technical developments, and to ensure that capability development occurs at a rate that the users can absorb.

Where relevant, NEA builds on extensive work and experience already resident within the NZDF, including the Army's experimental networking system (TANE), operational experience, and the experiences of New Zealand's key partners.

The broad breakdown of the $106 million approval by Capability Set is shown below. These ratios may change as the Tranche evolves.

Tranche One Capability Sets	NEA Reference	Capital Cost (NZ$ million)
Integration, testing, training, and evaluation	Programme Services	17.4
Mobile satellite terminals, routers, and servers	CUBS	26.5
Headquarters equipment and full network software	CCPOE	5.0
Mobile Tactical Radios	MTCS	46.8
Special Forces electronic warfare refresh	NZSOF EW	3.5
Contingency	Contingency	6.8
Total		106.0

Note: contingency is held within the appropriation baseline and not subject to drawdown approvals.

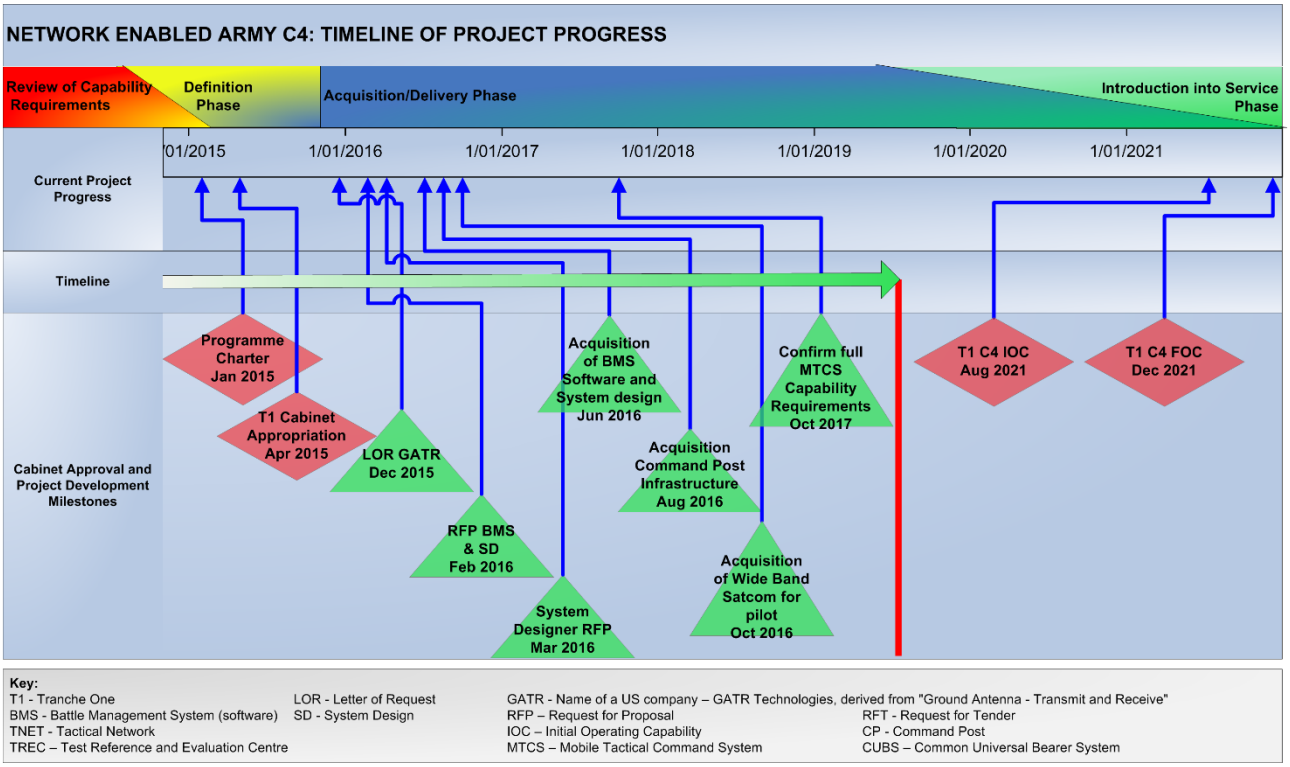
SCHEDULE/TIMEFRAME/PROGRESS

The Tranche One Acquisition Phase Charter went through the Defence NEA Governance process in April 2016. This established the agreed schedule.

Operational Release was originally due for completion by July 2018, was re-baselined to 29 June 2020, and is now scheduled for completion in the fourth quarter of 2021.

NEA TRANCHE ONE PROJECT STATUS AS AT 30 JUNE 2019

	Capability: The project expects to deliver the combined capability.
	Schedule: This reflects the approval for the project to deliver the final combined capability in the fourth quarter of 2021. The date aligned with the timeframes relating to the MTCS Core Radio schedule.
	Cost: The project is performing within approved budget allocation.



NEA PROJECT BUDGET

Approved budget and expenditure

	Total (NZ$ million)
Approved budget	106.00
Life to date expenditure	54.0
Total forecast expenditure	107.0
Gross project variation (forecast)	(1.0)
Foreign exchange impact	1.0
Actual project variation	0.0

(forecast)	

Budget variation

	Date approved	Total (NZ$ million)
Original budget at Approval to Commit	1 March 2015	106.0
Variation on original approved budget		0.0

Project expenditure to 30 June 2019

Total (NZ$ million)	
Life to date expenditure (cumulative)	54.0
Remaining balance of approved budget	52.0
Forecast commitments	53.1

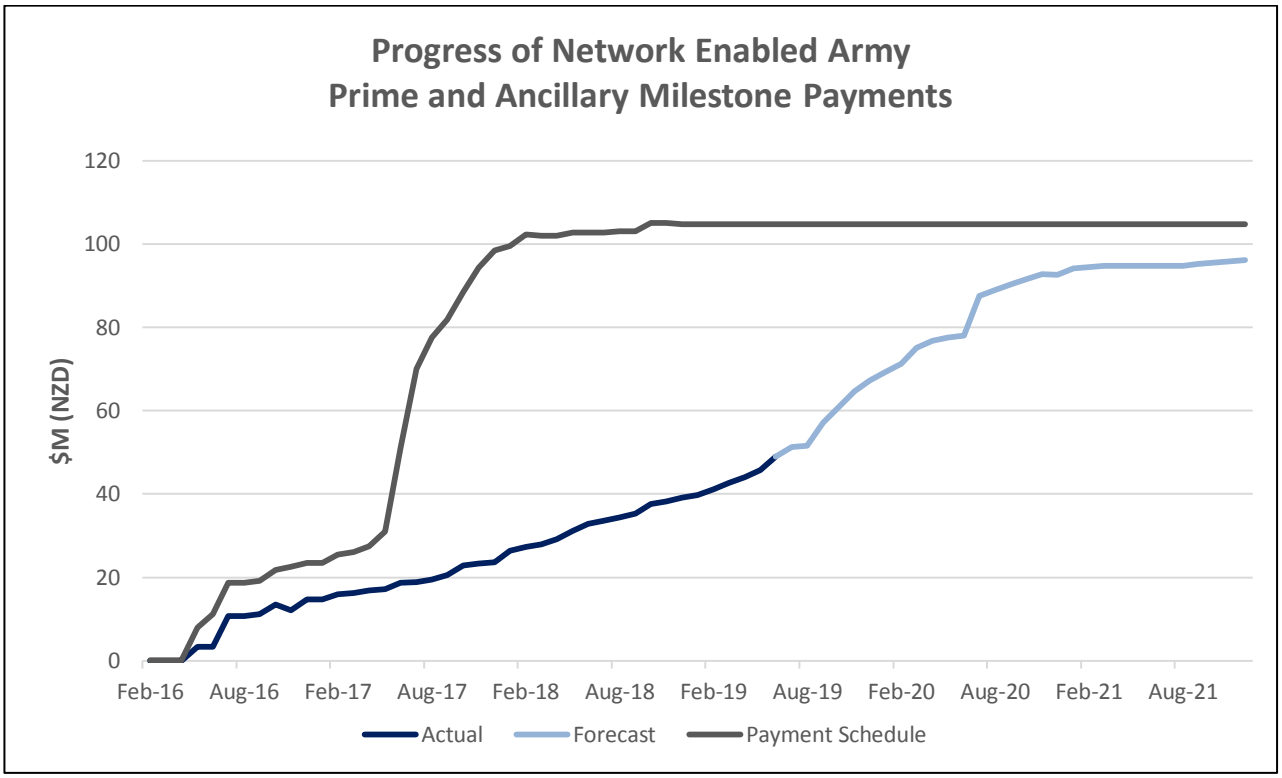
Total forecast expenditure

Total (NZ$ million)	
Approved budget	106.0
Total forecast expenditure	107.0
Gross project variation (forecast)	(1.0)
FOREX impact	1.0
Actual project variation (forecast)	0.0

Project Contingency as at 30 June 2019

NEA Tranche One Project contingency is not handled as a separate item. It is embedded in the overall Programme.

Progress of NEA Tranche One Milestone Payments



SCHEDULE/TIMEFRAME PROGRESS

	Original estimate at Approval to Commit	30 June 2019 Forecast/Actual	Variation in acquisition phase (months)
Interim Operational Capability	-	August 2021 (Forecast)	-
Full Operational Capability	July 2018	December 2021 (Forecast)	41

History of variations to schedule

Date of individual variation	Variation length (months)	Explanation
8 September 2017	24	NEA Programme Business Case update revised the forecast Full Operational Release, reflecting that the acquisition of the radio fleet that will underpin the MTCS had begun, but will require a further two years to complete.
1 May 2019	41	Proposals received during the RFP process for MTCS had indicated this work stream would push the project timeframes out to July 2021. With the work stream underway, the date for achieving full operational capability has been revised to December 2021.

CAPABILITY INTEGRATION

Description of Capability Integration Phase

With the complexity of workstreams and multiple elements being acquired in NEA Tranche One alone, and this tranche being part of an incrementally introduced programme, an overarching Capability Integration Approach has been developed for the NEA Programme. The Programme and project work streams within each tranche, is delivering capabilities that require a high level of ongoing integration due to the nature of the system and the long-term delivery approach. The equipment and systems being acquired need to be integrated within the Programme to deliver specific capabilities as well as new capability from other projects; and legacy systems and platforms. So capability integration for NEA will not be a single one off process.

Status of the Capability Integration Plan

Within the Capability Integration Approach, plans have been developed for integrating the new capability into service under this Tranche with a range of acceptance and operational testing and evaluation proposed across the work streams between September 2019 and October 2021.

SCHEDULE OF CAPABILITY INTEGRATION

	Initial Forecast	30 June 2019 (Forecast/Actual)	Variance (months)
Special Forces Electronic Warfare Introduction into Service complete	June 2015	May 2016 (Actual)	11
Special Forces Electronic Warfare achieve directed operating capability	September 2015	February 2017 (Actual)	17
Battalion Headquarters Command Post Systems capability integration complete	December 2017	From September 2017 these work streams were working to deliver capability against a single IOC and FOC milestone. As at 30 June 2019 amendment dates were waiting for final approval[20]: Interim Operational Capability August 2021 (Forecast)	N/A
Battalion Headquarters Command Post operational test and evaluation (OT&E)	June 2018		N/A
Battalion Headquarters Command Post achieve directed level of capability	June 2018		N/A
CUBS Wide Band SATCOM capability	March 2018		N/A

[20] Amendment confirmed when Tranche 2 of the NEA Programe was approved by Cabinet in July 2019.

	Initial Forecast	30 June 2019 (Forecast/Actual)	Variance (months)
integration		Full Operational Capability December 2021 (Forecast)	
Explanation	The delay in achieving the Special Forces Electronic Warfare capability related to a delay in the delivery of two sub-capabilities, however this was reported as having limited impact. The introduction into service was reported as delivering a significant enhancement to the Special Forces' capability. From September 2017 IOC and FOC dates for capability delivery under Tranche One were applied across all capability work streams, as IOC and FOC will be achieved when all work streams within the Tranche have been delivered. The IOC and FOC dates above were as at 30 June 2019. These have been amended from the 2018 edition, where they were December 2019, and June 2020 respectively. The adjustment of the FOC date for Tranche One was approved by the Defence Capability Governance Board, the highest governance body in Defence co-chaired by the Secretary of Defence and Chief of Defence Force, at the time the Tranche Two Business Case was approved for submission to Cabinet.[21]		

Benefits Realisation

Full benefits realisation is forecast to be achieved in 2021.

OPERATIONAL CAPABILITY

Progress towards Delivery of Capability and Operational Requirements

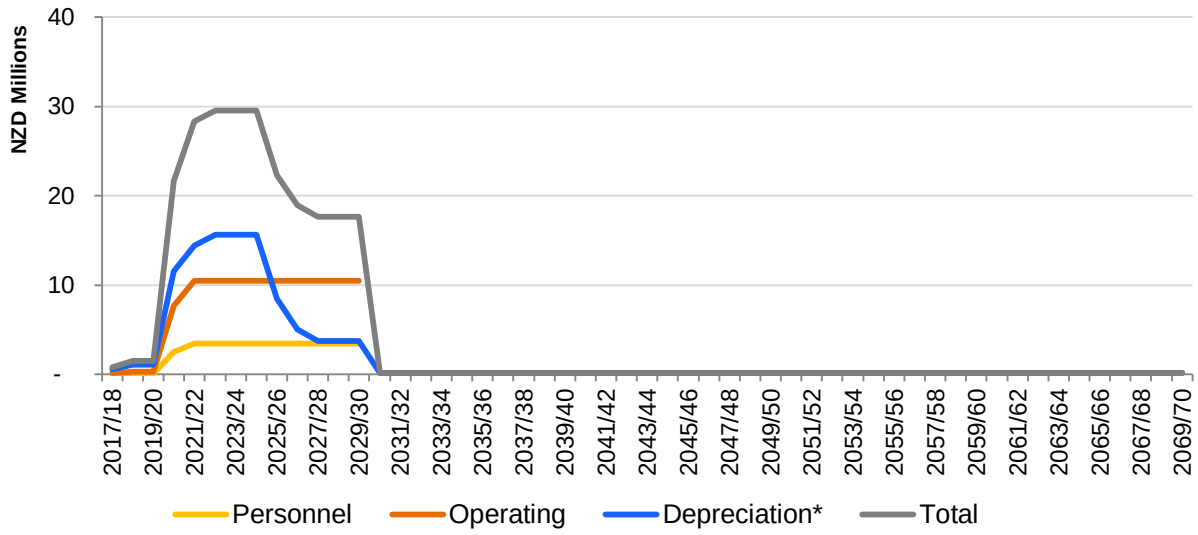
Operational Requirements	Requirement likely to be met	Explanation
Common Universal Bearer Systems wide-band satellite communications Interim Operational Capability	Yes	Delivery of strategic and ruggedised communication access nodes

[21] As noted in *Developments Post 30 June*, approval of NEA Tranche Two was announced August 2019.

Common Universal Bearer Systems wide-band satellite communications Final Operational Capability	Yes	
Mobile Tactical Command Systems Interim Operational Capability	Yes	Includes delivery of core radios, peripherals and ancillaries, developments of their network and physical integration (mounted and dismounted), including other niche radio systems.

SUMMARY OF NEA TRANCHE ONE CAPABILITY THROUGH LIFE OPERATING COST ESTIMATES

Network Enabled Army Tranche One: Through Life Operating Costs



*Depreciation of $138.5k per annum continues out until 2070/71 for infrastructure with 50 year useful economic life.

DEVELOPMENTS IN THE NEA TRANCHE ONE PROJECT POST 30 JUNE 2019

- On 17 August 2019 the Minister of Defence, Hon. Ron Mark, announced the approval of the second tranche of funding for the Network Enabled Army Programme. Under Tranche Two $106 million of capital investment, from within NZDF baseline funding, will be rolled out over four years. The C4 project has received part of the funding to complete the introduction of the capability that it is delivering.
- A second NEA project, which is being defined currently, is focused on expanding the capabilities to more units and personnel, and delivering enhanced intelligence, surveillance and reconnaissance capability.
- At the end of March 2020 the Linton site, where the new User Centre was under construction, closed in response to the declaration of COVID-19 Alert Level 4. The site remained closed to Southbase Construction staff until the country moved to Alert Level 3 in April.
- The project noted delays were expected in some work streams, including testing and certification processes for some equipment, however teams were able to continue working

remotely enabling statements of work to be approved and orders placed throughout the lockdown period.