Next Generation Critical Communications - Public Safety Network

Implementation Business Case (ImBC)

Prepared by:	
Prepared for:	
Date:	July 22, 2022
Version:	2.5
Status:	FINAL
Template version:	September 2020

Document Information

Document ID	
Document owner	Stephen Ferguson
Issue date	22 July 2022
Filename	PSN ImBC v2.5

Document History

Version	Issue date	Changes
0.1	23/01/2022	First consolidated draft
0.2	25/01/2022	Programme Manager feedback incorporated
0.3	11/02/2022	Feedback from Emergency Services Agencies and Treasury endpoint clinic
0.4	22/02/2022	Feedback from NGCC internal stakeholders and Chief Executive, Crown Infrastructure Partners, KPMG
1.0	01/03/2022	To PCB, EGB for review
1.1	09/03/2022	Updated with PCB, EGB, Gateway feedback
2.0	14/03/2022	Treasury feedback, financial updates, version for departmental and ministerial consultation
2.1	23/03/2022	Added Commissioners' letter and Chair's introduction
2.2 & 2.3	31/05/2022	Updated financials and post negotiation QRA results
2.4a	22/07/2022	Updated with LMR commercial and ownership models considered
2.5	22/07/2022	Final draft submitted to Minister's Office

Document Review

Role	Name	Review Status
Programme Manager	Nicola Wright	Reviewed
Commercial & Financial Manager	Ryan Vine	Reviewed
Relationship Manager	Paul Smith	Reviewed
Governance & Support Manager	Annouschka Martinsen	Reviewed
KPMG	Tony Evans	Reviewed

Document Sign-off

Role	Name	Status
Senior Responsible Owner	Stephen Ferguson	Approved
Project Control Board	Cameron Brill (ARO - St John) Mike McGovern (ARO - WFA)	Approved

	Paul Turner (ARO - FENZ)	
	Matt Winter (ARO - Police)	
Executive Governance Board	Rob Fyfe (Chair)	Approved

| | | |
| *Executive Governance Board* | Rob Fyfe (Chair) | Approved |

Contents

Key terms

Term	Description	Abbreviation/s
Implementation Business Case	This document, the successor to the Detailed Business Case.	ImBC
Detailed Business Case	The previous business case, which proposed a solution and sought permission and funding to engage the market through the RFP	DBC
Programme Business Case	The first business case, which outlined the problem to be solved and set investment objectives.	PBC
Mission Critical Push to Talk	A technology capability which allows near immediate connection to a group of voice devices, enabling real time updates during responses. Mission Critical denotes the grade of service required for this capability.	MCPTT
Cellular	The network technology which provides cell phone operation. Synonyms include Long Term Evolution (LTE), 3G (3rd Generation), 4G (4th Generation), 5G (5th Generation).	3G, 4G, 5G, LTE
Analogue Land Mobile Radio	The previous generation of Land Mobile Radio ███████ s9(2)(c) ██████████████████ ██████████████.	Analogue LMR
Digital Land Mobile Radio	The current generation of Land Mobile Radio. This solution refers to the P25 version of this technology.	Digital LMR
Personal Alerting	Paging technology and networks used to turn out responders.	PA
Infrastructure Deployment and Services Agreement	Contract between infrastructure suppliers and NGCC which covers network build activities.	IDSA
Lead Agency Services Agreement	Contract between service suppliers and NGCC which covers delivery of services.	LASA
Participating Agency Services Agreement	Contract between service suppliers and participating emergency services which covers delivery of services.	PASA
Memorandum of Understanding	Agreement between NGCC and participating agencies forming part of entry to syndicated contract.	MoU
Quantitative Risk Assessment	Technical risk analysis used to quantify risks in financial terms.	QRA
Independent Quality Assurance	Independent review of programme activities to provide advice and assurance.	IQA
Quality of Service, Priority and Pre-emption	QPP (Quality of Service, Pre-emption, Prioritisation) ensures that emergency services traffic on cellular mobile networks takes priority over other commercial traffic and maintains high level of service when the network is congested (e.g., a crisis at a stadium event with traffic generated from several thousand general public attendees) or resources are degraded (e.g., a	QPP

	tsunami or bush fire incident partially disables elements of a mobile network in an area).	
Next Generation Critical Communications	Previously described as the Lead Agency. The NGCC is a branded unit of NZ Police with responsibility for delivering the Public Safety Network.	NGCC
Public Safety Network	The Public Safety Network is described in this document and is the successor to the current emergency services communications networks.	PSN
Over the Top applications	OTT applications offer additional, emergency services specific functionality operating over a mobile cellular network; typically including situational awareness applications, automation of emergency processes (for example train derailment response) and improved collaboration/ group communication capabilities. Correctly configured OTT apps will be able to take advantage of the QPP and Roaming capabilities offered on the PSN mobile network.	OTT
Roaming	Roaming allows a single cellular device to seamlessly transfer between the two major commercial mobile networks, increasing coverage and resilience for voice, messaging, data and video communications. The Roaming service will offer the most extensive level of coverage in New Zealand.	
Network of Last Resort	The network which is built with sufficient resilience to the "last network standing" in the event of a significant environment disaster.	NoLR

NGCC Board Chair's introduction

My decision to accept the appointment to chair the Governance Board of the Next Generation Critical Communications programme was motivated by my belief that if we're to create the best possible future for New Zealand, and the best possible opportunities for New Zealanders, then we must invest in the best possible infrastructure to support that future.

The current state of communications across emergency services highlights significant risk to New Zealand in the face of natural disasters and represents lost opportunities for service improvement and care.

This business case, and the solution it proposes, reflect our engagement with the emergency services, market providers, and international experts. It provides a path forward for a reliable, robust and modern communications suite and supporting infrastructure, ensuring the longevity of the communications capability.

The solution improves data coverage, prioritises emergency communications across commercial networks, resolves security gaps, and significantly improves the resilience of our communications technology. This ensures our frontline responder's safety while on the job, and supports them in protecting New Zealanders, growing and improving their services, and delivering the best possible future for New Zealand.

Nāku iti noa, nā

Rob Fyfe

Heads of agency comment

NGCC

NGCC would like to express its thanks to everyone who has been involved in the creation of this business case. This has been a huge endeavour across many agencies and organisations, and we are proud of the solution it proposes.

The Public Safety Network will provide a modern, reliable communications capability to emergency service agencies. This common platform will provide agencies with more opportunities to share information and work collaboratively at a marginal cost.

We enjoy the full support of emergency service agencies, and appreciate their drive, commitment, and partnership as we create the Public Safety Network.

- *Steve Ferguson, Director, Next Generation Critical Communications*

New Zealand Police

The proposed solution delivers critical infrastructure for our emergency services now, and well into the future. Police will see benefits such as increased resilience, coverage, access to cellular networks, and priority access in the event of network congestion. All communications will be encrypted and secure - another tool to help us keep our frontline people safe and protected from harm.

- *Andrew Coster, Commissioner, New Zealand Police*

St John Ambulance

The Public Safety Network will add resilience across our communications network and will ensure we can get the right information to the right people. Unfortunately, there are large areas of rural New Zealand where currently, the messages struggle to get through. For us at St John, and across all emergency services, this new technology creates new opportunities to further expand our reach and range of services - ensuring equitable access to health care and doing the best we can for all New Zealanders.

- *Peter Bradley, Chief Executive, St John*

Wellington Free Ambulance

The Public Safety Network project will improve our communications capability across our region, enabling information to be shared quickly and effectively across all urban state highway and rural areas commonly accessed by frontline ambulance officers.

- *Dave Robinson, Chief Executive, Wellington Free Ambulance*

Fire and Emergency New Zealand

For our people in Fire and Emergency New Zealand, this project will develop a system that allows us faster access to better information than we've ever had before. It will keep them safer and allow us to better protect and preserve life, property and the environment right across Aotearoa New Zealand.

- *Kerry Gregory, Chief Executive, Fire and Emergency New Zealand*

Executive Summary

What is the PSN?

The PSN is the new communications service utilising digital radio, cellular and paging services that will be used by New Zealand's frontline emergency responders -- including Fire and Emergency, Police, St John and Wellington Free Ambulance.

It will deliver a new, secure digital communications ecosystem with excellent coverage, encryption and resilience to make New Zealand's emergency services staff, volunteers, and the public, safer.

The digital radio network provides a Network of Last Resort that will be built with sufficient resilience to be the "last network standing" in the event of a significant environmental disaster. Secure digital radio will provide voice and messaging services in many areas where cellular service is not available and will benefit from important new information such as user location and caller-ID.

Existing disparate radio networks will be replaced with this single nationwide secure digital radio service and an extended, prioritised cellular broadband capability (voice, video, messaging and data) in urban, state highway and rural areas commonly accessed by frontline emergency services. Existing personal alerting (paging) services will be stabilised to ensure reliability and longevity, ensuring emergency services are able to mobilise volunteers and other responders in areas where other coverage may be limited.

PSN users will gain access to both leading cellular networks in New Zealand providing dual network redundancy and extending coverage. During times of congestion on these cellular networks, PSN users will have priority over consumers for calls and transmission of data. App-based solutions will provide users with the ability to access emergency-specific mobile apps certified to work on the PSN cellular network.

Frontline emergency services will receive more information, faster and in more places, improving productivity and enabling them to work together more effectively.

Introduction

The purpose of this business case is to recommend the preferred supplier(s) for the Preferred Option, confirm the five cases for the proposed investment, and seek approval from decision-makers to enter commercial contracts to deliver (implement) the PSN Programme – Establish phase.

This Implementation Business Case seeks formal approval from Cabinet to:

1. Invest up to $449 million (CAPEX) and $1327 million (OPEX including depreciation and capital charge) from 2022/2023 to 2030/2031. s9(2)(b)(ii) ▮▮▮▮▮▮▮▮▮▮▮▮▮▮.

2. Execute contracts with the preferred supplier(s):

    *   Tait Kordia Consortium for Digital Land Mobile Radio

    *   Hourua Consortium for Priority Cellular (including Roaming, Quality of Service, Prioritisation & Pre-emption - QPP)

3. Proceed to delivery of the proposed project, commissioning and implementing the solution (as described in the Preferred Option).

4. Deliver changes as recommended in the supporting Cabinet Paper, titled: *Approval of the Next Generation Critical Communications Public Safety Network Implementation Business Case.*

Prior Cabinet approvals:

The Detailed Business Case (DBC) for this investment was approved in 2020, by Cabinet. It:

*   confirmed the case for change and the Preferred Option (the required solution to address the investment objectives)

*   directed the project to go to market to procure products and services

*   directed the project to finalise project management arrangements in preparation for implementation.

The following table provides the history of Cabinet decisions and approvals for this programme.

Table 1: Previous Government approvals

Decision	Minute
Funding for the Strategic Assessment, Programme Business Case (PBC) and DBC stages were approved by Cabinet in December 2016	EGI-16-MIN-0347
Cabinet approved the PBC	GOV-18-MIN-0015 CAB-18-MIN-0200
Budget 2019 – Initiate Phase – Approved: $15.000 million	CAB-19-MIN-0174.32
Cabinet approved the DBC April 2020	GOV-20-MIN-0002 CAB-20-MIN-0032
Budget 2020 – Establish Phase – Bid: $559.522 million. Approved as follows: • Approved and appropriated: $57.873 million • Tagged Contingency: $452.842 million • Agencies contribution $160.9m (Starting FY 2024/25)	CAB-20-MIN-0155.26
Approval of funds to be drawn from tagged operating contingency for radio site surveys $4.000 million	BR/21/107
Approval of additional unavoidable costs to be drawn down $15.787 million	BR/22/30

Strategic case: confirming the case for change

The case for change outlined in the DBC remains compelling: the radio communications network which supports emergency services is obsolete. Increasingly, replacement parts are no longer manufactured, and existing infrastructure (towers, foundations and radio equipment) is at significant risk of failure.

Doing nothing is not an option – the assets have had their life extended beyond all anticipated timeframes. For each year that passes:

- The risk to frontline responders' safety increases.

- Emergency services ability to respond to incidents is compromised.

- Obsolescence of technology means injecting additional capital into the existing networks cannot remediate the identified risks of failure.

- During the past twenty years, the requirement for refresh of the communications technology and infrastructure has been deferred.

The existing network must be replaced. Beyond 2025 existing communications networks will have degraded to such an extent that the likelihood of failure and consequent unavailability to emergency services presents an unacceptable risk.

A modern critical communications network that utilises new technologies will:

- better support the day-to-day management of Emergency Services and emergency response

- enable cross-Agency collaboration

- maintain secure, encrypted communications

- provide an enduring Network of Last Resort

- have sufficient flexibility to enable other participating agencies to join in the future.

Figure 1: The Case for Change

Economic case: updating the preferred option

The recommended investment has changed from the DBC. The DBC recommended a cellular based solution supported by Digital LMR, with Digital LMR being replaced by satellite in a future phase. The programme has completed an RFP and solution refinement activities which have shown the solution set recommended in the DBC is not technically mature or affordable, and does not meet required resilience and coverage needs given New Zealand's geographic environment.

Resilience in New Zealand must account for seismic and climate change perils increasing in frequency and severity. This is demonstrated through the Christchurch and Kaikōura earthquakes, and the increasing impacts of climate change. The RFP[1] responses and lessons from international emergency services peer groups clarified that only a Digital LMR solution provides the required level of resilience, while also meeting value for money requirements for mission critical voice communications.

The PSN strategy (the new preferred option) incorporates three technology solution sets, and deliberately positions Digital LMR as the Network of Last Resort, supported by Priority Cellular and Personal Alerting. Devices and services can be accessed by agencies through the service catalogue once they have signed on to the syndicated contract.

Digital LMR

Digital LMR is a proven, mature and trusted technology that will now form the backbone of the new critical communications platform. The primary purpose of LMR technology is to support push-to-talk (PTT) communications, which enables near instantaneous transmission of voice communications from one user to a group. This is used extensively by emergency services and allows them to both send and receive communications while remaining "eyes up" – focussed on the event they are responding to.

---

1 Public Safety Network Request for Proposals RFx ID: 2389934; Crown Infrastructure Partners

Moving from the current Analogue LMR technology to a modern Digital network, provides new features that enable better outcomes for New Zealanders and protect frontline staff from harm. For example, voice communications will be encrypted s9(2)(c) and location services will provide additional situational awareness where frontline are under stress and unable to communicate verbally.

Digital LMR will be provided through a consortium of Tait and Kordia, two organisations experienced in the delivery and operation of LMR services.

Priority Cellular

Priority Cellular services, and the data-rich interactions they enable, will play an ever-increasing and evolving role in the Emergency Services communication landscape and is a key aspect of the PSN strategy.

The inclusion of cellular based services enables a significant step forward for Emergency Services, and follows international trends, enabling front line staff to share rich information via Mobile Applications ("apps"), and vastly improve cross-Agency collaboration at all levels to support better decision making and outcomes for New Zealanders.

Priority access to the cellular networks means PSN users can have confidence that their reliance on cellular communications will not be compromised when the networks become congested by consumers during significant events or major incidents.

Priority cellular, Roaming and Apps will be provided by Hourua, a purpose designed consortium to be established by Spark and Vodafone. The nature of the agreement provisions building and operating the solution, but is separate to, and protects the value and competitive aspects of the retail cellular solutions currently contracted to Agencies.

Personal Alerting

The third aspect of the PSN strategy is personal alerting services, provided over a stabilised paging network. This provides a reliable personal alerting service which is critical for ensuring a response in communities supported by volunteers. Paging technology allows small amounts of data to be transferred over large distances.

Personal Alerting allows responders to be turned out to emergencies where they may not be in coverage of other networks, or where it may not be practical to supply or use more expensive equipment (such as digital LMR handsets) which would only be used occasionally. This is especially useful in rural areas, where there are small populations spread out over wider areas who may be supported by emergency service volunteers rather than permanent staff.

Service Governance

The NGCC provides emergency services agencies access to equipment, services and Apps at pricing negotiated by NGCC on the agency's behalf.
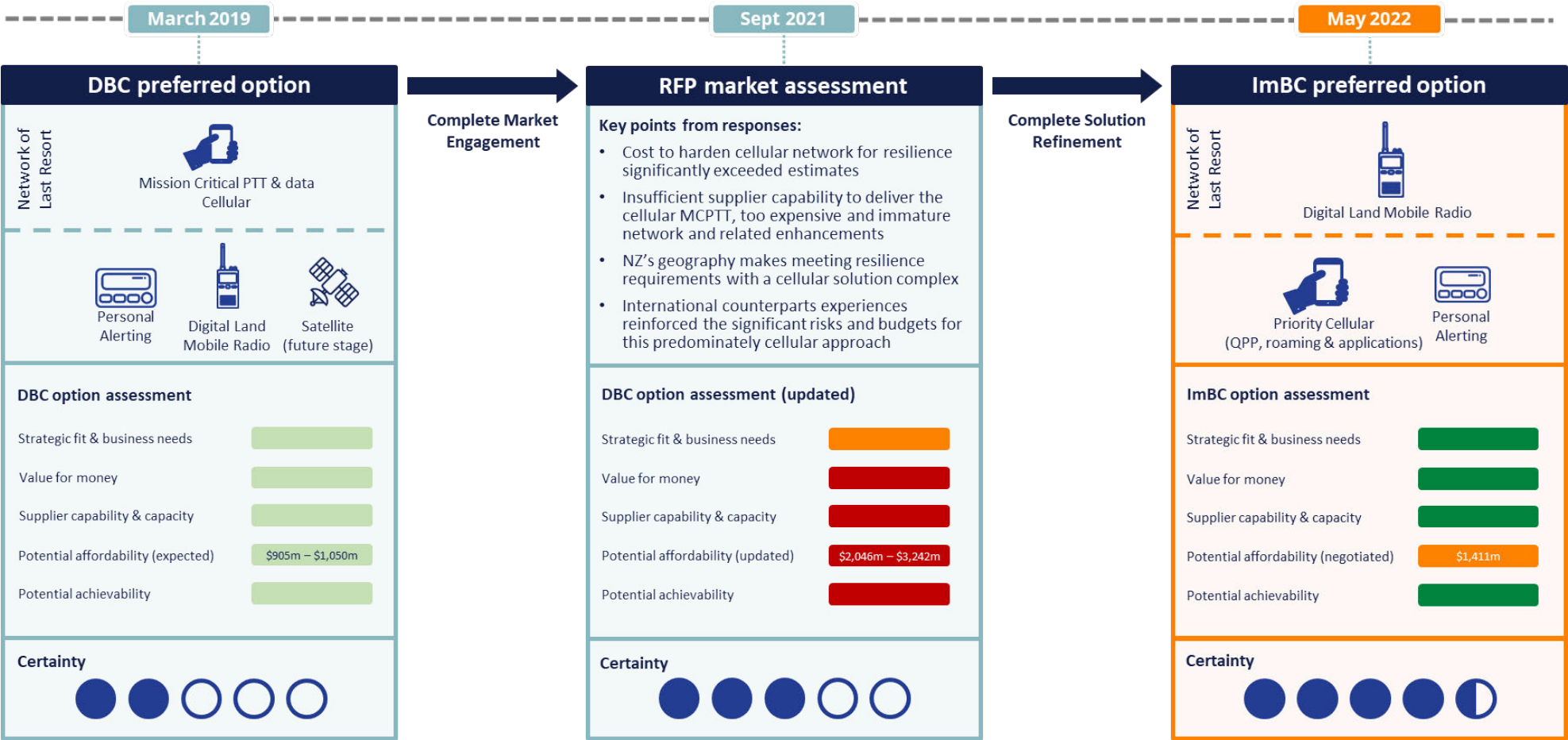
The PSN will have the flexibility to allow the addition of other agencies in the future, with appropriate investment. The PSN core infrastructure is being constructed in a way that allows more capacity to be added in the future with a lower level of investment that is required for the initial build.

Ministerial and Departmental consultation on progress to date has been completed, with an 82% engagement rate. Feedback provided indicated significant support for what the PSN Programme is trying to achieve, and interest in leveraging the solution for wider use (outside the initial four agencies).

The trunk which forms the backbone of the network will have significantly more capacity than is required for day one operations. This allows new agencies to on board to the PSN with a lower level of investment than undertaking a build independently. New agencies investment will be for update items like the radio technology, which controls sending and receiving signals, not significant portions of underground cabling.

Where a communications technology is not being delivered by the PSN, agencies remain able to source those technologies directly.

Figure 2: Solution refinement path from DBC to ImBC

| | March 2019 | | Sept 2021 | | May 2022 |

DBC preferred option

Network of Last Resort

Mission Critical PTT & data Cellular

Personal Alerting · Digital Land Mobile Radio · Satellite (future stage)

DBC option assessment

Strategic fit & business needs	
Value for money	
Supplier capability & capacity	
Potential affordability (expected)	$905m – $1,050m
Potential achievability	

Certainty ●●○○○

Complete Market Engagement →

RFP market assessment

Key points from responses:

- Cost to harden cellular network for resilience significantly exceeded estimates
- Insufficient supplier capability to deliver the cellular MCPTT, too expensive and immature network and related enhancements
- NZ's geography makes meeting resilience requirements with a cellular solution complex
- International counterparts experiences reinforced the significant risks and budgets for this predominately cellular approach

DBC option assessment (updated)

Strategic fit & business needs	
Value for money	
Supplier capability & capacity	
Potential affordability (updated)	$2,046m – $3,242m
Potential achievability	

Certainty ●●●○○

Complete Solution Refinement →

ImBC preferred option

Network of Last Resort

Digital Land Mobile Radio

Priority Cellular (QPP, roaming & applications) · Personal Alerting

ImBC option assessment

Strategic fit & business needs	
Value for money	
Supplier capability & capacity	
Potential affordability (negotiated)	$1,411m
Potential achievability	

Certainty ●●●●◐

Benefits

Delivering this solution will provide the following benefits.

Table 2: Benefits

	Benefit name	Benefit description
B01	Improved network resilience	Reliability of infrastructure improves with modernisation of network and devices. Likelihood of a communications failure in a significant disaster is reduced.
		Risk of catastrophic network failure is significantly decreased when compared with existing network.
		Cellular roaming increases resilience of cellular communications by providing access to both leading domestic mobile networks.
B02	Communications are secure	Operational communications are secure and unable to be intercepted ▆▆▆▆ s9(2)(c) ▆▆▆▆▆▆▆ This improves operational safety for responders and protects New Zealanders' private information which is shared over these networks.
		This includes the securing of private patient information, which lowers the risk of additional harm to the public by better controls around trusted information.
B03	Simplified sharing of operational information	Increased communication of operational information between emergency services responding to the same event, which improves response coordination, responder and public safety.
		In multi-agency responses, information will be able to be shared directly amongst responders from different agencies.
B04	Increased communications coverage	Coverage will be improved based on analysis of incidents, roads and locations of interest. Emergency services have noted that getting the right coverage is more important than getting the most coverage.
		Cellular roaming also provides increased geographic and population coverage.
B05	Enabled innovation and improved operational response	Additional features such as device-based GPS location tracking, caller identification and interoperability between emergency services improves safety for frontline responders.
		QPP on cellular networks provides a higher-grade mobile data, video and voice service than commercial mobile services provide, and holds priority over consumer mobile network users.

Commercial case: market engagement has refined the proposed solution, contract structure is approved and key terms agreed

Market engagement was undertaken in partnership with Crown Infrastructure Partners. This process refined the proposed solution and reshaped the previously proposed option into a fit for purpose solution which is achievable and affordable. Process and probity assurance was undertaken by Audit New Zealand, who confirmed its compliance with required procurement rules and guidelines.

An open syndicated contract structure has been approved by the Advisory Services team within MBIE's New Zealand Government Procurement branch. Crown Infrastructure Partners has led the negotiation on behalf of the Crown throughout the procurement process. The agreed contract structure provides sufficient controls and protections throughout the build process and allows for new services and agencies to be onboarded as needed in the future.

The market has been thoroughly tested for value and this investment proposal represents the best outcome achievable. This is the fifth market engagement since 2006, including two RFP's and two RFI's, resulting in significant vendor fatigue. Given the asset condition noted earlier, further market engagements will not result in better value for money and will significantly increase risk to the emergency services communication capability.

Further delays will result in increased cost and risk.

Key terms have been agreed with the preferred suppliers, and final contract documentation will be available for signing by the Commissioner of Police in line with approval of this document.

Figure 3: Approved contracts structure

s9(2)(b)(ii)

Land Mobile Radio Asset Ownership

The LMR network is designed to meet Emergency Services sector's operational outcomes and service levels. The contract reflects vendor expertise in radio network development and holds them accountable for maintaining the service levels. The contract offered is a Design, Build, Operate, Own, Transfer contract, with warranty conditions.

Under this model the Crown retains the financial interest in the assets, hence is treated as capital expenditure and it would require depreciation treatment accordingly.

The Crown, through NGCC as part of NZ Police, will retain oversight of the performance and manage network capacity. The assets are recognised as public owned assets and are not able to be utilised by the vendor to service other customers without the permission of the NGCC.

The Build, Operate, Own, Transfer (BOOT) contract shifts responsibility for performance risks to the vendor ensuring that the asset achieves the desired outcomes and service levels with asset ownership risks being retained by the Crown. This has been adopted as a lower risk option to retain security, control and flexibility over the network of last resort.

Mobile Network Operator (MNO) Joint Venture - Hourua

The Hourua joint venture provides a structure for Spark and Vodafone to work together as a wholesaler and provide roaming capability between their two networks, QPP and an App Store for emergency services specific apps.

Market competition is maintained using existing telecommunications industry structures, through the separation of wholesale and retail divisions. Devices and services will be purchased through their retail chains.

Roaming allows an additional 16,500 km^2 of cellular coverage (+5% over current state) and supports 46,000 people and 10,000 households. This additional coverage has a disproportionate benefit to lower coverage areas like the Gisborne region, where it enables an additional 5% of population coverage as compared with either individual network.

The Priority Cellular build cost will be treated as an intangible asset and capitalised over the life of the contract. Vendors will essentially augment their existing software to provide this service to Emergency Services.

Financial case

Costs

The Programme Business Case (PBC) indicated an investment range between $840 million and $1,050 million. The DBC included a total cost estimate of $905 million over 10 years (undiscounted), funded by $161 million agency contribution and $744 million government contribution.

The DBC was not fully funded with the tagged operating contingency recognising that future phases of the investment sought future funding requests. The ImBC funding request covers all phases of the DBC.

The first 10 years of investment for build and run costs of the PSN is $1,411 million[2], compared to the DBC at $905 million - a $506 million increase. This reflects the higher upfront costs for capital purchases of an LMR network and terminals, as well as cost increases in the period since the DBC was written.

The costed figure includes s9(2)(b)(ii) of contingency funding, which has been calculated from a Quantitative Risk Assessment completed by KPMG at a P85 confidence. While this includes indexation funding to protect against rising costs, if costs exceed these forecasts, additional funding or descoping may be necessary.

These costs were previously assumed to be consumed as a service with the vendor funding these initial costs and recovering these through annual charges. The 24-year Whole of Life Cost is $1,718 million in Net Present Value (NPV) terms calculated at a 6% discount rate.

The current volatility in the global environment has added cost-risk pressure to the investment envelope. Vendors are unable to secure long term fixed price arrangements for specialist equipment, and scarcity of supply or availability of manufactured items create greater cost risk. Our delivery strategy has

---

2 Expenditure in cash terms excluding depreciation and capital charge as a compariable metric to the DBC investment sizing

accounted for this risk with appropriate QRA risk tolerances and contingency funding to support successful delivery.

Funding

The investment over 10-year period (undiscounted FY22-FY31) is $1,411 million, this is cash purchases for both capital and operating items and excludes non-cash items such as Depreciation and Capital Charges. Separating the investment in to operating and capital funding with the inclusion of the non-cash items the funding requires is a capital injection of $449 million and operating funding of $1,327 million. Operating funding is proposed to be co-funded with

- Agency contributions of $213 million

- Existing Government investment of $586 million from existing tagged contingency and Vote Police appropriations

- New Government investment of $528 million operating (which includes depreciation and capital charge to sustain the assets created)

And a Capital Injection of $449 million

These costs include a contingency of s9(2)(b)(ii) .

The Chief Executives of the participating agencies have confirmed their agreement with the proposed funding arrangements and the required agency contributions. Their letters are attached as Annex 1.

Management case: growing on strong foundations

NGCC has leveraged processes and structures used throughout the business case phase to ensure robust engagement with Emergency Services agencies in programme planning and execution, a result noted in the recent IQA[3]. Contract negotiation for LMR has produced delivery milestones for 12 geographic regions across New Zealand, starting with a pilot project in Timaru. The PSN programme will use a repeatable deployment structure across the regions which will allow learnings from each stage to be applied downstream.

The programme will centralise common project capabilities and delivery frameworks (e.g., governance, design, change management and transition tasks) to ensure consistency and efficiency across the agencies during the implementation phase. The programme will co-ordinate agency projects with programme transition delivery to ensure successful transition to the PSN.

The NGCC is pivoting its current capability mix to ensure it has the right skills for the delivery programme. This will ensure the NGCC can effectively meet delivery requirements as the programme moves into the design and build phases.

The PSN Programme will continue to engage with other agencies and departments who can leverage this solution, ensuring that best value is gained from this investment for emergency services across New Zealand.

Implementation of Roaming and Priority Cellular involve, predominantly, the configuration of specific software within the existing cellular network systems of the mobile network operators. As such the implementation is somewhat less complex than a nation-wide construction of the LMR network and will

---

3 Ernst & Young IQA3 January 2022

be delivered in three main tranches, initially Roaming, then OTT-Apps (via the PSN App Store) and then Priority Cellular. Governance structures used throughout the business case phase will continue.

A high-level view of delivery milestones is shown in the table below.

Table 3: Milestones

Milestones				Completed
ImBC approved by Cabinet Investment Decision - Mandate to continue Establish phase				Q2/2022
Cabinet paper approved by Cabinet Investment Decision – Mandate to execute contracts				Q2/2022
Capability establishment				
	Digital LMR	**Priority Cellular**	**Personal Alerting**	
Contract signed	Q2/2022	Q2/2022	Q2/2022	
Nationwide capability available	Q1/2026	From Q2/2024	Q2/2022	
All acceptance testing complete	Q2/2026	From Q3/2024	Q2/2022	
FENZ s9(2)(b)(ii) exits existing radio network				Q3/2026
Police exit existing radio network				Q3/2026
Investment Decision – Evolve based on review of emerging technologies Budget 202X proposal approved				TBC

Next Steps

This approval decision will be formally recorded in the Decision Register. Following Cabinet approval of this business case, the SRO will direct the Programme Manager to:

- Finalise and sign supplier contracts.

- Implement capability, management and control arrangements to ensure successful delivery.

- Start delivery of the programme including any organisational change.

- Initiate assurance arrangements including, as required or appropriate, Independent Quality Assurance, Technical Quality Assurance, Security Reviews, Gateway Reviews and other investment reviews.

- Regularly report on status and progress through formal governance channels and reports.

Strategic Case – reviewing the case for change

Summary

The purpose of the strategic case is to confirm: the challenges to be solved by the proposed investment, alignment with government strategy and highlight any changes to the Case for Change, benefits and risks identified since the DBC.

- There are no changes to the DBC Case for Change.
- Several risks have been realised through the RFP responses and subsequent vendor engagements
- Additional work has been completed on direct benefits, with new benefits identified.

Strategic context and the case for change

The case for change outlined in the DBC remains compelling: the communications network which supports emergency services is obsolete and will be unsustainable from 2025. Increasingly, replacement parts are no longer manufactured, and existing infrastructure (towers, foundations and radio equipment) is at significant risk of failure.

Doing nothing is not an option – the assets have had their life extended beyond all anticipated timeframes. For each year that passes:

- The risk to frontline responders' safety increases.
- Emergency services ability to respond to incidents is compromised.
- Obsolescence of technology means injecting additional capital into the existing operation cannot remediate the identified risks of failure.
- During the past twenty years, the requirement for refresh of the communications technology and infrastructure has been deferred.

The existing network must be replaced. Beyond 2025 existing communications networks will have degraded to an extent as to be unusable by emergency services.

A modern critical communications network that utilises modern technologies will:

- better support the day-to-day management of Emergency Services
- enable cross-agency collaboration
- provide an enduring Network of Last Resort
- have sufficient flexibility to enable other participating agencies to join in the future.

Figure 4: Case for Change

Current challenges

Contributing to each of the challenges in the Case for Change are several operational drivers. These are listed below.

Challenge 1: Unreliable communications are endangering operations and lives.

The last 15 years have seen a wide range of critical events around New Zealand that require a large-scale emergency services response. These include the Christchurch & Kaikōura earthquakes, and the Christchurch Terror Attack. Looking to future needs, there is clear evidence of increasing significant climate-based events and Te Pū Ao (GNS Science) predicts that there is a 30% chance of the Alpine Fault rupturing in the next 50 years. Historically, this event has produced an earthquake measuring magnitude 8.

The current communications systems supporting our emergency services are no longer fit for purpose. There are key deficiencies and risks created by the current communications network which endanger operations and lives during emergency services response. These include:

a. **Obsolete technology:** analogue network components and radio devices are no longer manufactured, making repair increasingly difficult and expensive, and maintenance costs will continue to grow until it fails or is preplaced. Already obsolete, the network will be unsustainable from 2025. Previous technology refreshment exercises have been deferred.

b. **Lack of encryption**: the current analogue network is not secure, s9(2)(c)

c. **Insufficient coverage:** current coverage, especially in rural areas, is insufficient for emergency response needs.

d. **Low resilience:** commercial communications services are run on a business critical, not mission critical, basis. In a disaster event these systems may partially or wholly fail - as experienced in the Christchurch and Kaikōura earthquakes.

Challenge 2: Inability to utilise modern communications is hindering continuous improvements to the delivery of services to the public.

In emergency situations, communications equals safety. Responders' ability to provide information and call for assistance in escalating situations directly affects the safety of the public and responders.

Advances in modern communications technology have not been adopted by New Zealand Emergency Services. This has prevented realisation of the significant benefits enjoyed by emergency services operators overseas.

Current communications systems limit emergency services from leveraging data and enhanced cross-agency communications. This results in:

a. **Limited interoperability**: emergency agencies are limited in their ability to coordinate services across the incident ground; responding to large scale emergency events is made more complex by using multiple networks providing critical voice and messaging services.

b. **Increased health and safety risk for responders**: additional environmental and situational information, as well as automated updating of response information (such as GPS-enabled mobile duress and fall detection alarms) are unable to be widely used with the current technology.

c. **Recruitment and retention impacts**: The new generation of responders have grown up in a world enabled by data, attracting and retaining them requires modern tools.

Benefits

In replacing this network, the benefits noted in the following table can be realised.

Table 4: Benefits

	Benefit name	Benefit description
B01	**Improved network resilience** *(Addressing challenge 1a, 1d)*	Reliability of infrastructure improves with upgrades and enhancements to network and devices. Likelihood of a communications failure in a significant disaster is reduced. Risk of catastrophic network failure is significantly decreased when compared with existing network. Mobile Roaming increases resilience of cellular communications by providing dual access to separate domestic cellular networks. Priority Cellular provides preferential access to capabilities on a congested network in the event of an incident.
B02	**Communications are secure** *(Addressing challenge 1b)*	Operational communications are secure and unable to be intercepted s9(2)(c) ▮▮▮▮▮▮▮▮▮▮ This improves operational safety for responders and protects private information which is shared over these networks. This includes private patient information, which will be secure and unable to be intercepted. This lowers the risk of additional harm to the public by better controlling trusted information. Priority cellular provides preferential access to scarce resources and coverage at the edge of a network.

B03	Simplified sharing of operational information (Addressing challenge 2a, 2b)	Increased communication and sharing of operational information between emergency services responding to the same event, enables better coordination of the response, which improves responder and public safety. In multi-agency responses, information will be able to be shared directly amongst responders from different agencies. With priority cellular coverage, the inclusion of video and data-based communications can provide a significant boost to operational and telehealth responses, as has been seen through FirstNet in the United States.
B04	Increased communications coverage (Addressing challenge 1c)	Coverage of communications in urban, state highways and rural areas is improved. Emergency services have noted that getting the right coverage is more important than getting the most coverage. Mobile roaming provides increased coverage and resilience of cellular communications.
B05	Enabled innovation and improved operational response (Addressing challenge 2a, 2b, 2c)	Additional features such as device-based GPS location tracking, caller identification and interoperability between emergency services improves safety for frontline responders. Priority Cellular provides a higher-grade mobile data, video and voice service than the commercial mobile services provide to consumers. This confidence of preferential access provides a platform for digital innovation through novel OTT-apps and other emerging data-rich collaboration products in an emergency context.

Strategic alignment

As noted in the DBC, this investment supports the strategies of Fire and Emergency New Zealand, New Zealand Police, St John New Zealand, and Wellington Free Ambulance. This is evidenced by the agencies continued participation and resource investment in the selection and planning stages of the new network.

This investment is in line with the Government's commitment to laying the foundations for a better future [CAB-20-MIN-0525] and the approach is consistent with those described in the Strategy for a Digital Public Service (2020), on foundational investments to enabling cross-agency integrated services.

Scope

As progressed in the RFP process and solution refinement sessions, and the scope for the Establish phase is shown in the following table.

Table 5: Establish phase scope

In scope areas	Out of scope areas
• Procure digital radio network and services • Stabilise personal alerting services • Secure funding for PSN implementation • Establish digital radio network and services • Ensure ongoing support for personal alerting services • Implement QPP on the cellular networks • Implement cellular roaming	• Migrating non-Emergency Services onto the PSN capability • Providing public access to cellular roaming, QPP • Projects that will leverage the new PSN capability to realise the indirect benefits e.g., enterprise applications, changes in business process not related to establishing core services • Restructuring agencies

• Maintenance of existing radio networks • Emergency Services Agencies transition preparation • Agency transition • Governance • LMR, Personal Alerting & Cellular devices • Deployable sites – including cellular on wheels (COWs) • Post PSN implementation assessment of future technologies, such as Low Earth Orbit Satellite and MCPTT over Cellular.	• Changing communications between the public and Emergency Services (such as the 111 service) • Changing fixed-line connections (computer networks, telephone lines, internet connections) unless they are directly required for the core PSN services to function • Replacing IT (such as enterprise applications and equipment) except the specified in-scope PSN service items for devices, in-vehicle hubs, in-station consoles and deployable coverage. • Procurement and establishment of MCPTT and Aggregation services (due to the emerging nature of this technology at the time the RFP was undertaken • Hardening of the commercial cellular network

Specific deliverables for in-scope areas are detailed in the Programme Management Plan, referenced in Annex 2.


Changes to scope since DBC

As a result of the change in preferred option, there have been some changes in scope. The key points of these changes are listed below.

Table 6: Scope changes from DBC

Added to scope	Removed from scope
• Cellular Roaming between networks has been added to the scope to improve coverage and resilience of cellular network services • PSN Apps provisioned via the PSN App Store will provide a faster development path for agencies to exchange and share data via the commercial cellular network • Monitoring of technological maturity and value for money for mission critical cellular platform, satellite network, or other technologies as appropriate (after initial PSN implementation)	• Delivery of a mission critical cellular platform, and the network hardening required to create it, is no longer in scope. This removes mission critical video and data communication services, but retains them as standard consumer services • Delivery of a satellite network

The technology elements of these changes are noted in the updated DBC diagram below.

Figure 5: Scope of PSN
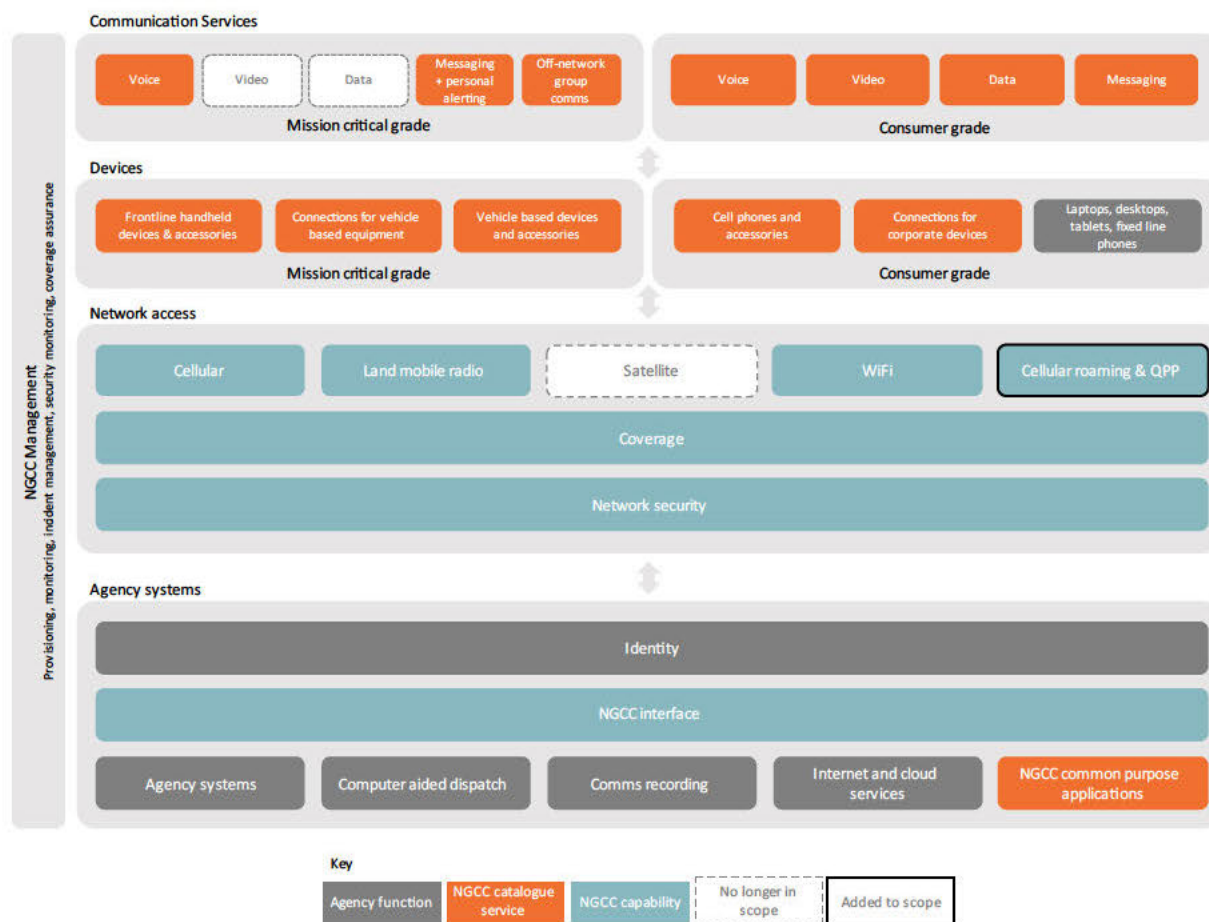
The DBC preferred option proposed a network primarily using cellular technology (voice and data), where the network proposed here is based on LMR technology (voice) and supported by the commercial cellular network (voice and data) enhanced by Roaming and QPP, and a stabilised Personal Alerting network.

Benefits

Interviews were held with frontline staff from Fire and Emergency NZ, Police, Wellington Free Ambulance and St John Ambulance. Their responses improved understanding of the disbenefit incurred from remaining with the status quo (which will ultimately lead to the failure of the communications capability) and the opportunity to improve performance and responder safety by modernising the network.

This case's benefits analysis will focus on direct benefits generated by this investment. The DBC options analysis did not include a 'no investment' option, and because of this, benefits provided by the existence of any communications network were not captured. The age and obsolescence of the existing network creates an increasing risk of failure, and with no investment to stabilise the network, the significant disbenefit of no network will eventually be incurred if no action is taken.

Benefit types & descriptions

The DBC listed direct benefits, which would be delivered directly by the PSN programme, and indirect benefits, which could be realised with additional work by consuming agencies. As noted on page 27 of the DBC:

- *Direct benefits are ones that arise from investing in PSN. They can be realised almost immediately after the changes are bedded-in during the transition period of the Establish phase. These benefits are owned by the NGCC; and*

- *Indirect benefits are ones that relate to changes which are enabled by the investment in the PSN. While these benefits cannot be directly claimed by NGCC, they cannot be achieved without the centralised PSN programme work completed by the NGCC.*

With additional clarity on solutions post-RFP, this document focuses specifically on the direct benefits. While indirect benefits may also be achieved by emergency services organisations, these will be noted and realised through their own delivery programmes.

Direct benefits attributable to this investment are listed in the table below. All direct benefits contribute to the Safety domain in the Treasury Wellbeing Framework.

Benefits removed since DBC

The DBC listed thirteen *indirect* benefits which would be realised by emergency services agencies. These benefits were linked to previous emergency services agencies KPIs and operational targets and have not been included in this case. Where relevant and appropriate, these will be included the agencies individual business cases. These benefits are consistent with the benefit areas outlined in the table below.

One direct benefit has been removed since the DBC: *Public has better access to Emergency Services due to enhanced cellular coverage and resilience.*

This benefit was to be realised by the creation of additional cellular coverage from the previous preferred option – a significant portion of this coverage will still be realised through the Crown Infrastructure Partners' Mobile Blackspot Fund (MBSF) and Rural Broadband Initiative (RBI2). These initiatives will add 500 additional mobile towers in rural NZ but are outside the scope of the PSN programme.

The additional coverage provided by CIP's MBSF and RBI2 initiatives will enhance the viability of deliverables of this programme, specifically *cellular roaming* and all standard consumer communications services - *voice, video, data and messaging.*

Table 7: Benefits

	Benefit name	Who benefits?	Benefit description	Indicators	Change from DBC
B01	Improved network resilience	Emergency services & communities	Reliability of infrastructure improves with upgrades and enhancements to network and devices. Likelihood of a communications failure in a significant disaster is reduced. Mobile roaming provides increased resilience to the mobile network. Risk of catastrophic network failure is significantly decreased – reflecting the avoided disbenefit of continuing with the current network.	Risk of failure experienced under the current network is reduced. Improvement in preventable loss of life (both public and responder).	Was combined with B04 in DBC, has been separated to allow for clearer measurement.
B02	Communications are secure	Emergency services & communities	Operational communications are secure s9(2)(c) ████████████ This improves operational safety for responders. Private patient information is secure and unable to be intercepted. This lowers the risk of additional harm to the public by better controlling trusted information.	Reduction in risk to responders from operational information being intercepted. Reduction in risk of privacy breaches of sensitive service user information.	As listed in DBC.
B03	Simplified sharing of operational information	Emergency services & communities	Increased communication and sharing of operational information between emergency services responding to the same event, enabling better coordination of the response, which improves responder and public safety.	Reduction in risk of harm to responders and public in multi-agency events.	Consolidated from benefits listed in DBC under *Outcome 2: Our communications services make people safer*.
B04	Increased communications coverage	Emergency services & communities	Coverage of communications in urban, state highways and rural areas is improved. Emergency services have noted that getting the right coverage is more important than getting the most coverage. Mobile roaming provides increased coverage.	Network roaming increases cellular coverage available for all emergency services users.	Was combined with B01 in DBC, has been separated to allow for clearer measurement.

| B05 | Enabled innovation and improved operational response | Emergency services | Additional features such as device-based GPS location tracking, caller identification and interoperability between emergency services improves safety for frontline responders. Mobile pre-emption, priority and quality of service provides a higher-grade mobile data, video and voice service than what the commercial mobile services provide and is in priority to the public and all other mobile network users. | Reduction in risk of harm experienced by responders attending emergency events. | Consolidated from benefits listed in DBC under *Outcome 2: Our communications services make people safer.* |

Risks

Several risks outlined in the DBC have been realised. As a result of this, the preferred option no longer delivers against the decision criteria (investment objectives and critical success factors) in the DBC. The original risks and the updated information are summarised in the table below.

Table 8: DBC risks and updates

	Original DBC risk statement	Comment
RSK01	The commercial market doesn't have the capability to meet Emergency Services' needs. In May 2018 the response to a Request for Information indicated the market is strongly interested in, and supports, the initiative. • Risk to CSF3 - supplier capability and capacity • Risk to CSF5 - achievability	In respect of the DBC's preferred option, this risk has been realised throughout the procurement process and learnings from international emergency services peers. MCPTT capability is an emerging technology and is not sufficiently mature for the emergency services context. In addition, cellular networks are unlikely be able to be relied on as a network of last resort both from a coverage and operational resiliency perspective. The ImBC preferred option remedies this position with a mission critical LMR network for voice and enhanced mobile services for data, and a stabilised Personal Alerting network.
RSK03	The market's products and services are unaffordable. Engaging with the market during the procurement process, to position commercial arrangements, will ensure that service providers can deliver the capability within the budget. • Risk to CSF2 - value for money • Risk to CSF4 - affordability	In respect of the DBC's preferred option, this risk has been realised throughout the procurement process. The cost of extending and hardening the commercial cellular network (for both coverage and resiliency), delivering LMR, adding Quality of Service, Pre-emption & prioritisation, and roaming have all exceeded original DBC estimates, as do transition costs.
RSK04	The technology components are not fit for purpose. Engaging with the market to confirm the capability it can offer, and investigating what other jurisdictions use, will confirm which technology is suitable for Emergency Services. • Risk to IO1 - provide reliable access to secure communications • Risk to IO3 - provide sustainable communication capability • Risk to CSF1 - strategic fit and business needs	In respect of the DBC's preferred option, this risk has been realised throughout the procurement process and further investigation of international deployments. MCPTT over cellular networks is an emerging capability and cannot be relied on as a complete replacement of LMR for a network of last resort. The technology is not proven to be mature; or successfully deployed and used internationally. The economics of low earth orbit (LEO) satellite technology have not progressed sufficiently to make it an affordable technology – the ImBC Preferred Option has been updated to reflect this position.
RSK05	The costs cannot be managed within the budget. An outcomes-based contracting arrangement will be agreed with commercial service providers. This will limit cost commitments to the budget and transfer the risk of cost overrun to the service provider.	As noted in RSK03, this risk has been realised throughout the procurement process. s9(2)(b)(ii)

|		
	• Risk to CSF4 - affordability • Risk to CSF5 - achievability	s9(2)(b)(ii) The costs of extending existing mobile networks to provide the coverage and resilience required to operate as a standalone PSN network are prohibitive. The proposed approach provides the best value for money approach to correcting this.

Economic Case – reviewing the Preferred Option

Summary

The purpose of the economic case is to identify the proposal that delivers best public value. For this business case, that includes revisiting the DBC preferred option and ensuring it still delivers the best value. Since the DBC was written:

- The market engagement has been completed, and the following risks have been realised:

  - Mobile network operators won't expand or upgrade commercial networks to the level required for emergency services (as planned in the DBC), without significant additional funding.

  - Pricing received for proposed targeted hardening (making towers resilient to earthquakes, storms) of existing cellular networks, is unaffordable s9(2)(b)(ii)

  - Mission Critical Push to Talk (MCPTT) over cellular platform remains an emerging technology and cannot provide the level of reliability and robustness required for an Emergency Services network of last resort.

  - Satellite technologies are not yet sufficiently mature or financially viable for wider emergency services.

- Key risks have become issues – making the DBC preferred option unfeasible. The recommended option has been re-evaluated with new information gathered during the market engagement and in consultation with global peers.

- A new preferred option has been assessed, **Option 2: Cellular Evolution**. This provides a new, resilient nationwide Digital LMR network for voice, supported by priority cellular services with roaming across existing commercial cellular networks for data and video, and a stabilised personal alerting network. This option meets DBC objectives at an achievable cost.

Figure 6: Proposed DBC option, preferred ImBC option
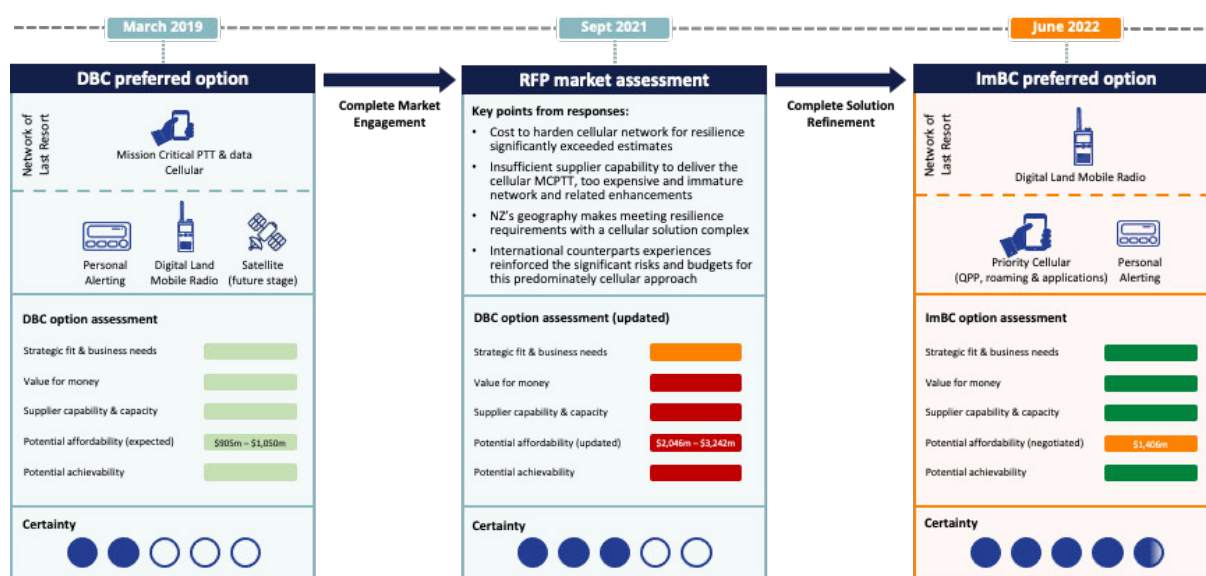
The DBC Preferred Option

The DBC determined that the Preferred Option to optimise value to New Zealand is Option 3: evolving mission critical (lower risk). This is a cellular-centric option that uses expanded and hardened commercial cellular infrastructure to provide the primary critical communications network for emergency services, with a secondary LMR network for redundancy.

This option is described in the DBC:

> *This option would provide mission-critical voice, video, messaging and data services in urban areas, on state highways and in rural areas commonly accessed by Emergency Services; and mission-critical voice and messaging services in other rural areas.*
>
> *The proposed nationwide digital radio network would provide minimum essential services, although the network would be designed for vehicle use, relying on cellular service for in-building use. Once satellite technology becomes proven and affordable, agencies would transition from using radio to satellite in rural areas.*
>
> *Services would be delivered by commercial service providers over enhanced networks. (DBC pg. 60)*

DBC assumptions and dependencies

For the DBC Preferred Option to be feasible, several conditions need to be met. These were outlined in DBC's assumptions, dependencies, and constraints, and include:

- **Cellular coverage (ASM01):** *The NGCC Programme will not provide nationwide cellular coverage for Emergency Services or the wider community.*

- **Service availability (ASM08):** *Critical cellular-service features will be standardised and commercially available by the time they are needed for the NGCC Programme.*

- **Critical communications service levels (ASM15):** *Commercial service providers will be prepared to offer the service levels required for critical communications.*

- **Crown Infrastructure Partners coverage programmes (DEP01):** *the Crown Infrastructure Partners RBI2 and MBSF initiatives will increase the geographical coverage of existing cellular networks from approximately 50% to 70% of New Zealand, leaving only 700km of major roads without cellular coverage.*

- **International standards are sufficiently mature (DEP02):** *standards for mission-critical communications on cellular technologies are well advanced but not all key features have been agreed. The timeframe for delivering international standards for cellular services through the 3GPP framework will determine when its key features become available and how they are implemented on commercial cellular networks.*

- **Commercial network operators' investment (DEP04):** *commercial network operators will need to invest in upgrading their networks to offer the coverage, resilience and features that Emergency Services need. The level of investment needed, and how much will be commercially non-viable (i.e., will need additional government funding to complete), is still uncertain.*

DBC preferred option is no longer viable

Information gathered during the market engagement and international learnings confirm the recommended option is no longer viable due to the lack of technical maturity in MCPTT; high cost of increased coverage; and lack of resilience to catastrophic events that could cripple the technology and prevent it from functioning.

This section provides a summary of the three key changes and their impact.

1. Commercial networks cannot be made appropriately resilient within budget

The DBC proposed a critical communications network that primarily utilised existing commercial cellular networks. This was to be supported by a new digital LMR to provide backup and redundancy in the event the cellular network failed.

Additional investment to "harden" the commercial cellular network and reduce the risk of unauthorised access was envisaged to take place in a subsequent phase of implementation (Enhance).

s9(2)(g)(i)

Failure to get competitive pricing between networks was noted as a risk, with the RFP being a mitigation activity (listed in the DBC as RSK03 - products in the market are unaffordable). It has become clear through the RFP that there is little commercial incentive for mobile network operators to invest in their networks for services that are required for emergency services. The scale of use of the emergency services in New Zealand is not sufficient to generate significant pricing leverage from respondents.

2. Cellular network features are not well suited to high resilience needs

Technical differences between digital radio and cellular networks also became more significant when viewed in the resilience context. Cellular towers cannot function in an 'offline' mode, meaning that if their connection back to the central network (backhaul) is severed, they will stop working completely (invalidating ASM08 and ASM15). There have been developments in this issue with 5G, but 5G coverage is not sufficient for emergency services use.

A recent example is where flooding broke a fibre cable across the Ashburton River. A bridge with backhaul connection running beneath it was washed out, compromising all cellular towers in the area.

The previous solution proposed in the DBC (to build multiple backhaul connections between towers) has been found to be cost prohibitive.

In contrast, a digital radio tower will function as a local repeater if disconnected from the rest of the network. This allows any emergency services responders in range of that tower to continue to communicate locally if the backhaul is severed or non-functional.

As a last resort LMR devices can communicate directly with each other over several kilometres, which cellular devices are unable to do. This provides a significant benefit to responders working in a large-scale event where backhaul may have been compromised, such as earthquake or flood response.

3. Mission critical over cellular not fit for purpose, nor economically viable

The preferred option proposed use of MCPTT over cellular and satellite technologies. The cost implications of these decisions became clear in the RFP responses, with mobile network operators unwilling to expand their networks without passing on the cost of the additional towers. Cellular towers have a smaller range meaning to cover a given area, more towers are required.

This is shown in the table below and has significant impacts for the number of towers required to cover a given area. While the exact number can vary according to conditions, around 4-5 cellular towers could be needed to cover the same area as an LMR tower. With the necessary resilience requirements for each tower, this significantly increases the overall cost.

International examples

NGCC is working closely with global peers to share our thinking and learn from their experiences.

MCPTT functionality over cellular networks has not progressed as far was anticipated in the DBC. NGCC's UK counterparts have been working on implementing cellular MCPTT since 2011, at a total cost of more than £11 billion[4] from an original budget of £2 billion. This network was planned for delivery in 2019 and is now targeting 2026.

FirstNet, an emergency services network in the United States, has deployed QPP to over 3,000,000 first responders but has fewer than 1,000 responders utilising its MCPTT option.

The most advanced MCPTT over cellular deployment is SafeNet in South Korea. As of November 2021, more than 24,000 4G cellular towers were deployed to gain sufficient coverage to support 285,000 network users, including groups from public safety, rail and maritime[5]. South Korea also built a new Digital LMR capability, as MCPTT over cellular did not meet all their requirements.

Increased tower numbers required for MCPTT over cellular in South Korea was economically viable given South Korea's population density - 52m people over 100,000km^2, or 520 people per km^2. By comparison New Zealand has 5m people over 268,000km^2, or around 19 people per km^2. New Zealand's greater area and lower population density generates significant diseconomies of scale for the PSN. These diseconomies impact the commercial viability for non-government ownership.

Conversely, Digital LMR networks continue to be built and deployed internationally, with recent examples including California and Tasmania. The PSN Programme will continue to utilise international connections to take lessons from these deployments. The NGCC Board includes members who have been involved in mission critical radio network deployments in the United States and the programme will continue to use that experience and connections during delivery.

Options analysis

In July 2021, the NGCC Executive Governance Board was presented with a set of refined options, which considered:

- Outcomes - operational needs, safety, evolving and affordable communications services
- Our immediate need - mitigating the risk of current end of life technology
- Global experience - the experience of our international peers working on the same problem
- RFP learnings - maturity and affordability of solutions presented by the NZ market

These updated options are shown in the image below and described below.

Figure 7: Updated options used during solution refinement

---
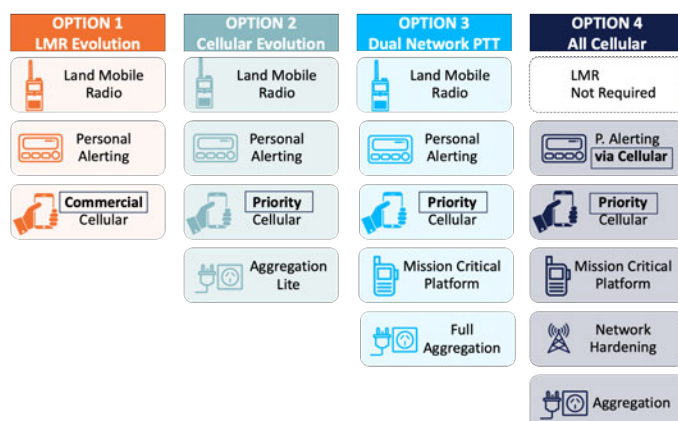
[4]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002058/HO_Government_Major_Projects_Portofolio_Data_March_2021.csv/preview
[5] South Korea Safe-net Presenta ion to Global Public Safety Operators Conference, Nov 18th, 2021.

After confirming that the challenges to be solved and investment decision criteria (investment objectives and critical success factors) remain the same, the option analysis was revalidated.

Option analysis summary

Five options were assessed against the same criteria presented in the DBC. The full analysis is available in Annex 3, a summary is shown in the table below.

Table 9: Options analysis summary

	Option 0: Analog LMR	Option 1: LMR evolution	Option 2: Cellular evolution	Option 3: Dual network PTT	Option 4: All cellular
IO1: reliable & secure comms access	Does not meet	Meets	**Meets**	Meets	Meets
IO2: meet health & safety requirements	Does not meet	Meets	**Meets**	Meets	Meets
IO3: provide sustainable communications	Does not meet	Meets	**Meets**	Meets	Meets
IO4: govern communications capability	Does not meet	Meets	**Meets**	Meets	Meets
CSF1: strategic fit & bus needs	Does not meet	Partially meets	**Meets**	Meets	Meets
CSF2: value for money	Does not meet	Partially meets	**Meets**	Does not meet	Does not meet
CSF3: supplier capability & capacity	Does not meet	Meets	**Meets**	Does not meet	Does not meet
CSF4: potential affordability	Does not meet	Meets	**Meets**	Does not meet	Does not meet
CSF5: potential achievability	Does not meet	Meets	**Meets**	Does not meet	Does not meet
Result	Status quo	2nd	**ImBC preferred**	3rd= (DBC preferred)	3rd=

Table 10: Option costs, benefits, risks

	Cost	Benefits	Risks
Option 0: **Current state**	$161m +	• Low change requirements	• Unable to sustain the LMR network beyond 2025. • Supplier has no interest in sustaining the PA network. • No pathway to become more data centric; constrains new ways of working. • No priority or pre-emption over other users on the cellular network; performance and reliability compromised with congestion.
Option 1: **LMR Evolution**	$628m – $1,325m	• Resolves burning platform issues with modern secure solution • Dedicated resilient voice and messaging network using proven technology	• Does not support Agencies to progress strategic digital direction • No priority or pre-emption over other users on the cellular network • Performance and reliability compromised with congestion • No additional resilience for rich data
Option 2: **Cellular Evolution** **(ImBC preferred)**	$902 – $1,617m	• Resolves burning platform issues with modern secure solution • Dedicated resilient voice and messaging network using proven technology • Safe and more reliable exchange of rich data • Begin to evolve data centric, new ways of working • Easier transition path: evolution of an existing technology currently used by agencies	• No additional resilience for rich data
Option 3: **Dual network PTT** **(DBC preferred)**	$1,481m – $2,419m	• Enables data centric new ways of working • A single device agnostic network across both cellular and LMR • Highest level of resilience, fail over and flexibility across dual networks	• MC-PTT is emerging technology; challenging to design and integrate with LMR; delivery risk is high • The MC-PTT cellular device ecosystem is still maturing • Agency transition and solution integration is complex and costly • No additional resilience for rich data
Option 4: **All Cellular**	$1,676m – $1,917m	• Avoid initial investment and ongoing costs of LMR and personal alerting network solutions • Reduced complexity of implementation and integration • Increased resilience for rich data	• Cellular coverage expansion costs are unknown • All eggs in the "cellular" basket • MC-PTT is emerging technology; challenging to design and implement; delivery risk is high. • The MC-PTT cellular device ecosystem is still maturing. • Agency transition and solution integration is complex and costly

Commentary

Following the market engagement, it was determined:

- Delivering three networks (new digital LMR, cellular, and then migrating from new LMR to satellite) was not affordable.

- There is insufficient supplier capability to deliver the cellular network enhancements required to position cellular as the primary PSN network.

- There is insufficient supplier capability to deliver the integration between cellular and LMR networks.

- Given New Zealand's topography, regular seismic activity and volcanic eruptions, cellular technology was not well suited to underpin a network of last resort.

- International efforts to deliver similar nation-wide emergency service networks over cellular networks demonstrated the significant risks and financial investment required for this approach, significantly beyond New Zealand's reach.

Reassessment of the options with this information changed the preferred option from **Option 3: Dual Network PTT** (previously called Evolving Mission Critical: Lower Risk) to **Option 2: Cellular Evolution.**

Changes to scope since DBC

As a result of the change in preferred option, there have been some changes in scope. The key points of these changes are:

1. Delivery of a mission critical cellular network, and the network hardening required to create it, is no longer in scope. However, uplifting commercial cellular networks enables the delivery of video and data albeit without the resilience and additional cost of a mission critical network.

2. Upgrades to cellular services through the implementation of roaming and QPP and common purposes applications

3. A future assessment (post initial implementation) of technological maturity and value for money of a mission critical cellular network has been added to the scope.

4. Delivery of a satellite network to replace LMR is no longer in scope.

5. A future assessment (post initial implementation) of technological maturity and value for money in a satellite network has been added to the scope.

6. OTT Applications provisioned via the PSN App Store are within scope.

The technology elements of these changes are noted in the diagram below.

Figure 8: Changes to technology scope
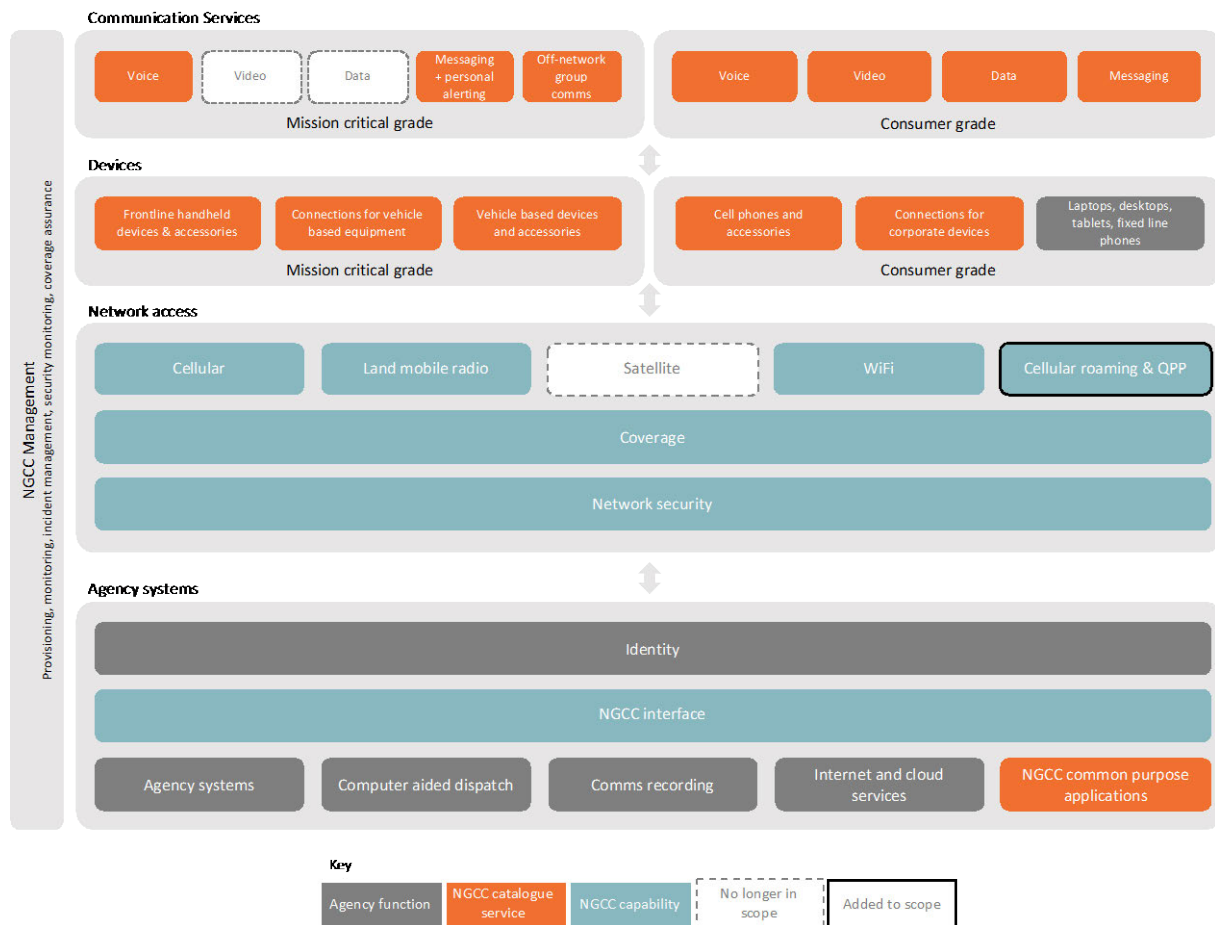
Preferred option

This option will deliver a voice Network of Last Resort using Digital LMR technology - a network which is built with sufficient resilience to the last network standing in the event of a significant environment disaster – addressing Challenge 1.

This network will have a scalable design that allows the requirements of other agencies to be met in the future. This business case was shared with several agencies and ministries, and interest included:

- New Zealand Defence Force – NZDF have several services which would benefit from inclusion on the PSN in the future

  o Military fire service, and noted they work with Fire and Emergency New Zealand in event response and operational compatibility would benefit both services

  o Military Police operations

  o Hospital and emergency evacuation responses

- Department of Conservation - large radio network of 125 repeaters and several thousand terminals. This network is used to provide communications services for rangers on public conservation land and is often used by other agencies when coverage is needed outside of normal networks, e.g. LandSAR

- Department of Corrections – to ensure operational compatibility with Police is continued

- New Zealand Customs Service

- Ministry for Primary Industries

- Ministry of Health

The option will also deliver Priority Cellular and Roaming across commercial networks for video and data services and OTT applications allowing agencies to best utilise common data capabilities.

The option acknowledges that cellular technologies do not yet have the level of maturity required for a stand-alone network of last resort but provide a pathway for agencies to continue to realise the benefits of data-rich interactions by delivering network Roaming across the major commercial cellular networks – addressing Challenge 2. Other communications technologies, such as cellular MCPTT and satellite can be reconsidered in the future as their maturity progresses.

The shift from the current state analogue LMR network to a single digital LMR network is a smaller technological change than shifting to cellular network, which lowers implementation risk and increases re-use of existing skill sets in the agencies.

The NGCC Executive Governance Board endorsed the proposed option, and it was presented to the NGCC Oversight Ministers in December 2021.

Figure 9: PSN Strategic Vision
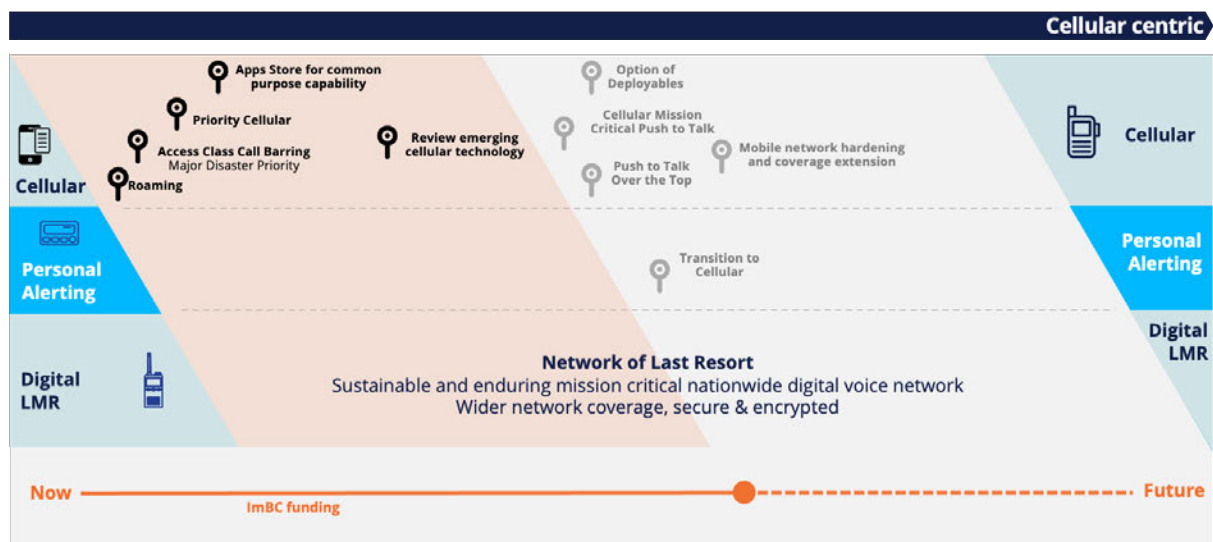
The PSN strategy (delivered through the new preferred option) incorporates three technology solution sets, and deliberately positions Digital LMR as the network of last resort, supported by Priority Cellular and Personal Alerting. Devices and services can be accessed by agencies through the service catalogue once they have signed on to the syndicated contract.

Digital LMR

Digital LMR is a proven, mature and trusted technology that will now form the backbone of the new critical communications platform – the Network of Last Resort. The primary purpose of LMR technology is to support push-to-talk (PTT) communications, which enables near instantaneous transmission of voice communications from one user to a group. This is used extensively by emergency services and allows responders to both send and receive communications while remaining "eyes up" – focussed on the event they are responding to.

Moving from the current Analogue LMR technology to a modern Digital network, provides new features that enable better outcomes for New Zealanders and protect frontline staff from harm. Key features include:

- Location services

- Encryption

- Caller ID

- Additional building penetration through better utilisation of UHF spectrum for all towns with populations greater than 3,000 people

For example, voice communications will be encrypted and s9(2)(c) location services will provide additional situational awareness where frontline are under stress and unable to communicate verbally.

Digital LMR will be provided through a consortium of Tait and Kordia, two organisations experienced in the delivery and operation of LMR services.

Features within the Digital LMR platform contribute directly to investment objectives:

Table 11: LMR contribution to investment objectives

Investment objectives	LMR contribution
To provide Emergency Services with reliable access, when needed, to secure communications	Improved building penetration allows better coverage during event response A modern digital network will have lower failure rates than obsolete analogue network
To meet health and safety requirements while delivering legislative and contractual obligations for New Zealanders	Location services improves responder safety during events Encryption prevents operational information being intercepted
To provide sustainable communications capability for Emergency Services	Modern digital communications are easier to update and keep current, reducing downtime and errors
To govern the development of critical communications capability	Centralised governance structure and improved contractual KPIs will assist in system governance

Priority Cellular

Priority Cellular services, and the data-rich interactions they enable, will play an ever-increasing role in the Emergency Services communication landscape and is a key aspect of the PSN strategy. This cellular evolution aligns with international trend of leveraging broadband networks for public safety communications.

The inclusion of cellular based services enables a significant step forward for Emergency Services, and follows international trends, enabling front line staff to share rich-data via Mobile Applications ("apps"), and vastly improve cross-Agency collaboration at all levels to support better decision making and outcomes for New Zealanders.

Priority Cellular, Roaming and Apps will be provided by Hourua, a purpose-built consortium from Spark and Vodafone. The nature of the agreement, provisions build and operate of the solution set, but is separate too, and protects the value and competitive aspects of the retail cellular solutions currently contracted to Agencies.

Table 12: Priority Cellular contribution to investment objectives

Investment objectives	Priority Cellular contribution
To provide Emergency Services with reliable access, when needed, to secure communications	Cellular Roaming will provide additional coverage, especially at the edges of the network
To meet health and safety requirements while delivering legislative and contractual obligations for New Zealanders	Enabling data and information sharing gives improved situational awareness, especially through up-to-date maps and building data. This will also improve responders' ability to send new types of information (e.g. photos, video) back to dispatch to assist with response
To provide sustainable communications capability for Emergency Services	Modern digital communications are easier to update and keep current, reducing downtime and errors
To govern the development of critical communications capability	Centralised governance structure and improved contractual KPIs will assist in system governance

Personal Alerting

The third aspect of the PSN strategy is personal alerting services, provided over a paging network. This provides a reliable personal alerting service which is critical for ensuring a response in communities supported by volunteers. Without Personal Alerting, timely alerting of rural and remote based emergency services volunteers is functionally impossible. The current Personal Alerting system will suffer increasing outages over the coming years.

Table 13: Personal Alerting contribution to Investment Objectives

Investment objectives	Personal Alerting contribution
To provide Emergency Services with reliable access, when needed, to secure communications	Personal alerting provides wide range contact to turn out responders across areas that may not be otherwise accessible
To meet health and safety requirements while delivering legislative and contractual obligations for New Zealanders	-
To provide sustainable communications capability for Emergency Services	Modern digital communications are easier to update and keep current, reducing downtime and errors
To govern the development of critical communications capability	Centralised governance structure and improved contractual KPIs will assist in system governance

Service Governance

The NGCC provides emergency services agencies access to equipment, services and Apps at pricing negotiated by NGCC on the agency's behalf through the syndicated contract and service catalogue.

Where a component is not being delivered by the PSN, agencies remain able to access those technologies through existing commercial channels. The PSN will have the flexibility to allow the addition of other agencies in the future with appropriate investment.

Table 14: Service Governance contribution to investment objectives

Investment objectives	Service governance contribution
To provide Emergency Services with reliable access, when needed, to secure communications	Centralised service governance and contract management will ensure that up time KPIs are monitored and met and can provide dedicated resources to ensure speed to resolve if errors occur.
To meet health and safety requirements while delivering legislative and contractual obligations for New Zealanders	-
To provide sustainable communications capability for Emergency Services	Centralised service governance can ensure updates and upgrades are applied and systems remain up to date.
To govern the development of critical communications capability	Centralised service governance will allow focus and specialist resource to meet communications capability requirements

Meeting capacity needs in the PSN

The proposed solution allows a more efficient use of available spectrum through the Digital LMR network. This network can support trunking, a dynamic allocation of channels that happens automatically in the network. This dynamic allocation allows traffic to be spread more evenly across channels, rather than allowing one channel to become congested while another is free, as can happen in the current Analogue LMR network.

This feature provides an initial boost to capacity from the outset, which can be leveraged further if additional agencies with additional spectrum choose to join the PSN in the future. The PSN core infrastructure will be built with sufficient capacity to allows only end-point upgrades which can support additional future traffic.

Traffic capacity designs have reviewed current regular traffic patterns, busy periods, and surge periods (such as high-volume events) to ensure the ability to meet current and future needs.

For communications across the cellular networks (data, voice, video and messaging), emergency services communications will utilise QPP, meaning that their traffic will be treated with priority over other commercial traffic. This prioritisation ensures successful emergency services communications across the commercial cellular networks.

Commercial Case – contracting for the project

The Commercial Case outlines the processes used to select the preferred suppliers and contract arrangements required to implement the Preferred Option. The procurement process allowed vendors to bid for some or all of five solution components comprising the proposed Public Service Network. These were:

- Priority Cellular
- Mission Critical Platform
- Digital LMR
- Personal Alerting
- Aggregation

The process followed complies with the Government Procurement Rules 2019. Crown Infrastructure Partners (CIP) are NGCC's delivery partner for procurement and delivery of the network build. In November 2021, the process to select preferred suppliers was independently audited by Audit New Zealand, who concluded:

"We considered whether the procurement process, as a whole, was conducted in accordance with:

- *Crown Infrastructure Partners' policy, planning, and published procurement documentation;*
- *applicable rules and good practice for public sector procurement; and*
- *probity principles.*

Nothing has come to our attention to indicate this has not been achieved. We are not aware of any outstanding probity issues."

Audit NZ's report is listed in Annex 2 and is available on request.

Selection of Preferred Suppliers

Approach to the market

The Procurement Plan provides more detail on the procurement process and evaluation methodology used. The approved Procurement Plan and Final Evaluation Report are listed in Annex 2 and are available on request. The Final Evaluation Report were reviewed and approved by the Advisory Services team within MBIE's New Zealand Government Procurement branch in December 2021.

Independent legal advice was sought prior to making any changes or deviations to the procurement plan and was included in the process and probity assurance completed by Audit NZ at the conclusion of the process.

The procurement process followed these stages:

1. Preconditions - for example, correct documentation and schedules submitted
2. Independent evaluation by Evaluation Team
3. Moderation of independent evaluations
4. Pricing analysis
5. Supplier clarifications
6. Evaluation Panel (Priority Cellular, Mission Critical Platform, Aggregation)
7. Solution refinement sessions (LMR, Personal Alerting)
8. Evaluation Panel (LMR, Personal Alerting)

9. Evaluation of suppliers

10. Final Evaluation Report and Recommendations

11. Recommendations approved by Negotiation Steering Committee in October 2021

12. Recommendations noted by the NGCC Executive Governance Board in October 2021

Evaluation of supplier offers

A cross-functional evaluation panel representing business, technical, commercial, legal and user perspectives was established to review all valid supplier offers following the process described in the Procurement Plan. The Evaluation and Moderation teams included a range of subject matter experts provided by the emergency services agencies, CIP and NGCC. The panel followed consistent process for all proposals and evaluated proposals against documented criteria. Audit NZ attended selected evaluation and all moderation sessions.

Initial evaluation of the vendor proposals found many did not meet the requirements. To progress, the process was adapted, and it was recommended:

- Priority Cellular would not be progressed to negotiation, but an alternative pathway would be considered separate to this process.

- MC Platform and Aggregation were removed from scope of the programme.

- Solution refinement sessions were held with appropriate vendors for LMR and Personal Alerting.

Following the initial evaluation of these responses, an adjusted set of possible options which aligned to programme outcomes and investment objectives, but more accurately reflected vendor capability and capacity, was presented to the NGCC Executive Governance Board and endorsed in July 2021. These options are shown in the economic case. At the conclusion of the evaluation process, the new preferred option was endorsed by the NGCC Executive Governance Board in December 2021 and is reflected in this document.

The following table shows suppliers whose proposals met preconditions to the evaluation process, and the final recommendations of the evaluation panel. Full details, including evaluation criteria and scoring are available in the Final Evaluation Report is listed in Annex 2 and is available on request.

Table 15: Supplier proposals by solution component

RFP section	Evaluated	Further information / solution refinement	Recommendation
Priority Cellular	s9(2)(b)(ii)		
MC Platform			
LMR			
Personal Alerting			
Aggregation			

Evaluation of other criteria

Preferred suppliers were also assessed against the following non-functional requirements to determine areas that may impact the successful delivery of the programme. This evaluation was completed on a red, amber, green scoring system.

s9(2)(b)(ii)

Risk Description	s9(2)(b)(ii)
Key terms	
Milestones	
Reporting	
Broader outcomes	
Financial capability	
Health & safety	

Due diligence was carried out on the suppliers and their proposals. This included:

- Independent supplier financial assurance by KPMG NZ

- Independent technical quality assurance by Nova Systems, Australia and NZ based based experts in P25 architecture, critical communications networks, and electromagnetic spectrum

- Independent security assurance by Axenic Ltd, NZ based information security management specialists

The evaluation and assurance reports provide more information on the supplier offer evaluation and due diligence process. The final versions are listed in Annex 2 and are available on request.

The recommendations of the Evaluation Panel, as endorsed by the NGCC Executive Governance Board in October 2021, were to:

1. Proceed to negotiation for LMR with s9(2)(b)(ii)

2. Proceed to negotiation for Personal Alerting with s9(2)(b)(ii) .

3. Remove Mission Critical Platform and Aggregation from scope.

4. Seek an alternative pathway for Priority Cellular outside of this procurement process.

Priority Cellular

Following the Final Evaluation Report, the Programme ran a short solution refinement process for Priority Cellular to revise the scope following the removal of MCPTT from the scope. This process allowed Hourua to engage with the Programme to better understand Emergency Services needs and requirements.

This exception process was run in accordance with advice from probity advisors (Bell Gully), was approved by the NGCC Executive Governance Board, and had oversight from Audit New Zealand. This process was also included in the review completed by Audit New Zealand.

As a result of this process, the scope for Priority Cellular, Roaming, Applications development and Deployables was refined and confirmed. Refined pricing was also provided. Negotiations have been ongoing to further refine this pricing and obtain visibility and transparency of costs – contract summary details are available in the Contract Summary section below, and negotiated costs detailed in the Financial Case.

Personal Alerting

s9(2)(b)(ii), s9(2)(j)

Supplier Contract Arrangements

Contract execution

The Commissioner of Police will sign supplier contracts on behalf of the Crown. Contracts have the endorsement of the Commercial Working Group, comprising of NGCC, CIP and agency commercial and legal representation and subsequent approval by the NGCC independent Executive Governance Board.

An independent review of contracts carried out by Police legal advisors, Russell McVeagh is also being carried out to provide additional assurance to the Commissioner, prior to execution.

Contracts framework
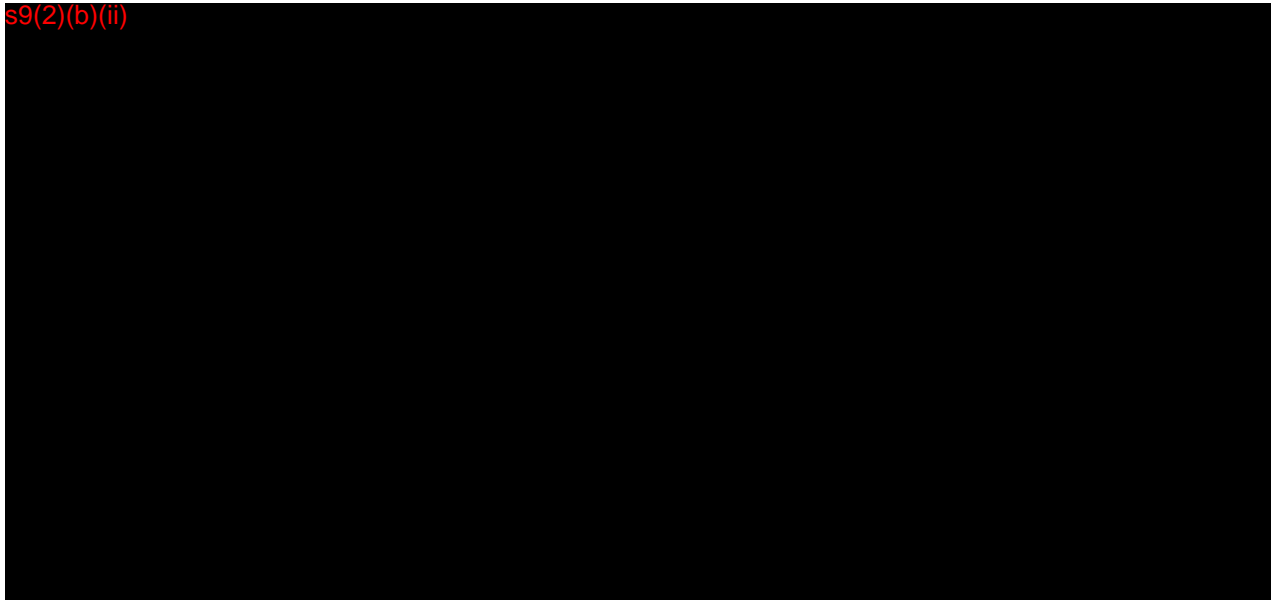
In September 2021 Bell Gully provided this overview of the contractual framework, summarising the relationship of the five central documents: Infrastructure Deployment and Services Agreement (IDSA), Lead Agency Services Agreement (LASA), Participating Agency Services Agreement (PASA), Participation Memorandum of Understanding, and the Letter of Accession.

The PASA and the LASA are open syndicated contracts, with access to the contracts overseen by NGCC. As noted in the Final Procurement Plan:

> *The services available under the services catalogue will be procured via an Open Syndicated (OS) contract. Whilst we could make an assessment now as to the agencies who might use these services, and make this a closed syndicated arrangement, we believe that this would be short sighted. This is because there are new agencies being created that are likely to have a need for these services. Further, we do not have full knowledge of all Eligible Agencies operations, and where these Eligible Agencies operations might lead in the future.*

The contract structure and terms were reviewed and approved by the Advisory Services team within MBIE's New Zealand Government Procurement branch in December 2021. This contract framework has been successfully applied for the LMR build and service provision.

s9(2)(b)(ii)

Key contractual documents are listed in Annex 2 and are available on request.

Ownership structure of the Land Mobile Radio network protects the Crown's interests

The LMR network is designed to meet Emergency Services sector's operational outcomes and service levels. The contract reflects vendor expertise in radio network development and holds them accountable for maintaining the service levels.

The contract offered is a Design, Build, Operate, Own, Transfer contract, with warranty conditions. These conditions ensure the vendor maintains network operation and service levels throughout the life of the contract - and for a warranty period at the end of the contract. The vendor will also provide operational support, ensuring services are available.

A revised ownership model for LMR network assets is proposed. Under this model the Crown retains the financial interest in the assets, hence is treated as capital expenditure and it would require depreciation treatment accordingly. Whilst the legal ownership of these assets sits with the vendor for the term of the contract, at the conclusion or termination of the contract they are returned to the Crown. It is more efficient for the vendor to legally own the assets during the contract term for two reasons: first, the vendor has considerably greater existing resource than NGCC to manage sites and communication assets; and secondly, the contracting structure can be streamlined to allow the vendor to acquire and develop new sites itself without back-to-back arrangements with NGCC for those sites.

The Crown, through NGCC as part of NZ Police, will retain oversight of the service performance and network capacity. The assets are recognised as public owned assets and cannot be utilised by the vendor to service other customers without NGCC's consent.

Ongoing beneficial ownership by the Crown results in a longer service life enabling more public sector agencies to be able to consume services and the Crown to enjoy a lower cost of ownership.

In the event the contract is not renewed or terminated, the LMR network assets would be transferred from the vendor to NGCC (currently sitting within NZ Police). This mitigates the risk for NGCC if a satisfactory commercial pricing cannot be reached on contract renewal, early termination due to vendor material breach or at the end of contract term.

The Build, Operate, Own, Transfer (BOOT) contract shifts responsibility for performance risks to the vendor ensuring that the asset achieves the desired outcomes and service levels. This has been adopted as a lower risk option to retain security, control and flexibility over the network of last resort.

Figure 11: Digital LMR

	During the Contract Term, including renewals	On expiry/termination of Contract Term
TKNZ	• Build Government Funded Infrastructure • Upgrade or integrate to meet required specifications • Hold title for the PSN LMR network • Must deliver network services to NGCC (and agencies) • Must maintain the network in accordance with Operations & Maintenance requirements • Cannot use for any other purposes than delivery to agencies • Must ensure no capacity used by any other party unless agreed by NGCC	• No ownership of the network • Grants licence to use TKNZ Intellectual Property to NGCC to operate the network
NGCC	• Specific security interest over Government Funded Infrastructure • Dedicated use of the network and control over its use • Make changes to the network for expansion etc	• Owns the network • Licence to use TKNZ Intellectual Property to operate the network

The Priority Cellular build cost will be treated as an intangible asset and capitalised over the life of the contract. Vendors will essentially augment their existing software to provide this service to Emergency Services.

LMR Ownership Funding Models

The funding model for LMR ownership is based on a Build, Own, Operate, Transfer (BOOT) contract. This means that the Crown would fund all capital needed for the network build, the supplier would be responsible for the build and ongoing operation and maintenance of the network over the contract term, with legal ownership transferring back to the Crown on expiry or termination of the contract. On expiry or termination, the Crown would then contract the Network Services to another third party, thus protecting the investment over the longer term.

Other funding models were considered but have higher risk. Further detail is available in Annex 8.

Broader outcomes

In line with NZ Government Procurement Rules, the contracts include broader outcomes. These outcomes are listed as

1. **Increase New Zealand businesses' access to government contract opportunities:** by ensuring any opportunities to New Zealand businesses in respect of this Agreement are widely circulated and visible to all local enterprises suppliers which potentially could meet the Service Provider's supply requirements and may wish to bid for the work;

2. **Increase the size and skill level of the domestic construction sector workforce and provide employment opportunities to targeted groups:** by encouraging suppliers to employ suitably qualified New Zealand workers throughout the Deployment and any ongoing phases and to undertake training of the Service Provider's employees to help ensure sufficient numbers of local workers in future;

3. **Improve conditions for workers and future-proof the ability of New Zealand businesses to trade:** requiring suppliers to adhere to relevant New Zealand Laws (for instance, Relevant Health and Safety Legislation and the Government Supplier Code of Conduct), and by encouraging suppliers to also source locally; and

4. **Reduce emissions and waste:** by considering, where practicable, the procurement of locally manufactured equipment and of professional and support services supplied by New Zealand-based entities.

The following table outlines actions completed and planned to support the achievement of the broader outcomes.

Table 17: Achieving the broader outcomes

Broader outcome	Contribution
Increase NZ businesses' access to government contract opportunities	• The procurement programme adhered with all government procurement rules, open advertising on GETS, and has resulted in contract awards to New Zealand organisations.
Increase the size and skill level of the domestic construction sector workforce and provide employment opportunities to targeted groups	• The PSN programme will require a significant amount of construction build projects nationwide urban and rural New Zealand over the next five years. • The programme will work with suppliers to ensure opportunities exist for the domestic construction sector, while adhering to existing laws and contracts

Improve conditions for workers and future-proof the ability of New Zealand businesses to trade	• Compliance to health and safety requirements formed part of the formal evaluation during the procurement process. This has informed decision making on selecting preferred suppliers.
	• This focus will continue throughout the build process. The form of this oversight has yet to be determined but is likely to be part of regular supplier progress reporting.
Reduce emissions and waste	• The use of New Zealand companies in the build and support of the PSN reduces the amount of international travel required in the build, providing a reduction in emissions.
	• The programme will also work with suppliers to ensure that waste and emissions are minimised throughout the build process.
	• The service governance aspect of the NGCC will have oversight of asset management and quality, and through this function will consider how to extend the life of the asset where possible, as part of the PSN being an enduring communications capability. This focus on reuse will reduce waste and re-build.

Negotiated contract services and milestones

Over 130 products and services have been negotiated with the preferred suppliers. These are summarised in the following table.

Table 18: Contracted products and services and contract period

Products, services and service levels	Contract period
s9(2)(b)(ii)	

The key contract milestones agreed with the preferred suppliers are shown in the table below.

Table 19: Key milestones

Milestones				Completed
ImBC approved by Cabinet Investment Decision - Mandate to continue Establish phase				Q2/2022
Cabinet paper approved by Cabinet Investment Decision – Mandate to execute contracts				Q2/2022
Capability establishment				
	Digital LMR	**Priority Cellular**	**Personal Alerting**	
Contract signed	Q2/2022	Q2/2022	Q2/2022	
Nationwide capability available	Q1/2026	From Q2/2024	Q2/2022	
All acceptance testing complete	Q2/2026	From Q3/2024	Q2/2022	
FENZ & s9(2)(b)(ii) xits existing radio network				Q3/2026
Police & Wellington Free Ambulance exit existing radio network				Q3/2026
Future Investment Decision – Evolve phase based on review of emerging technologies				TBC

Contract Summaries

LMR Contract Summary

Contingency and price controls

- s9(2)(b)(ii) ██

  ██████████████████████
  ███████████████
  ██████████████████
  ████████████████████████
  ███████████████████

s9(2)(b)(ii)
██

████████████████

LMR Key Terms

s9(2)(b)(ii)
████████████

███████████████████████████████████████

██

██

██
████████████████

███████████████████████████████████████

██

███

████████████████████████████████████

███
████████████████████

██
███████████████████████████

██

██

Priority Cellular Contract Summary

s9(2)(b)(ii)
███
██████████████████████████████████

██

██

██

██

███
████████████████████████

███
██

7. s9(2)(b)(ii) ███████████████████████████████████

██

███

██

██

███

██

Service failure conditions

s9(2)(b)(ii) ███████████████████████████████████████

██

██

██

██

██

Negotiated payment arrangements

s9(2)(b)(ii) ███████████████████████████████████

- ███
████

- ███
█████████

- █████████████████████████████

███
███

- ████████████   - █████████████
- ██████████   - █████
- ████████████   - █████████████
- ████

Financial case

Services being delivered

The total cost for the PSN is $1,411 million[6] including s9(2)(b)(ii) million of contingency. This investment will fund delivery of the following products based on the first 10-years of expenditure in cash undiscounted of:

- LMR - s9(2)(b)(ii))
- Personal Alerting - s9(2)(b)(ii))
- Priority Cellular:
  - QPP, Roaming s9(2)(b)(ii)
  - Cellular Data Devices s9(2)(b)(ii)
- Project costs for transition s9(2)(b)(ii)
- Contingency, including indexation - s9(2)(b)(ii)

s9(2)(b)(ii)

Contingency was calculated in the post-negotiation QRA, completed by KPMG, and reflects a P85 scenario.

s9(2)(b)(ii)

Cost by financial year ($m)	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	Total
Capital Expenditure	s9(2)(b)(ii)										
LMR											
Personal Alerting											
Priority Cellular											
Cellular Data Devices											
Project Management											
Capital Expenditure Subtotal											
Contingency (inc. indexation)											
Total Capital Expenditure											
Operating Expenditure											
LMR											
Personal Alerting											
Priority Cellular											
Cellular Data Devices											
Project Management											
Operating Expenditure Subtotal											
Contingency (inc. indexation)											
Total Operating Expenditure											
Total expenditure											

---

[6] Expenditure in cash terms excluding depreciation and capital charge as a compariable metric to the DBC investment sizing

Funding sources

The total funding of $1,776 million includes a capital injection of $449 million and Operating Expenditure of $1,327 million including depreciation and capital charge.

Cost for service ($m)	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Total
Land Mobile Radio (LMR)	-	s9(2)(b)(ii)									
Priority Cellular	-										
Personal Alerting	-										
Cellular Devices	-										
Project Management	30										
Contingency	-										
Capital Charge	-										
Total Operating Expense	30										
Land Mobile Radio (LMR)	-										
Priority Cellular	-										
Personal Alerting	-										
Cellular Devices	-										
Project Management	-										
Contingency	-										
Capital Injection	-										

Operating funding required	FY21/22										
Existing Appropriation	30										
Agency Contribution	-										
Rephased Tagged Contingency	-										
New Crown Operating Funding sought	- 0										

The investment will require additional funding of $1,327 million to be sought along with existing funding previously identified. The first four agencies that consume services from the PSN will contribute $213 million funding, together with the sought approved Government investment of $1039 million. In addition to this existing funding, $449 million of new capital funding is requested to construct the ten-year costs of delivering this programme of work including the operation of the PSN, which includes funding required for the associated depreciation and capital charge.

Operating expenditure including depreciation and capital charge has an outyear steady state cost of $168 million per annum.

Agency contributions of $213 million have been agreed with each individual agency, and a jointly issued letter of endorsement from agency chief executives is included as Annex 1.

The agreed amounts are listed in the table below.

Agency Contribution ($m)	Fire and Emergency	NZ Police	St John	Wellington Free Ambulance	NGCC	Total
LMR	s9(2)(b)(ii)					
Personal Alerting						
Cellular						
Cellular Data Devices						
Total	s9(2)(b)(ii)					213

Whole of Life Costs

Summary of Whole of Life Costs

- The whole of life cost of the investment is considered over a 24 year period with the total cashflow investment of $1,719 million based on a weighted average cost of capital (WACC) at 6%, as per the Treasury ICT Hurdle rate.

- The first 10 years of the whole of life cost is $1,406 million (undiscounted and excluding depreciation and capital charge) and based solely on when cash is incurred.

Table 21: Whole of life cost comparing 24-year (discounted)

Whole of Life Costs NPV		Total expenditure
Pre-contract costs (to FY22)		s9(2)(b)(ii)
Estimate to complete this project (FY23-46, NPV)		
Project contingency (FY23-46, NPV)		
Total Whole of Life Cost (24 year, NPV)		

Table 22: 10-year comparison of costs for comparison to the DBC excluding depreciation and capital charge

Comparison of 10-year cost (DBC and ImBC undiscounted)	Total expenditure
Total ImBC 10-year cost (undiscounted, FY22-31)	$1,411m
Total DBC 10-year cost (undiscounted, FY20-29)	$905m
Change since DBC	**+$506m**

Analysis approach

The method used for calculation aligns with the Treasury guidance for the calculation of the whole-of-life cost to implement and operate the capability over the life of the longest surviving asset, and the appropriation calculation for financial impact on the statements.

Key modelling features and assumptions include:

1. That reliable and secure communications are provided for all participating agencies through an open syndicated contract, allowing each agency purchasing services from a service catalogue. Oversight and service governance will be provided by the NGCC to maintain a secure capability. This supports investment objectives 1 (reliable and secure access) and 4 (fit for purpose governance).

2. That the founding agencies contribute funding equivalent to their current level of expenditure for existing technologies that are being replaced. This business case provides funding for the additional cost of the PSN. This supports investment objective 3 (sustainable communications capability) by providing affordable sustainable communications.

3. Appropriate asset management, with assets being replenished at the end of their life, will maintain this communications capability. This supports investment objectives 1 (reliable and secure access), 2 (ensure safety) & 3 (sustainable communications capability).

4. Digital LMR network ownership structure will ensure a supported service and continuity in the event of vendor change, supporting investment objective 1 (reliable and secure access).

5. Leveraging quick wins available in across Cellular services to ensure communications capability is evolving and affordable, supporting objective 1 (reliable and secure access) and 2 (ensure safety) through the implementation of QPP, Apps and Roaming.

6. NGCC is part of NZ Police with shared service support and funding sourced through Vote Police.

7. Indexation of costs has been included as part of contingency figures, reflecting the inflationary and cost increase risks identified in the QRA.

8. As per Treasury guidance on WoLC calculation[7] depreciation and capital charge have been excluded from these calculations.

The full list of financial assumptions is included in Annex 4.

Re-evaluation of the whole of life cost

The re-evaluation of the whole of life cost was completed to reflect:

- This capital injection will construct network assets with a 20 year operational life with the initial 4 years being a build period.

- The investment modelling methodology is based on cash investment when incurred and has not allowed for depreciation funding or capital charge.

Asset ownership

Asset ownership creates greater value for money with more Public Service Agencies being able to join

The investment needed to construct the network meets the definition of an asset with the government exhibiting substantial control (100%) of the asset and received substantively all the service potential (100%).

This ownership model enables the asset life to be extended beyond the contract period of s9(2)(b)(ii) years, to at least 24 years. This technology is a critical component of the emergency services communication capability and will be required for at least the extended period, which is reflected as a lower annual cost of ownership.

Table 23: Value in use capital investment

Investment Horizon - capital costs	Total Capital Investment in LMR network	Cost per year	Benefit – Cost Avoidance per lifecycle replacement
Grant funding s9(2)(b)(ii) ears	s9(2)(b)(ii)		
Asset Ownership 24 years			

Cost avoidance per lifecycle replacement is calculated based on operating longer asset lives resulting in a lower amount of replacement capital required when comparing ▮ lifecycles of ▮ years to ▮ lifecycles of ▮ years.

Onboarding costs, asset life and PSN value

A vast majority of the investment is the access point radios and terminals to the network - making 56% of the total capital investment.

---

[7] https://www.treasury.govt.nz/sites/default/files/2015-07/lifecosts-guidance.pdf

Many of these devices have a life of 10 to 15 years. A shorter network asset life of ██ years (compared with 24 years) lowers the period agencies can get value from their radio and terminal investments – especially if they are joining the PSN part way through the ██-year term.

Analysis shows that alignment to the ██-year contract window only enables other agencies to join within the initial ██ years - and with the first ██ years being the build period, adoption may be limited to a ██ year window. Adoption after this period either means lower asset life utilisation is accepted, or, joining may only be attractive to agencies who already own compatible devices – lowering the potential value of the PSN.

Extending the economic life of then network asset to 24 years enables that adoption window to extend to 15 years from the beginning of the build period. This will enable more agencies to join and extend asset lives of existing technologies and be able to invest in new devices.

Table 24: Evaluation of the window of time needed to receive an acceptable payback period

Investment Horizon showing capital costs excluding operating costs	Adoption window for a new agency to join and receive an adequate return on investment
Grant funding ██ years	would need to join PSN before ██ years of the contract
Asset Ownership 24 years	would need to join PSN by 15 years of the asset life being reached

Additional advantage comes from creating competitive tension with the underlying provider with more frequent market engagement for supply of service and extends the use of asset avoiding unnecessary asset replacement for a shorter asset life compared to an asset that is sized to the contract duration.

Contingency

Contingency has been calculated from Quantitative Risk Analysis

Contingency funding has been calculated based on the post-negotiation Quantitative Risk Assessment (QRA) and recommends a contingency of ██ of the total cost.

s9(2)(b)(ii)

To reflect this, and with Treasury advice, the P85 level from the post-negotiation QRA has been used. This is a total of ██ million, with Capital Contingency of ██ million and Operating Contingency of ██ million. A breakdown by component is shown in the following table.

Table 25: Contingency by component

Component ($m)	Cost	Contingency	Cont. %	Total
LMR	s9(2)(b)(ii)			
Personal Alerting				
Priority Cellular				
Data Centric Cellular				
Project Management				
Indexation of total				
Total				
Capital expenditure				
Operating expenditure				
Total				

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

s9(2)(b)(ii)

Impact on the participating agencies

Each participating agency is a direct entity type with different funding pathways and rules. The PSN is made up of:

- Fire and Emergency being a Crown entity predominantly funded through a fire service levy and a component of Vote Internal Affairs

- NZ Police is a government department funded through Vote Police

- St John and Wellington Free Ambulance are Charities being funded through Vote Health and donations.

s9(2)(b)(ii)

Management Case – planning for successful delivery

Summary

The Management Case shows how the agency has capacity and capability to deliver the programme if this investment proposal is successful. Over previous business case iterations, market engagement processes and contract negotiations, the NGCC has developed rigorous planning, risk, governance, engagement and change control frameworks and processes which can be re-deployed and adapted for the proposed delivery phase.

Programme management

Emergency Services agencies will own their individual agency transition projects and business change activities with NGCC funding delivery. The PSN Programme team will assist agencies preparing for transition using a common transition framework and identifying interdependencies. Core change functions will be centralised where appropriate to avoid duplication, enhance knowledge sharing and provide consistency across the four agencies, e.g., programme and project management, change management, training and communications. These approaches will be applied flexibly to enable agencies to tailor and brand change artefacts for their own agencies.

Each agency will run its own projects to transition to the PSN capability and decommission any of its existing services. Project activities will include procuring services and devices from the PSN Service Catalogue; deploying equipment to vehicles, buildings and first responders, undertaking any agency specific system integration not delivered by the PSN core network procurement and managing changes to the business so that Emergency Services agencies support, and are ready for, the change.

Programme Management Plan

The detailed day-to-day control processes that will be used to manage delivery including governance, reporting, risk and issues management, dependency management, resourcing, scope and change, how the P3M3 methodology will be applied, are detailed in the Programme Management Plan.

The Programme Management Plan is a living document; the current version is listed in Annex 2 and is available on request. This reflects the implementation timescales agreed with the preferred supplier for the delivery of the negotiated services and signed off by stakeholders.

Project and programme governance

The programme has multiple levels of governance in place that are responsible for ensuring the investment outcomes for the PSN programme are achieved. The Senior Responsible Officer for the Programme is Steve Ferguson, the Director for NGCC. This was previously Jevon McSkimming, Assistant Commissioner, NZ Police.

Governance structures used throughout the business case phase will continue. Changes will be made to governance membership as required to accommodate additional functions NGCC undertakes in the future e.g. integration of Emergency Caller Location Information (ECLI). Additional governance structures will also be established to manage vendor contracts.

The governance boards within the programme delivery structure include:

- **The Executive Governance Board (EGB)** - The EGB operates at a strategic level. It governs the NGCC and is accountable to the Oversight Ministers for investment outcomes and the ongoing evolution of PSN. The EGB Chair is directly accountable to the Lead Minister for the delivery of the NGCC Programme [GOV-20-MIN-0002 and CAB-20-MIN-0032 refer]

- **The Programme Control Board (PCB)** - The PCB operates at a tactical level. It is accountable for successfully delivering the programme by establishing the PSN capability. The PCB will

oversee the transition of Emergency Services to the new capability and will assure existing radio networks until transition is complete. The PCB also provides connection between individual agency programmes, to share learnings and ensure delivery programmes remain aligned.

- **Agency Project Boards (APB)** - Each agency has its own APB that governs the projects that will transition their respective agencies to PSN capabilities and realise the agency specific business benefits. The Agency Project Boards also govern Radio Assurance projects while they are still being delivered.

- **Project Control Group (PCG)** – during the build, there will also be an additional group with representatives from NGCC, CIP and the supplier. Terms of reference and reporting arrangements for this group will be determined once the contract is executed.

- **Executive Committee (EC)** – this will comprise the CEO or CTO of each vendor, CIP & NGCC. Terms of reference and reporting arrangements for this group will be determined once the contract is executed but will include contract governance.

The terms of references for the Programme's governance boards detail the mandate, objectives, principles, operating arrangements, membership and responsibilities of each board.

Specifically the Terms of Reference for the EGB states [GOV-20-MIN-0002 and CAB-20-MIN-0032 refer]:

a. that the Commissioner of Police as appropriation administrator (or their delegate the Director of the Lead Entity business unit) will make decisions on spending in relation to this investment only in accordance with recommendations made by the Executive Governance Board;

b. that, although under the Public Finance Act 1989 the Commissioner of Police will remain formally responsible to the appropriation Minister for what has been achieved within the relevant appropriation, the members of the Executive Governance Board will be regarded as being collectively responsible for the delivery of the NGCC Programme.

The Terms of Reference for PCB and EGB are listed in Annex 2 and available on request.

This structure allows NGCC to co-ordinate centrally as appropriate and ensure that all stakeholder agencies remain aligned and on track. The agency project boards will run the change programmes within each agency and will liaise with each other and the NGCC via the PCB. The PCB will report to the EGB as the formal governance body for the programme. The EGB will provide updates to the Oversight Ministers group regularly or as requested by that group.

Figure 12: PSN governance arrangements
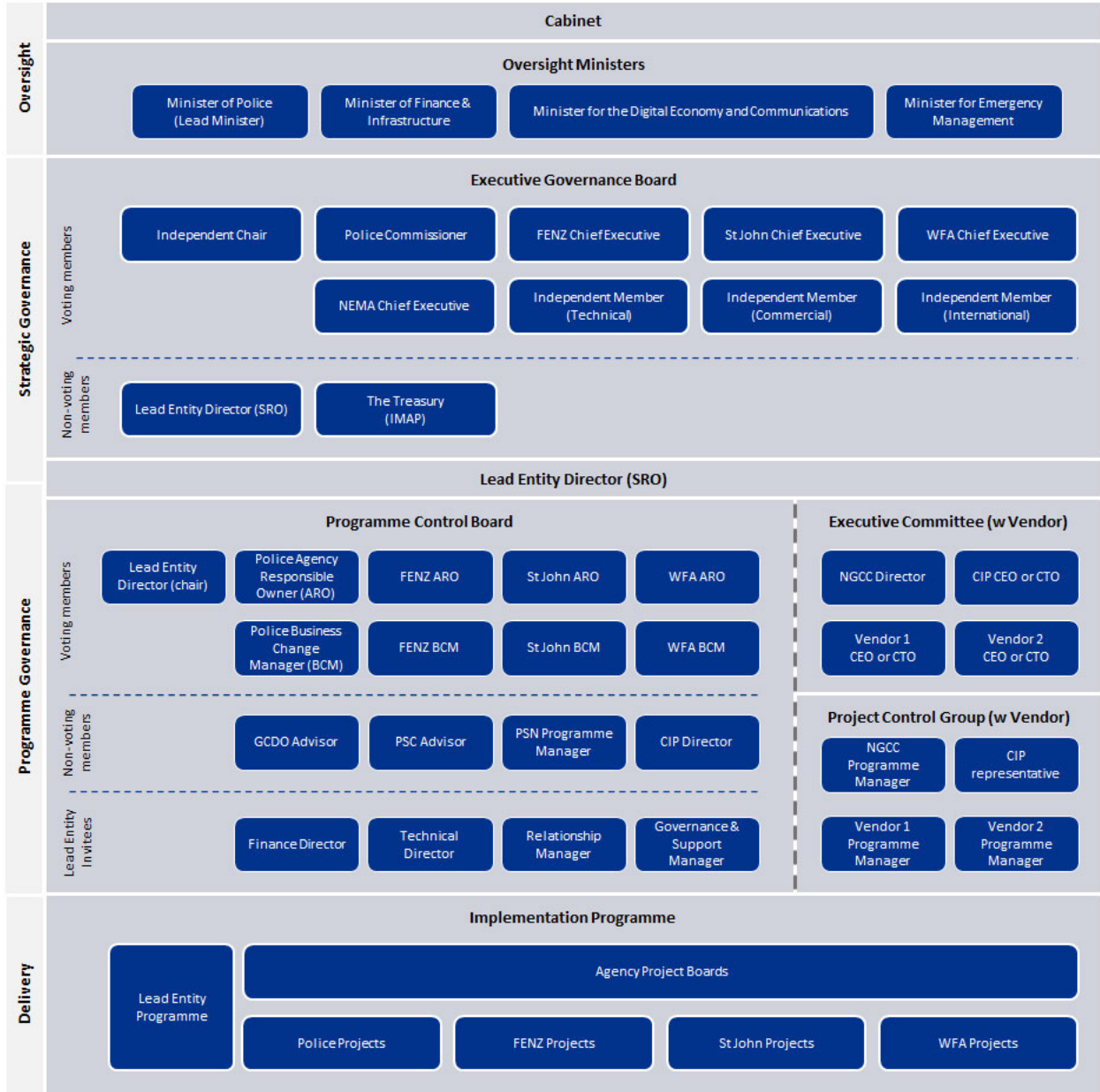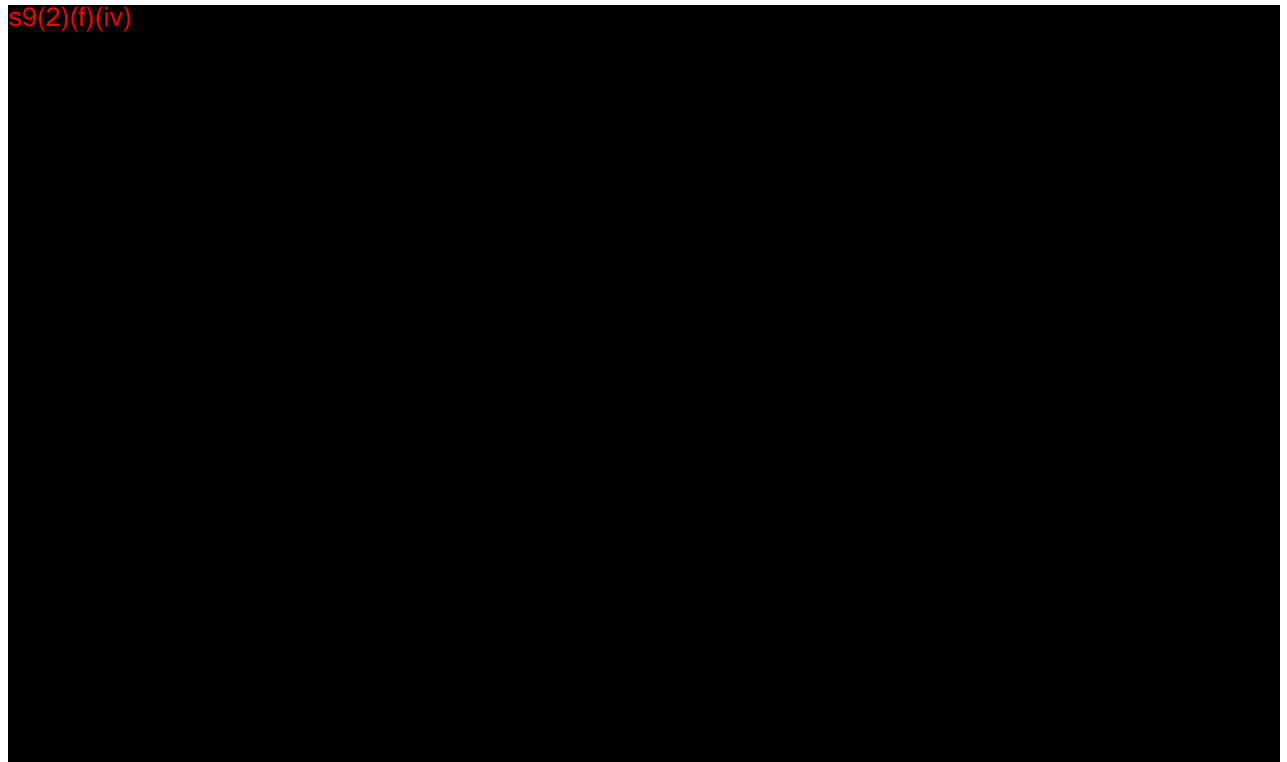
s9(2)(f)(iv)

Timeframes and milestones

The following table, plan and timeline summarise the planned delivery schedule (timeline) and key milestones, aligned with timelines supplied by the preferred suppliers. Work is continuing with the preferred suppliers on delivery milestones, and these artefacts will be updated in line with any changes and outyear additions.

The project phases follow a regional deployment model that has been developed in conjunction with relevant technical and operational managers. The deployment approach is designed around the use of a
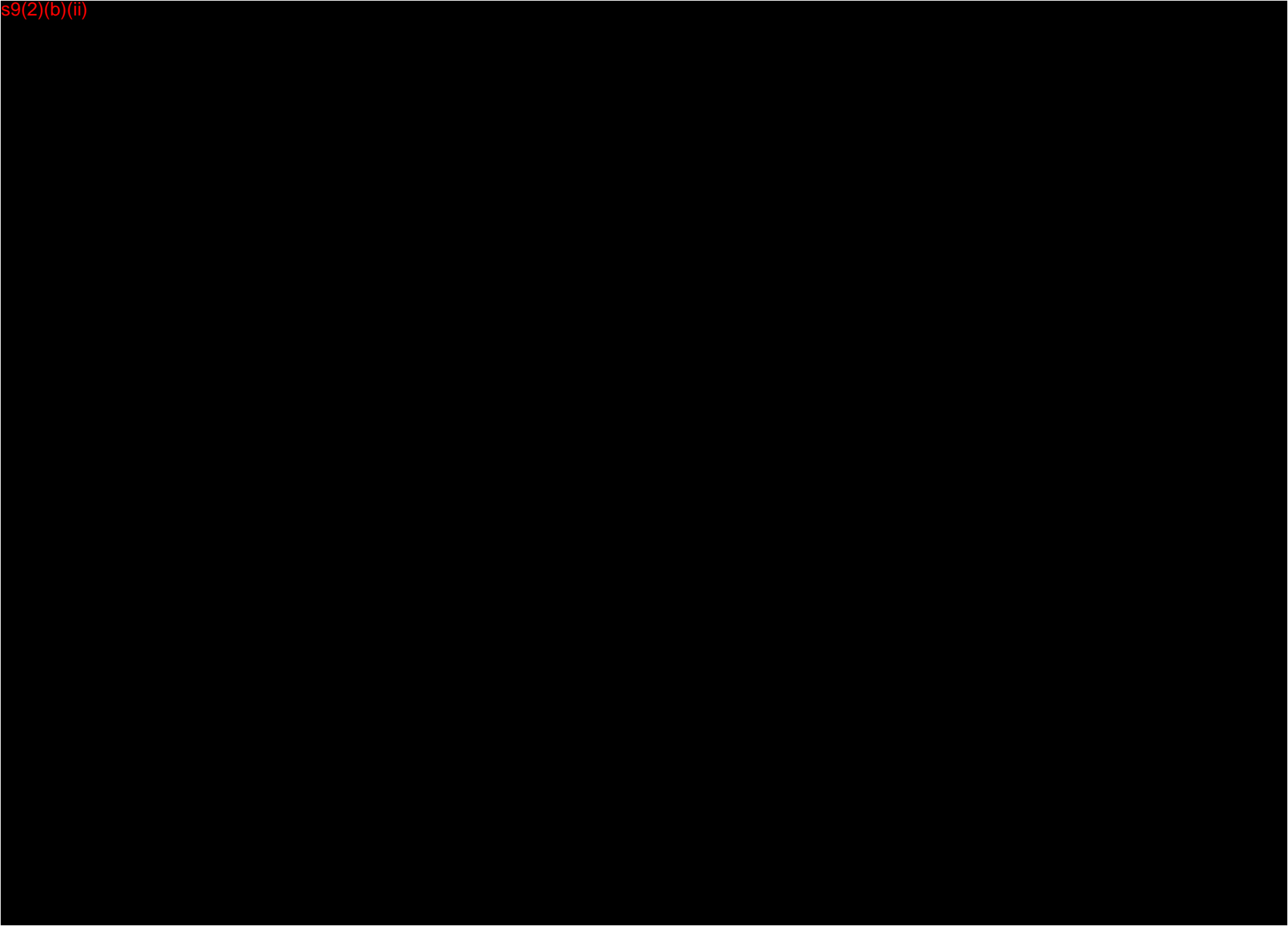
pilot to prove out technical and operational assumptions before commencing a regional deployment model using regional teams and considers key internal and external transition dependencies with the existing networks.

Roaming and QPP are delivered via centralised changes to existing cellular networks and so can be deployed in a single release fashion, initially Roaming and subsequently QPP. The App Store can be enabled at the appropriate time once built and tested.
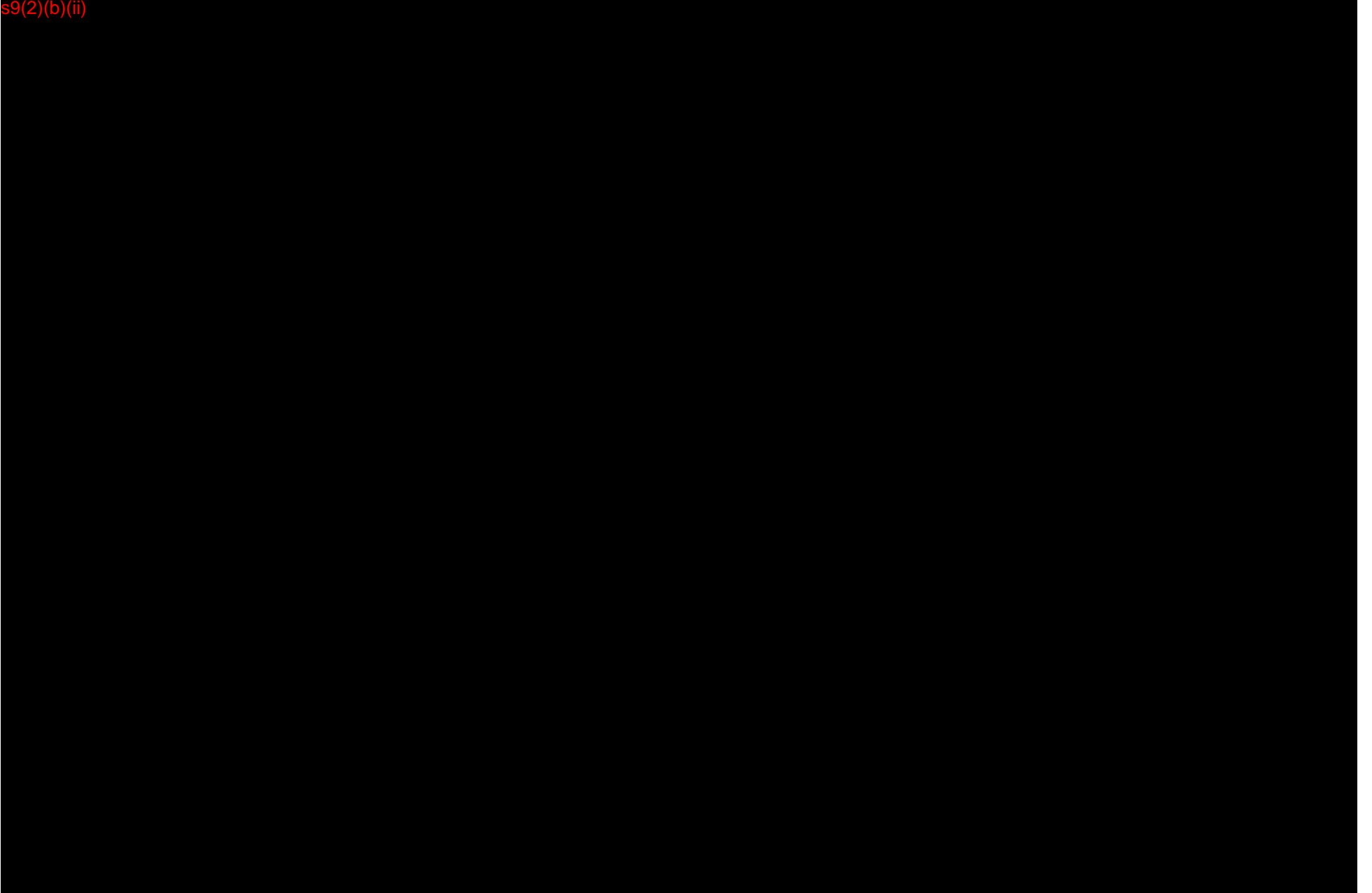
Table 27: Milestones

Milestones				Completed
ImBC approved by Cabinet Investment Decision - Mandate to continue Establish phase				Q2/2022
Cabinet paper approved by Cabinet Investment Decision – Mandate to execute contracts				Q2/2022
Capability establishment				
	Digital LMR	**Priority Cellular**	**Personal Alerting**	
Contract signed	Q2/2022	Q2/2022	Q2/2022	
Nationwide capability available	Q1/2026	From Q2/2024	Q2/2022	
All acceptance testing complete	Q2/2026	From Q3/2024	Q2/2022	
FENZ / s9(2)(b)(ii) exits existing radio network				Q3/2026
Police exit existing radio network				Q3/2026
Investment Decision – Evolve based on review of emerging technologies Budget 202X proposal approved				TBC

s9(2)(b)(ii)

Programme timeline

The programme will include a range of projects which will involve different combinations of agencies and vendors at different times. These assumptions and timelines will be refined in the high-level design phase. The long term and short-term views shown above reflect current planning assumptions.

A PSN-specific App Store, to meet communication, collaboration and process support needs that are common across agencies, will also be developed. Timing for this is to be determined in the design phases. Apps may leverage existing development completed by international peers already – subject to fitness-for-purpose, security, localisation and certification for the PSN network.

Related programmes

Across the public sector, there are several other critical communication-based programmes which may impact on, or be impacted by, the PSN or the NGCC. These include:

Table 28: Related programmes

Programme	Description	NGCC interaction
	s9(2)(b)(ii), s9(2)(f)(iv)	
Emergency Caller Location Information Programme (ECLI) – MBIE	The ECLI Service enables 111 emergency call takers to receive automatically generated geographical information about the likely location of a caller when a 111 call is made through a cellular network. Authorised emergency service providers — New Zealand Police, Fire and Emergency New Zealand, St John and Wellington Free Ambulance — are allowed to use this information to help them respond to the emergency as quickly as possible.	NGCC shares space with the ECLI programme and meet regularly to understand programme relationships and monitor any dependencies.

On the vendor side, Vodafone NZ released a statement on March 7, 2022, advising that it was proceeding with a market engagement process related to the potential sale of passive cellular tower assets. Crown Infrastructure Partners is aware of this process and has confirmed with Vodafone that it will not impact Hourua's ability to deliver on the PSN contract.

Project Management

A standardised, repeatable project management framework will be applied to each implementation project. This will allow NGCC, suppliers and Emergency Services agencies to learn and apply lessons between projects. This will extend from the programmes P3M3 approach.

Project management will be underpinned by the change management approach to ensure project deliverables are met and benefits realised.

The repeatable project stages and critical tasks will be refined with agencies and suppliers as part of the high-level and detailed design phases, but are likely to be:

1. Planning
2. Design
3. Build & test
4. Training
5. Onboarding & go-live
6. Review & lessons learned

Resource management

Managers responsible for programme/project management, change, benefits, contracts, risks and assurance are appointed and in place.

Resource planning with Emergency Services agencies identified the following capability managers as essential to successful programme delivery. This structure has been used for resource planning - specific roles and resource numbers are detailed in the Resource Plan as listed in Annex 2.

Figure 18: Summary of capabilities across agencies
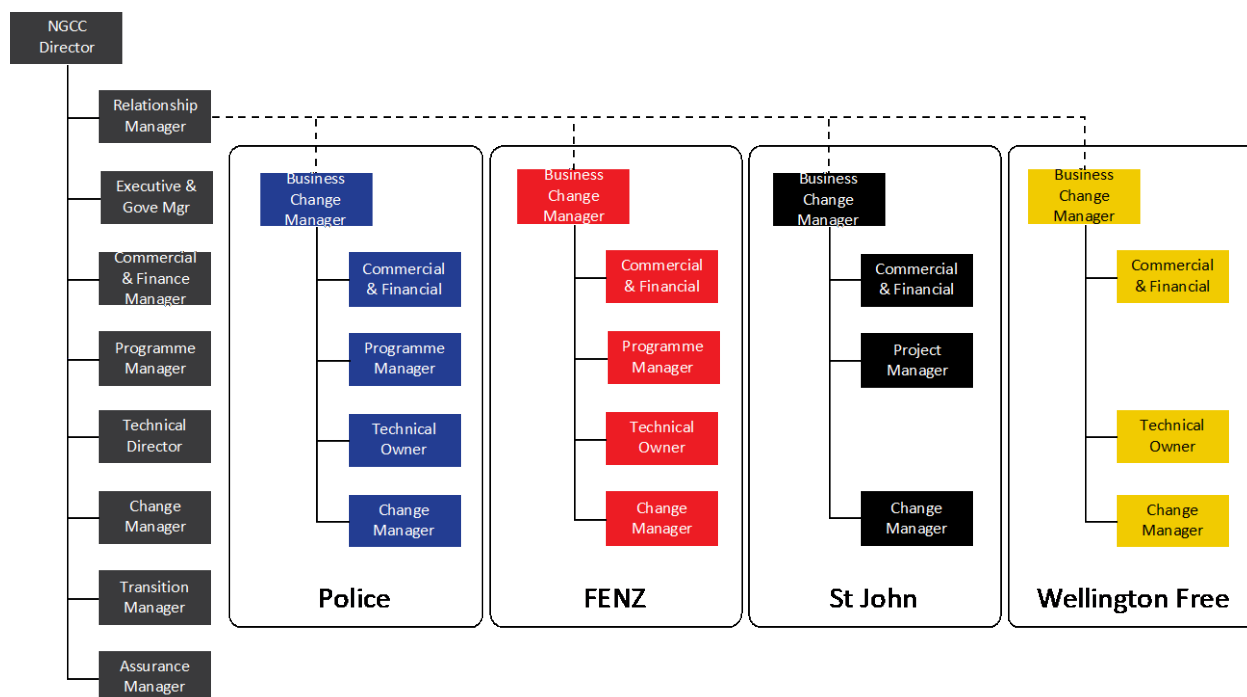
Key positions are already in place to begin the design phases of the programme, these staff from NGCC and Emergency Services agencies have been involved extensively in the procurement and negotiation processes. Existing cross-agency sub-groups (such as the Technical Working Group) would be well placed to continue onto planning, design and delivery tasks without needing to wait for remaining roles to be recruited.

Where there are common resource requirements, it is planned that NGCC will co-ordinate or provide centralised resources as appropriate to reduce duplication of effort. This will also reduce the risk of inconsistencies in messaging across agencies.

Stakeholder management and communications

Key communications to stakeholder groups are covered in the Programme Management Plan. This is a living document; the current version is listed in Annex 2 and is available on request.

Stakeholder management and communications will vary in regularity and channel of communication depending on the stakeholder groups level of involvement and the programmes requirements. A summary of key audiences and messages is shown in the following table.

Table 29: Stakeholder reporting and communications summary

Audience	Key Messages	Frequency
Lead Minister	• PSN programme progress including budget and benefit tracking	As required
EGB Chair	• PSN programme progress including budget and benefit tracking • Escalation of any issues or risks requiring Board attention or direction • Briefing ahead of Lead Minister meetings	Monthly
EGB Board Members	• PSN programme progress including budget and benefit tracking • Escalation of any issues or risks requiring Board attention or direction • Decision papers from the programme requiring Board approval	Quarterly or as required
Oversight Ministers	• Updates on the delivery of PSN programme outcomes	As required and prior to key decision points
NGCC Director (SRO)	• Updates on the delivery of PSN programme outcomes • Escalation of any issues requiring NGCC direction or decision	Weekly
Programme Control Board	• Monthly update on programme performance • Request for approval of programme artefacts and decisions	Monthly
Agency CE/DCEs	• Updates on the delivery of PSN programme outcomes • Escalation of any issues requiring Agency direction or decision	Monthly
Agency AROs	• Updates on the delivery of PSN programme outcomes • Escalation of any issues requiring Agency direction or decision	Monthly
Agency BCMs	• Updates on programme progress • Co-ordination of change management, benefits tracking and communications • Transition project tracking	Fortnightly
Agency Project Managers	• Updates on programme progress • Co-ordination of change management, programme activities, communications • Transition project tracking • Project risks and issues impacting the programme	Weekly Monthly
Programme Leads	• Core programme delivery team updates, activity setting and progress • Identification of risk and issues	Weekly As required Monthly
Full PSN and NGCC Team	• Programme progress • Programme focus areas	Weekly
CIP CEO	• Delivery partner relationship management	Weekly
Other Government Agencies	• PSN Programme scope • Programme successes • Potential for other agency participation	As required
External Public	• PSN programme scope • PSN programme schedule • Programme successes	As required

Change Management Arrangements

The programme will use a cross-agency Change Approach & Management Plan.

A detailed Change Approach has been completed by each agency in the PSN Programme in May 2021 and been approved by the Programme Control Board. The Change Approach is reviewed in line with critical milestones such as approval of this business case.

Change management approach

The agency Change Approaches describe the change management for that agency. The Change Approach is made up of a Change Management Strategy, a Change Management Plan, and a Communications Plan.

The Change Management Strategy sets out the intent of change management for the duration of the programme and transition to the business-as-usual (operating) environment. This is informed by a series of Change Impact Assessments to determine the level of change expected within each agency.

The Change Management Plan show each agencies' planned change activities and includes a detailed project plan for each key milestone. The Communications Plan outlines the communication that will be delivered to achieve the Change Strategy and Plan within each agency based on their stakeholder analysis. These plans will be completed alongside detailed design work once this business case has been approved.

Change management resourcing

Each agency has a dedicated team led by change management experts to identify, develop and deliver change activities, and to work with the leaders of the PSN programme to achieve the change. NGCC has had dedicated change experts who have provided guidance to the change required and support when needed.

The PSN Programme Change Manager will work with agencies to develop a co-ordinated change plan that meets agency requirements.

Change impact assessments

The initial change impact assessments were completed by each agency in May 2021. These assessments identified 7 primary change elements, and 37 sub elements, and assessed each agency against these. Change management activities will continue throughout the life of the programme and agency projects, and this is supported by all agencies having Business Change Managers already appointed and engaged with the Programme.

The following table summarises the initial change impact assessment, which is listed in Annex 2 and available on request.

Table 30: Summary assessment of organisational change impact areas

Agency	Summary of impact
Police	s9(2)(c) . Police role will shift from being a radio network supplier to a PSN customer - hence scoring high on the Systems and Tools Element. The scoring for People and Culture was lower than anticipated for Police. From further study this is likely due to two factors: a. The areas of highest change impact relate to small group of people; and

Agency	Summary of impact
	b. assumptions made by the participants that the Project team have this well covered and although there is impact, in the context of impact on the whole operation this is only medium.
Fire and Emergency New Zealand	Significant variation from the average score noted on the impact to Policy. This is due to participants expressing ambiguity about what policies may need to change and sits in the context of organisational wide changes to policies across the front line and non-frontline that are currently occurring.
St John & Wellington Free Ambulance	St John and Wellington Free Ambulance services- this alignment was seen in six out of seven elements and scoring was absolutely aligned for Governance, Policy and Process. This indicates a strong shared understanding of the changes and may open opportunities for cross Agency learning and sharing of future analysis through mechanisms such as the Change Management Community of Practice.

Managing programme change

As reflected in the resource planning section, change management is a significant contributor to the success of the programme.

To ensure new technologies are implemented appropriately and changes are well understood and enacted by Emergency Services agencies, change approaches will be co-ordinated through a centralised community of practice (or similar group). This will provide consistency across the implementation of new technologies, provide efficiencies particularly for smaller agencies who do not have access to change resources and allow lessons learned across projects and services to be shared, and engagements refined.

Effective training, communications and follow up is essential to ensuring benefits are delivered.

Change management roles are noted in resource planning, detailed change impact management planning will take place during detailed design. Business change managers for each agency are already in place and are voting members of the Programme Control Board.

Change control process

For programme related changes, such changes to scope, a standard change control process will be followed. This is represented in the diagram below and is already in place for changes throughout the RFP, Contract Negotiation and ImBC workstreams.

All changes are recorded in the Change Register, the current version (as at 25 January 2022) is listed in Annex 2 and is available on request.

Table 31: Change control process
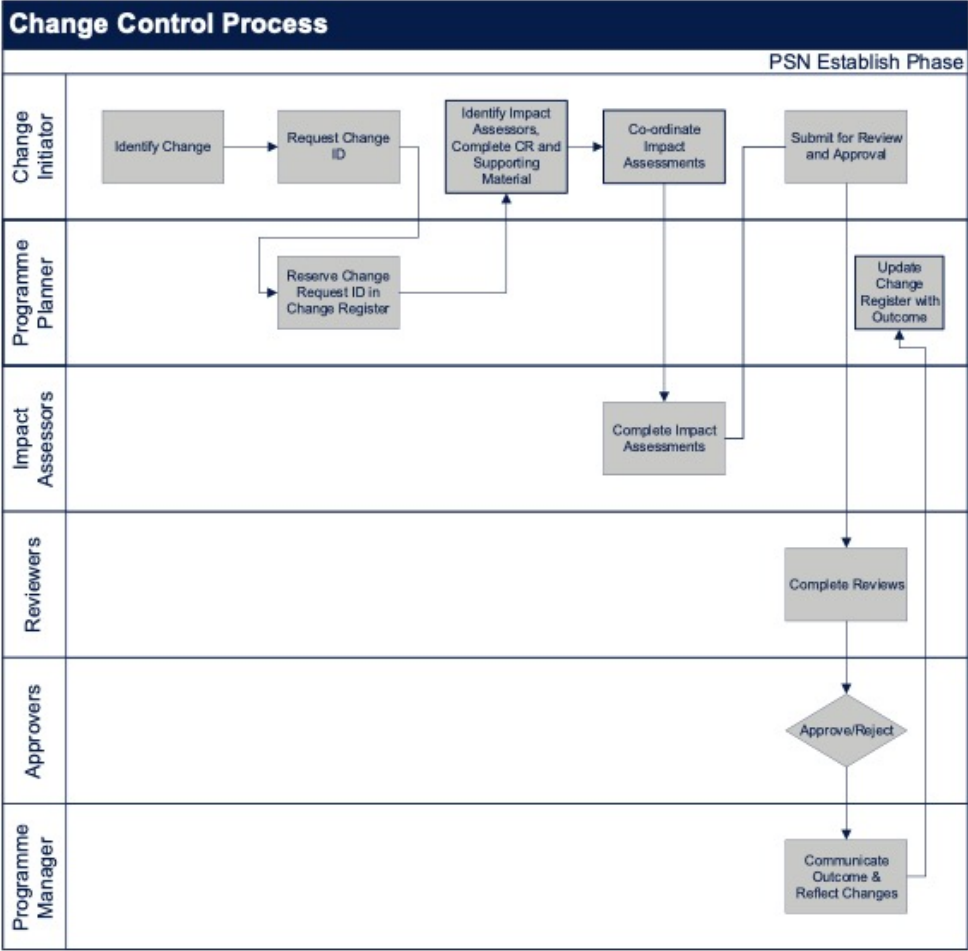
Benefits Management Arrangements

Benefits Realisation Plan

The benefits arrangements have been reviewed after the change in preferred option and acknowledging progress made through the procurement and contract negotiation processes. As a result, the Benefits Realisation Plan has been updated, and includes the following benefits map

Figure 19: Benefits map
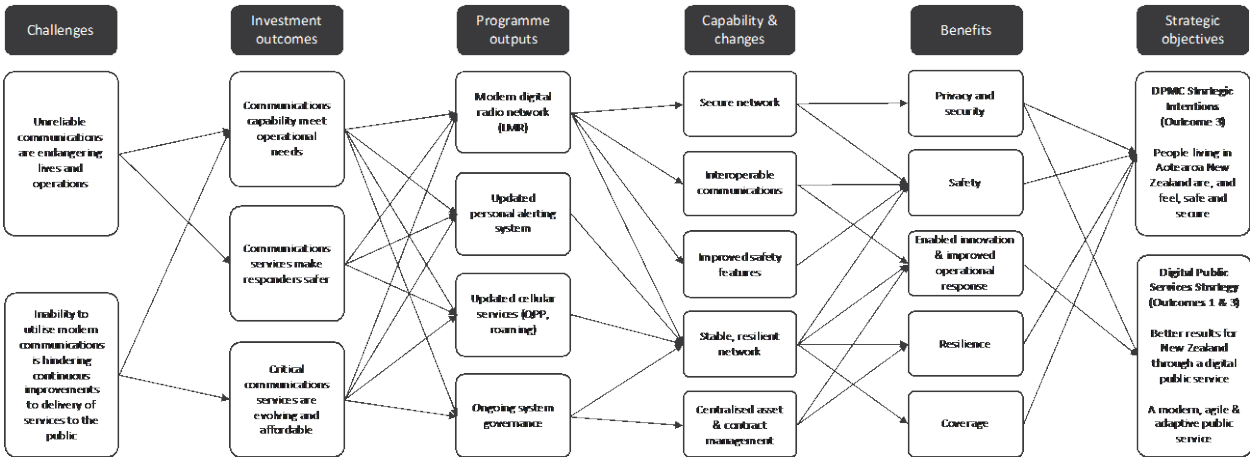
Benefits measurements are largely based on two sources:

- Indicators which reflect the availability and use of updated communications tools (e.g., percentage of users on the new network, number of agencies who have activated additional safety features on communications units)

- KPIs from supplier contracts which reflect service availability, resilience, and improvements

Planning is underway for contractual KPI reporting to be automated to ensure reporting compliance, and benefits management will utilise this structure as appropriate.

Additional benefits may also accrue to consuming agencies, these are unchanged from the DBC and are expected to be owned and reported by each agency.

The Benefits Realisation plan further describes expected benefits, assigns Benefit Owners, and describes how (and by when) the benefits are expected to be measured and reported. The benefit owners have agreed to be responsible for achieving the benefits; this agreement is recorded in the BRP.

This is a living document; the current version (as at 28 Feb 2022) is attached as Annex 6.

Risk Management Arrangements

Risks and issues will continue to be identified and managed continuously throughout the programme lifecycle. All risks and issues are reviewed and updated monthly in conjunction with the NGCC Programme Management Office (PMO). This process involves risk and issue owners updating their risks and issues and includes the raising of any new risks and issues.

All programme team members, including our delivery partners, are responsible for identifying and managing risks and issues that may impact on the project budget, timeline and quality. Where an issue cannot be resolved within the programme team, the Programme Manager will manage the escalation to a successful resolution.

The Programme Manager, in conjunction with the relevant stakeholders and/or the programme team, assess the probability of the risk occurring and impact on the programme. Mitigation strategies and actions, including appropriate budget contingencies are also captured. This includes communication, negotiation and monitoring mitigation actions with other parties. The Programme Planner ensures specific and agreed mitigation actions are incorporated into the programme plan on an ongoing basis.

The Programme Risk and Issues Register is maintained by the PMO. New issues and risks are entered as they arise and all entries detail a date when they are next due to be reviewed. Reporting on high risks and active critical issues that require action from the PCB feature in the monthly PCB reporting dashboard. Extreme and Very High rated risks are included in reporting packs to both PCB and EGB.

The highly rated risks are included in regular reporting and Risk is a standing agenda item for governance meetings. Any delivery risk with an unmitigated rating of Very High is shown in the table below.

The Risk Register is a living document; the current version is listed in Annex 2 and is available on request.

Table 32: Top current delivery risks

#	Risk statement	Rating	Mitigations	Residual rating
1	If the programme or project cannot recruit and retain the right people with the right skills at the right time or people are unavailable Then the team may not be able to deliver within agreed timeframes or to the expected quality, negatively impacting on anticipated investment outcomes and benefits.	VH	(L) Project personnel satisfaction surveys. (I) Manage pipeline in accordance with forward view of resources required to deliver on the plan. (I) Hire skilled resource that has the capability to provide temporary cover for gaps in resourcing. (I) Outsource to external parties where appropriate. (I) Systems in place for timely recruitment	H

			(I) Maintain updated skills matrix and succession matrix to cover all critical roles.	
			(I) Regular reviews of Processes and procedures.	
			(L) Planning to fill roles aligned to critical path and tasks.	
			(L) Development of Resource Plan	
			(L) Reassessing capability requirements and resourcing model for delivery	
			(L) Culture and retention activities e.g. Hui, He Tukutuku, social activities etc.	
2	IF the condition of network assets is worse than currently thought THEN there may be additional build and decommissioning costs outside of that currently budgeted.	VH	Risk accepted (L) Continue with inspection schedule and extrapolate potential impacts for remaining sites (L) Use of QRA results to inform contingency around re-use of existing assets	H
3	IF COVID-19 causes other supply chain issues either locally or internationally THEN there may be higher costs and/or an extended delivery timeframe.	VH	(I) Indexation methods have been agreed with the vendor to provide some shielding along with forward ordering of materials and hedge contracts. (I) Programme contingency built into pricing	H
4	If Acceptance needs/requirements are not properly addressed during design, or appear during acceptance testing Then acceptance may be compromised resulting in lower quality and increased time / costs associated with change control / rectification / remediation	VH	(I/L) IQA of acceptance criteria (I/L) Testing milestone in contracts (I/L) Joint planning to deal with misalignment (I/L) Acceptance schedule has been included in the IDSA and LASA. Changes to these schedules to be monitored during negotiation. (I/L) Reassess after high level design	H
5	If the global supply/shipping issues resulting from COVID cause unmanageable delays to receiving hardware for ongoing radio assurance activities and/or devices for agency trials/testing THEN this: -could lead to underspend that may not be able to be transferred and/or additional funding outside of what has been approved (radio assurance). -may impact device trial timelines. -may impact network development timeframes once a contract has been awarded if hardware is required from overseas.	VH	(I) Keeping in touch with market constraints (CIP) (I) Plan for delays (I) Adapt procurement strategies for critical items (e.g. partial deliveries, ordering early etc. noting any warranty issues) (I) Agency management with vendors and suppliers (I) Look for alternatives	H
6	If there is failure to identify Agency change management gaps and support these through the programme business change role	VH	Then we will not be able deliver effective change leadership and build the change capability needed. Lack of effective decision making at PCB resulting in delays and a focus on technical impacts of a change only. Full operational impacts of a change are not understood and risks are not identified early.	M

Mitigation and Contingency plans are included in the Risk Register / Contingency plan as part of Contract Management documentation.

Contract and Service Management Arrangements

The NGCC Commercial & Finance Manager has been appointed to manage the relationship with the preferred supplier over the term of the contract. Areas of responsibility include:

- Service Delivery Management – ensuring the contracted services are being delivered to the agreed level of performance

- Relationship Management – a partnership type arrangement where open communication will contribute to successful outcomes for both parties

- Contract Administration – ensuring the ongoing consistency and currency of the formal contract documentation as the implementation proceeds.

Contract change management. Over the life of the service contract, it is likely that there will be some significant change that is unforeseen and falls outside routine contract management. The formal and informal processes which need to be in place to successfully manage contract change will follow the process outlined in the Change Management section of this case.

Contingency plans, including penalties in the event of non-delivery of the contracted services, are included in the Contract Schedules. The contracts are listed in Annex 2 and is available on request.

Assurance and Post-Project Arrangements

Assurance and quality management

An Assurance Plan has been developed with key assurance activities outlined in the diagram below. This is from the PSN Assurance Plan (Delivery Phase) document. The Assurance Plan is a living document; the current version (as at December 2021) is listed in Annex 2 and is available on request.

Table 33: Key assurance activities
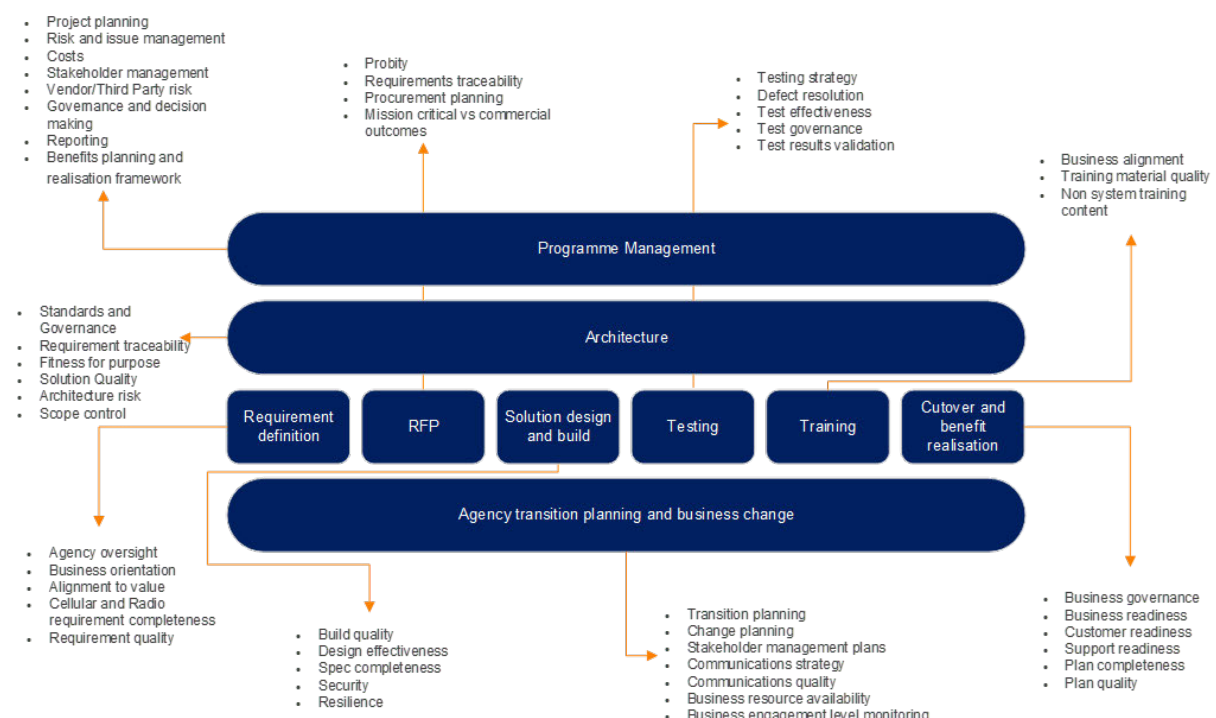
Planned assurance reviews from specialist organisations and central agencies during implementation are summarised in the following table.

Table 34: Planned assurance reviews

Planned assurance activity	Provider
Security Review of Solution Design(s) - the reviewer will assess the security posture of the vendor solution design(s) against the requirements and provide recommendations to the NGCC technical team.	s9(2)(b)(ii)
TQA – Network Infrastructure Design(s) - assess the extent to which the designs from suppliers meet requirements, service specification and architectural guidelines.	
IQA4 Transition Readiness assessment - IQA4 will include consideration of the programme and agencies readiness to transition to the new solution(s).	
IQA5 Contract Management assessment - IQA5 will include consideration of the programme's contract management processes and management of supplier relationships.	

s9(2)(b)(ii)

---

[8] https://treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/think-investment-possibilities/risk-profile-assessment

Post-project reviews

Post implementation reviews will be completed after each stage of the project is completed, which will include lessons learned sessions with all project participants to inform future projects within the programme.

As required by Cabinet Office Circular CO(19)6[9], the programme will report back to Cabinet within 12 months of the in-service date on the actual level of benefits achieved compared with those outlined in the Cabinet-approved investment.

A Treasury Operations and Benefits Realisation Review will be undertaken at agreed points; the initial review will be timed to inform the Benefits report-back to Cabinet.

---

[9]   https://dpmc.govt.nz/publications/co-19-6-investment-management-and-asset-performance-state-services

Annex 1: Commissioning Letter

March 2022

To whom it may concern,

This Implementation Business Case represents a significant deliverable of a major strategic initiative by Next Generation Critical Communications. This document confirms the urgent case for change required to meet communications requirements for the Emergency Services sector.

We confirm that:

i. *We have been actively involved in the development of the attached investment proposal through its various stages*

ii. *We accept the strategic aims and investment objectives of the investment proposal, its functional content, size and services*

iii. *the financial costs of the proposal can be contained within the agreed and available budget*

iv. *the organisation has the ability to pay for the services at the specified price level**

v. *the agency has the capability and capacity to ensure successful delivery of the work*

vi. *suitable contingency arrangements are in place to work with suppliers to address any current or unforeseen affordability pressures.*

* Noting that the contributions of St John Ambulance and Wellington Free Ambulance are dependent on Crown funding, which is not yet confirmed for the period that the Implementation Business Case covers. These services are unable to bear any expenditure over and above the contribution outlined in this Implementation Business Case.

This letter fulfils the requirements of the current Treasury Better Business Cases guidance. Should either these requirements or the key assumptions on which this case is based change significantly, revalidation of this letter of support will be sought.

Individual agency letters are listed in Annex 2 of this document, and available on request.

Ngā mihi

Andrew Coster

Commissioner
New Zealand Police

Kerry Gregory

Chief Executive
Fire and Emergency

Peter Bradley CStJ CBE

Chief Executive
St John Ambulance

David Robinson

Chief Executive
Wellington Free Ambulance

Annex 2: Documents supporting this business case

The Senior Responsible Owner and Director agency attest that:

- The planning and control documents summarised and referenced in this Implementation Business Case (listed below) are in place or substantially under development and will be the basis for management of this (project/tranche).
- The agency has project management structures, plans and processes in place to ensure successful delivery.

These documents are available to decision-makers, Monitoring Agencies, Central Agencies and Functional Leads for review.

Contact NGCC2@police.govt.nz for a copy.

#	Title	Version	Date	Comment
1	Previous (Detailed/Single Stage) business case	1.7	2019-11	Signed off by Cabinet 13-Feb-2020
2	Updated Economic Analysis			Attached as Annex 3
3	Approved PSN Network Infrastructure Procurement Plan	6.4	2020-09	Crown Infrastructure Partners & NGCC
4	NGCC Final Evaluation Report	Final	2021-08	Crown Infrastructure Partners & NGCC
5	Due Diligence Assessment	Final	2021-10	KPMG
6	Technical Quality Assessment	Final	2021-11	Nova Systems
7	RFP Security Assurance Summary	Final	2021-11	Axenic Ltd
8	PSN Procurement Assurance Report	Final	2021-11	Audit NZ
9	Overview of LMR Key Contracts	Final	2021-09	Bell Gully
10	Key contractual documents			
11	Full list of financial assumptions	Final	2022-03	Attached as Annex 5
12	Detailed financial models			
13	Further financial documents Evaluation of Asset Ownership Accounting Treatment as an Asset	Final	2022-05	
14	PSN Programme Management Plan	1.22	2022-01	
15	PSN Resourcing Approach and Assumptions		2022-02	Split across two docs: 15a (centralise common functions) and 15b (overhead workbook)
16	Change Impact Assessment Findings	Final	2021-05	
17	Programme Change Management Plan	2.0	2022-01	
18	PSN Change Register	1.0	2022-01	
19	Benefits Realisation Plan	1.0	2022-02	Attached as Annex 6
20	PSN Programme Risk Management Framework	1.3	2022-02	

#	Title	Version	Date	Comment
21	PSN Risks and Issues Register– top (20) risks			Attached as Annex 7
22	PSN Risks and Issues Register– full register		2022-05	
23	PSN Assurance Plan (Delivery Phase)	1.4	2022-01	
24	Programme Control Board Terms of Reference	1.2	2021-09	
25	Executive Governance Board Terms of Reference	1.3	2022.01	
26	TKNZ Service Catalogue	2.0	2021-12	Commercial in confidence
27	RFP Appendix 9 Operating Model	Final	2021-01	
28	Contract Management Plan	v0.1	2022-03	Draft
29	Letter of Support – FENZ	Final	2022-03	
30	Letter of Support – Police	Final	2022-03	
31	Letter of Support – St John	Final	2022-03	
32	Letter of Support – Wellington Free Ambulance	Final	2022-03	
33	NGCC Operating Model	Draft	2022-06	

Annex 3: Economic Analysis

Code	Description	Option 0 No investment	Option 1 - New Digital LMR network providing secure encryption, improved network coverage, capacity and resilience for all emergency services agencies (hardening). - New personal alerting system. - Commercial cellular network for non-mission critical activities.	Option 2 Option 1 + Implementation of QPP & Roaming across one or more cellular networks. Implementation of a 'Lite' aggregated service layer providing a technology-agnostic integrated view of network status and single point of contact for all agency users.	Option 3 Option 2 + implementation of Mission Critical Push-To-Talk and full integration between MCPTT & LMR. This would enable two-way radio style communication across one or more priority cellular networks, and single device across both cellular and LMR networks.	Option 4 Implementation of Mission Critical Push-To-Talk over one or more Hardened Cellular networks. This would enable two-way radio style communication across one or more priority cellular networks as per option 3.
IO1	**To provide Emergency Services with reliable access, when needed, to secure communications.**					
IO1.1	Emergency Services rely on mobile communications to perform their functions while they respond to the needs of our geographically dispersed communities. A reliable communications capability (one that is available in all locations that Emergency Services agencies operate) is fundamental. Current commercial offerings do not meet these needs.	Fail - current coverage is insufficient.	Pass - upgraded coverage as part of new network.	Pass - upgraded coverage as part of new network.	Pass - upgraded coverage as part of new network.	Pass - upgraded coverage as part of new network.
IO1.2	Emergency Services need secure communications to protect the operational communications of agencies and the privacy of personal information. The new services will need to have a range of security options, as each agency may have different needs.	s9(2)(c)	Pass - switch from analogue to digital will provide additional encryption options.	Pass - switch from analogue to digital will provide additional encryption options.	Pass - switch from analogue to digital will provide additional encryption options.	Pass - switch from analogue LMR to LTE will provide additional encryption options.
IO1.3	Communications services may be provided by permanent, fixed infrastructure, or on an 'as needed' deployable basis.		Pass - P.25 can be augmented with portable towers.	Pass - P.25 can be augmented with portable towers.	Pass - P.25 & cellular can be augmented with portable towers.	Pass - P.25 & cellular can be augmented with portable towers.

IO2	**To meet Health and Safety requirements while delivering legislative and contractual obligations for New Zealand.**					
IO2.1	Emergency Services must protect the safety of their responders and the public when they perform their operational duties and respond to the public's needs.	Fail - parts shortages in the future	Pass - improvements in security of communications, coverage and utilising GPS tracking into radio network can improve responder and public safety.	Pass - improvements in security of communications, coverage and utilising GPS tracking into radio network can improve responder and public safety. This option will also ensure LTE communication & data is prioritised on the cellular network, provided the network is available.	Pass - improvements from option two, but also with data and video coming from the MC platform, this option allows more detailed information to be sent to responders before arriving at the event, and the potential for live feeds to go back to commanders during events.	Pass - fully available and resilient voice, messaging, data and video. Will provide significant improvements to data available for situational awareness, in-event communications and post-event reporting.
IO2.3	Voice communications and messaging in all operational areas is the minimum requirement to ensure responders are safe. However, more advanced communication capability is needed to meet public expectations of service delivery.	Fail - parts shortages in the future	Pass - voice and messaging can be met through improved digital radio network, and augmented with data over commercial LTE as available.	Pass - voice and messaging can be met through improved digital radio network, and augmented with data over commercial LTE with priority where the cellular network is available.	Pass - voice and messaging can be met through improved digital radio network, and augmented with data over commercial LTE with priority where the cellular network is available.	Pass - fully available & resilient voice, messaging, data and video.
IO2.3	Agencies have access to operational awareness and location-based information on staff and resources.	Fail - parts shortages in the future	Pass - utilising GPS tracking via radio network and wider ranging LMR with improved building penetration will improve access to information.	Pass - utilising GPS tracking via radio network and wider ranging LMR with improved building penetration will improve access to information.	Pass - utilising GPS tracking via radio network and wider ranging LMR with improved building penetration will improve access to information.	Pass - fully available and resilient voice, messaging, data and video. Will provide significant improvements to data available for situational awareness, in-event communications and post-event reporting.
IO3	**To provide sustainable communications capability for Emergency Services.**					
IO3.1	Emergency Services' communications capability must evolve to stay current, address coverage and reliability deficiencies, and keep pace with the public's expectations.	Fail - does not address coverage and reliability, or public expectations	Pass - improved LMR network will provide additional coverage (both breadth of coverage nationally and building penetration), continuing with data requirements via commercial LTE will prepare for continued rollout of data-enabled	Pass - improved LMR network will provide additional coverage (both breadth of coverage nationally and building penetration), continuing with data requirements via commercial LTE will prepare for continued rollout of data-enabled service provision in the	Pass - this option provides an upgrade to existing LMR technology, and a pathway to wider use, and continued development of LTE.	Pass - this option provides a pathway to a fully resilient, wide coverage, LTE technology which enables data-heavy applications to be built and used by emergency services.

			service provision in the future.	future. Will also ensure current data traffic is prioritised when the cellular network is available.		
IO3.2	Sustainable communications are needed that: - meet agencies' current and future needs; - are practical to adopt and are affordable; and - address technology obsolescence and risks of failure of aging equipment.	Fail – does not meet current or future needs, does not address obsolescence	Partial - will not address data-enabled services in all areas, but is practical to adopt & affordable, and addresses key obsolescence risk.	Partial - will not address data-enabled services in all areas, but is practical to adopt & affordable, and addresses key obsolescence risk.	Partial - this will likely meet agencies current and future needs, and will address obsolescence, but is unlikely to be practical to adopt or affordable.	Partial - this will likely meet agencies current and future needs, and will address obsolescence, but is unlikely to be practical to adopt or affordable.
IO4	**To govern the development of critical communications capability.**					
IO4.1	Centralised governance is needed so that: - the communications capability continues to deliver the services agencies need in the future; - agencies can use the new capability effectively; and - agencies can work together to support innovation in service delivery.	Fail – does not provide or enable centralised governance, new capability, or effective co-ordination.	Pass - LMR can be provided and governed through a central entity, which could also manage bulk cellular contract if appropriate.	Pass - LMR can be provided and governed through a central entity, which could also manage bulk cellular contract if appropriate.	Pass - this option can be provided and governed through a central entity.	Pass - this option can be governed through a central entity.
CSF1	**Strategic fit & business needs**					
CSF1.1	Provide foundations to enable agencies to improve nationwide efficiency and effectiveness.	Fail	Fail - without QPP and roaming will not provide significant improvements.	Pass - enables significant progress on transition to digital communications, and a pathway for future evolution.	Pass - this option will enable efficiency benefits across and between organisations.	Pass - this option will enable efficiency benefits across and between organisations.
CSF1.2	Enable agencies to interoperate.	Partial	Pass - more efficient use of spectrum and the potential for additional channels, alongside all agencies being on one network, will enable interoperation.	Pass - more efficient use of spectrum and the potential for additional channels, alongside all agencies being on one network, will enable interoperation.	Pass - more efficient use of spectrum and the potential for additional channels, alongside all agencies being on one network, will enable interoperation.	Pass - more efficient use of spectrum and the potential for additional channels, alongside all agencies being on one network, will enable interoperation.

CSF1.3	Agencies do not want to own and operate.	Partial – some current networks are commercially owned.	Pass – network will be owned by a separate central agency.	Pass – network will be owned by a separate central agency.	Pass – network will be owned by a separate central agency.	Pass – network will be governed by a separate central agency, and could be owned by that agency, or by network providers.
CSF1.4	Delivers nationwide access to mission-critical communication services (voice, messaging, data and video).	Fail – does not uniformly deliver any mc services.	Partial – will not enable data and video nationwide.	Partial – will not enable data and video nationwide, but will prioritise that traffic where the cellular network is available.	Pass – this option will deliver nationwide access to voice, data, messaging and video communications services.	Pass – this option will deliver nationwide access to voice, data, messaging and video communications services.
CSF1.5	State Highway Coverage for mission-critical services.	Fail – current coverage not appropriate	Pass – extending the LMR network and making it the network of last resort will support this, as well as leveraging MBSI investments for additional SH cellular coverage.	Pass – extending the LMR network and making it the network of last resort will support this, as well as leveraging MBSI investments for additional SH cellular coverage.	Pass – extending the LMR network and making it the network of last resort will support this, as well as leveraging MBSI investments for additional SH cellular coverage.	Pass – extending the cellular network and making it the network of last resort will support this, while leveraging MBSI investments in cellular coverage.
CSF1.6	Rural coverage.	Fail – current coverage not appropriate	Pass – extending the LMR network and making it the network of last resort will support improvements to rural coverage.	Pass – extending the LMR network and making it the network of last resort will support improvements to rural coverage.	Pass – extending the LMR network and making it the network of last resort will support improvements to rural coverage.	Pass – extending and hardening the cellular network will support rural coverage.
CSF1.7	Network access resiliency in the majority of areas with, a minimum, reduced capability of mission-critical voice and messaging in a failover situation.	Fail – current resilience not appropriate	Pass – hardening the LMR network to make it the network of last resort will support this.	Pass – hardening the LMR network to make it the network of last resort will support this.	Pass – hardening the LMR network to make it the network of last resort will support this, however without also hardening the cellular network data and video services will not be available at fal back.	Pass – hardening the cellular network to make it the network of last resort will support this.
CSF1.8	A critical communications capability which is resilient in disaster situations.	Fail – current resilience not appropriate	Pass – hardening the LMR network to make it the network of last resort will support this.	Pass – hardening the LMR network to make it the network of last resort will support this.	Pass – hardening the LMR network to make it the network of last resort will support this, however without also hardening the cellular network data and video services will not be available at fal back.	Pass – hardening the LMR network to make it the network of last resort will support this, however without also hardening the cellular network data and video services will not be available at fallback.
CSF2	**Value for money**	🟥	🟨	🟩	🟥	🟥
CSF2.1	Leverage economies of scale across Emergency Services Agencies.	Fail – several separate networks does not allow economies of scale.	Pass – a single hardened LMR network will provide economies of scale.	Pass – a single hardened LMR network will provide economies of scale.	Pass – an integrated hardened network will provide economies of scale.	Pass – a hardened, interoperable set of networks will provide economies of scale.
CSF2.2	Service Providers own the risk of cellular technology obsolescence.	Fail – does not meet this requirement.	Pass – use of commercial networks will leave burden of obsolescence with vendors.	Pass – use of commercial networks will leave burden of obsolescence with vendors.	Pass – use of commercial networks will leave burden of obsolescence with vendors.	Pass – use of commercial networks will leave burden of obsolescence with vendors.

CSF2.3	Leverage common commercial network capabilities.	Partial - uses commercial networks but leverage opportunities rare due to age of equipment.	Pass - use of commercial networks will allow leverage of commercial network capabilities.	Pass - use of commercial networks will allow leverage of commercial network capabilities.	Pass - use of commercial networks will allow leverage of commercial network capabilities.	Pass - use of commercial networks will allow leverage of commercial network capabilities.
CSF2.4	Flexibility to change quantity and type of services.		Pass - delivered through service catalogue and syndicated contract approach	Pass - delivered through service catalogue and syndicated contract approach	Pass - delivered through service catalogue and syndicated contract approach	Pass - delivered through service catalogue and syndicated contract approach
CSF2.5	Agencies have a predictable total cost of ownership.	Fail - replacement parts are out of manufacture; costs will increase dramatically over time.	Pass - agencies and central provider can order from a service catalogue with fixed pricing.	Pass - agencies and central provider can order from a service catalogue with fixed pricing.	Pass - agencies and central provider can order from a service catalogue with fixed pricing.	Pass - agencies and central provider can order from a service catalogue with fixed pricing.
CSF2.6	Maximises use of commodity devices to enable Emergency Services to keep pace at a commodity price point.	Fail - replacement parts are out of manufacture; costs will increase dramatically over time.	Pass - custom devices do not need to be developed.	Pass - custom devices do not need to be developed.	Pass - custom devices do not need to be developed.	Pass - custom devices do not need to be developed.
CSF2.7	Reliable critical communications capability can be leveraged for other Government agencies.	Fail - network not reliable enough for current users. Not an option for additional users.	Pass - network can designed with appropriate capacity for future needs, provided this need is known at point of design.	Pass - network can designed with appropriate capacity for future needs, provided this need is known at point of design.	Pass - network can designed with appropriate capacity for future needs, provided this need is known at point of design.	Pass - network can designed with appropriate capacity for future needs, provided this need is known at point of design.
CSF2.8	Reliable critical communications capability can be leveraged for wider community benefit.	Fail - network not reliable enough for current users. Not an option for additional users.	Partial - more effective emergency services will provide community benefits, but not to the level an extended LTE network might.	Pass - roaming between commercial LTE networks with QPP could also provide extra coverage for public use, likely in rural areas.	Pass - an extended LTE network with QPP could also provide extra coverage for public use, likely in rural areas.	Pass - an extended LTE network with QPP could also provide extra coverage for public use, likely in rural areas.
CSF2.9	Value for money - delivers benefits within PSC cost for acceptable risk	Fail - unacceptable risk of failure to system due to technology obsolescence.	Partial - delivers majority of benefits, but will not deliver additional data and video if cellular network is congested or unavailable. This option is possible within budget and using tested, mature technology.	Pass - delivers benefits. This option is possible within budget and using tested, mature technology.	Fail - cannot be delivered within budget, increased risk as MCPTT is still an evolving technology. Full benefits delivered.	Fail - cannot be delivered within budget, increased risk as MCPTT is still an evolving technology. Full benefits delivered.
CSF3	**Supplier capacity and capability**					
CSF3.1	Suppliers of the technology can demonstrate proven capability within planned transition timeframe.	Pass - do nothing	Pass - procurement responses show experience in delivering this solution	Partial - QPP has not been delivered in NZ networks before	Fail - tech immature, MCPTT not mature in the market. Not been successfully proven to an emergency services standard	Fail - MCPTT is not mature in the market
CSF3.2	Market willingness to deliver capability at an acceptable price-point within planned transition timeframe.	Fail - price point for value delivered is not desirable.	Pass - Procurement activity has shown the market will meet LMR requirements at an acceptable price point.	Pass - Procurement activity has shown the market will meet LMR, Roaming, QPP & Paging	Fail - MCPTT price points were above expectations.	Fail - MCPTT price point above expectations.

				requirements at an acceptable price point.		
CSF3.3	Supplier market have demonstrated capability and capacity track record in delivering to Emergency Services requirements.	Pass - incumbent provider.	Pass - NZ experience demonstrated (Police & Kordia examples)	Partial - QPP has not been delivered in NZ networks before	Fail - suppliers have not delivered the integration between LMR & MCPTT before.	Fail - MCPTT is not mature in the market
CSF3.4	Roadmap to next generation technologies.	Fail - no current roadmap to transition.	Pass - development roadmap for P.25 up to 2029. Integration standards to next gen tech being developed at a market/intl level (3GPP)	Pass - vendors have supplied roadmap as part of procurement activities	Partial - roadmap exists, but progress along this roadmap has been slower than expected. ESN in UK planned to be on by 2022, now 2026.	Fail - credible roadmap does not exist.
CSF4	**Potential affordability**					
CSF4.1	Degree of alignment with our PBC forecasts.	s9(2)(b)(ii)	Pass - this solution can be delivered.	Pass - this solution can be delivered.	Fail - QPP, MCPTT price points were above expectations.	Fail - hardening and additional towers for coverage more expensive than expected.
CSF4.2	Degree of cost certainty for transition.	s9(2)(b)(ii)	Pass - costs are quantifiable and vendors are experienced in delivering this type of network.	Pass - costs are quantifiable and vendors are experienced in delivering this type of network.	Fail - QPP & roaming costing has been variable throughout negotiation (range 220m - 750m)	Fail - QPP & roaming costing has been variable throughout negotiation (range 220m - 750m)
CSF4.3	Degree of cost certainty for the future state.	Fail - cost of replacement parts is unreliable.	Pass - P.25 vendor experience means ongoing costs verifiable	Pass - contract will be centralised for establishment costs, consumption costs can be fixed for consuming agencies.	Pass - contract will be centralised for establishment costs, consumption costs can be fixed for consuming agencies.	Pass - contract will be centralised for establishment costs, consumption costs can be fixed for consuming agencies.
CSF4.4	Ability to effectively manage key cost risk areas.	Fail - cannot manage risk of obsolescence.	Partial - land acquisition and RMA costs for new towers could be variable.	Partial - land acquisition and RMA costs for new towers could be variable.	Partial - land acquisition and RMA costs for new towers could be variable. Impact of 5G, 6G etc unknown.	Partial - land acquisition and RMA costs for new towers could be variable. Impact of 5G, 6G etc unknown.
CSF4.5	Avoid vendor lock in.	Pass	Partial - some lock in for network, but being standards based allows transferability for devices.	Partial - some lock in for network, but being standards based allows transferability for devices.	Partial - some lock in for network, but being standards based allows transferability for devices.	Partial - some lock in for network, but being standards based allows transferability for devices.
CSF5	**Potential achievability**					
CSF5.1	Business change is manageable in the planned transition timeframe.	Pass	Pass - Police experience in P.25 can be drawn upon for other agencies	Pass - Police experience in P.25 & LTE can be drawn upon for other agencies. LTE change can be managed with SIM cards.	Partial - change in business processes and technology hardware l kely to be significant	Partial - change in business processes and technology hardware likely to be significant

CSF5.2	Skilled market resources exist.	Pass	Pass - LMR proven technology in the NZ market	Partial - no NZ experience in delivering or managing QPP	Fail - no NZ experience in delivering or managing QPP or MCPTT	Fail - no NZ experience in delivering or managing QPP or MCPTT
CSF5.3	Agencies buy in and accept the proposed solution & transition plan.	Fail - agencies do not accept this as a solution.	Pass - existing use of networks provide confidence	Pass - existing use of networks provide confidence	Partial - confidence in LMR, concerns about rural coverage for LTE, and technology maturity	Fail - concerns about rural coverage for LTE, and technology maturity
CSF5.4	Technology has been deployed in other jurisdictions for emergency services (transition approach is referenceable).	Fail - no available hardware to meet obsolescence requirements.	Pass - P.25 is proven technology internationally for emergency services	Pass - P.25 & QPP are proven technologies internationally for emergency services	Fail - MCPTT unproven	Fail - MCPTT unproven

Option advantages and disadvantages

Options	Description	Advantages	Disadvantages
Option 0: **No investment**	• Continue repairing and replacing existing communications network infrastructure and components for as long as possible, on a best endeavours basis, accepting the risk and consequences of communications failure. • Obsolete component parts are no longer able to be sourced. • It is estimated that by 2025 existing communications networks will have degraded to an extent as to be unusable by emergency services. • Cost: $161m+	• None	• Continually increasing operational funding required to keep the aging system online. • Level of downtime will increase regardless of funding levels, as replacement parts are no longer being manufactured and are becoming difficult to source. • Risk profile around resiliency of infrastructure increased significantly. • The existing infrastructure provides an insecure communications network which increases risks to responders and their operations.
Option 1: **LMR evolution**	• Mission-critical voice and messaging services only; delivered by a new, nationwide digital radio network for Emergency Services that is owned and operated by a government agency. • Non-mission-critical video and data services that use existing commercial cellular services extended through roaming. • Upgraded personal alerting service. • Cost: $628m - $1,325m	• Provides secure, resilient voice and messaging network with increased coverage. • Supports use of new technologies via commercial cellular, allowing the maturity of these services to continue to grow, and efficiencies to be realised in most situations. • Is affordable, achievable and provides value for money.	• Does not provide priority for emergency services traffic over commercial cellular networks, meaning that in times of congestion data and video may not be available - but voice and messaging over LMR would still operate. • Infrastructure providing data and video is not hardened, meaning it may fail in extreme events

| Option 2: Cellular evolution | Option 1, plus:

● Implementation of QPP across networks allowing emergency services to take precedence over public traffic and authorised high priority traffic to take over resources assigned to lower priority traffic.

● Implementation of a 'lite' aggregation service layer providing an integrated view across networks, irrespective of technology being used.

● Cost: $902m – 1,617m | ● Provides secure, resilient voice and messaging network with increased coverage.

● Supports use of new technologies via priority cellular, allowing the maturity of these services to continue to grow, and efficiencies to be realised in most situations.

● In situations where the network is congested, emergency services traffic would have priority over all other cellular traffic.

● Roaming provides dual network redundancy.

● Provides for a transition to a data-rich, mobile broadband experience. | ● Infrastructure providing data and video is not hardened, meaning it may fail in extreme events. This is largely mitigated by the implementation of cellular roaming and QPP, allowing users to connect to a wider variety of towers. |
| Option 3: Dual network PTT | Option 2, plus

● Implementation of MCPTT. This would enable two-way radio style communication across one or more priority cellular networks.

● Full integration between LMR and Cellular networks enabling use of a single device

● Cost: $1,481m – $2,419m | ● Provides secure, resilient voice and messaging network with increased coverage.

● Supports use of new technologies and applications via priority cellular, allowing the maturity of these services to continue to grow, and efficiencies to be realised in most situations.

● In situations where the network is congested, emergency services traffic would have priority over all other domestic cellular traffic.

● This option would provide the widest coverage, and seamless connectivity between networks.

● Provides for a transition to a data-rich, mobile broadband experience | ● A lack of cellular network hardening results in the requirement to still build the LMR network to provide resilience and redundancy. Building two networks to cover New Zealand requires significant additional infrastructure, lowering affordability.

● Integrating between radio and cellular networks is internationally immature and standards are still developing for this capability, increasing risk and lowering supplier capability and capacity. |

Option 4: All cellular	• Implementation of MCPTT over one or more Hardened Cellular networks. This would enable two-way radio style communication across one or more priority cellular networks as per option 3. • Cellular network hardening would aim to provide resilience and redundancy within a single network such that an LMR network is no longer required. • Personal alerting could potentially be provided via IoT functionality over a hardened cellular network such that a dedicated PA network is no longer required. • Cost: $1,676m - $1,917m	• Network resilience improved through hardening. • Access to data-driven applications nationwide through extended cellular network. • Integration risk removed as LMR no longer required. • Fully supports a data-rich, mobile broadband experience.	• Mission critical cellular technology has not been widely deployed or standardised internationally, increasing delivery and operational risk. • Cellular networks require a greater number of towers for a given coverage area, lowering affordability.

Annex 4: Full list of financial assumptions

A financial model was developed with inputs gathered from suppliers, participating agencies and NGCC programme team members. General economic inputs were sourced from Treasury's website.

The key assumptions listed below, and are current as at 28 February 2022.

Description	Assumption applied	Methodology and source
Overarching assumptions		
Forecast period	24 years.	Based on a 4-year development period with 20 years of operation (the useful life of the longest surviving asset).
Discount rate	5% for the prevailing Treasury discount rate	Treasury default public sector discount rate.
General	All costs exclude GST	
Capital costs		
s9(2)(b)(ii)	███████████	███████████
s9(2)(b)(ii)	███████████	███████████
s9(2)(b)(ii)	███████████	███████████

Description	Assumption applied	Methodology and source
		s9(2)(b)(ii) ███████
s9(2)(b) (ii) ████	████████████████████ ██████████ ██ ████████ ████████ ████████ █████████ ██████████	██████ ██ ██ ██ ████ ██████ ██████████ ██ ██ ██ ██████
s9(2)(b) (ii)	██ █ ██ █ █ ██ ██ █████████████ ████ ████████ ████████	███████████ ███████████
Operating costs		
s9(2) (b) (ii) ████	██████████ █ ██████████ █ ████████████ █ ████████████ ██████████████	██████████ ██ █ ██ ██ █ ██ ██

Description	Assumption applied	Methodology and source
	s9(2)(b)(ii) ████████████ ████████████████ ████████████████	s9(2)(b)(ii) ████████████
s9(2)(b)(ii) ████	████████████████	████████████████
████████	████████████████	████████████████
████████	████████████████	████████████████
████	████████████████	████████████████
████	████████████████	████████████████
████	████████████████ s9(2)(b)(ii) ████████	████████████████

Description	Assumption applied	Methodology and source
	s9(2)(b)(ii) ███████████████████████████ ████████████████ ███████████████████████████ ███████████████	
████████ █ ███ ███	██████████████████████████ ████████████████ ████████████████ ███████████████ ███████████████████████	██████ ██ ████████

Annex 5: Benefits Realisation Plan (BRP)

Public Safety Network Benefits Management and Realisation Plan v1.0 *As at 28 February 2022*	Public Safety Network Benefits

Annex 6: Top 10 current risks

s9(2)(b)(ii), s9(2)(g)(i), s9(2)(j)

s9(2)(b)(ii), s9(2)(g)(i), s9(2)(j)

s9(2)(b)(ii), s9(2)(g)(i), s9(2)(j)

Annex 7: Agency Change Plans

As part of ongoing engagement, each agency has completed a change plan. The next iteration of change planning will occur with the high-level design phase once funding has been approved.

The following are excerpts from the agencies' current plans, which will be refined as additional delivery information is available during the high-level and detailed design phases.

Fire and Emergency New Zealand Change Management Approach - Executive Summary

This document outlines the Change Approach which Fire and Emergency NZ will adopt for the Operational Communications Programme under the Public Safety Network Programme (PSN).

This document is presented to the Fire and Emergency NZ Agency Project Board (APB) for approval and to the PSN Programme Control Board for visibility and to provide assurance. This Change Approach will be reviewed in line with critical milestones such as approval of Implementation Business Case, contracting and purchasing.

At the time of writing, the process for selection of the providers and products related to the programme has not been completed, which means that some of the detail of the Change Management approach might be subject to some change, but the broad approach outlined here is likely to remain.

Change Approach Summary

Change Management is concerned with anticipating, acknowledging and planning for human behaviour and focusses on 'how' we change what we do, while the transition planning focusses on the 'what' we change. It helps to explain what will change and what can be expected.

The key benefits of change management for this Project are:

- Minimising resistance to secure full engagement and take-up from as many people as possible

- Minimising the time taken for the new systems to become fully effective

- Reducing the costs associated with overruns and rework that could potentially arise from lack of understanding or knowledge

Change Management Strategy

The introduction of the proposed Public Safety Network will require changes in behaviour from our people:

- Adapting to new technology and procedure

- Acquiring new skills and knowledge

- A shift in the way they interact with the other agencies using the network to enhance effective cooperation

Such changes in behaviour can be effectively achieved through following a clear process that, above all, "takes people with us" and that enables the identification of issues and potential obstacles in a timely fashion.

Our broad strategy is to involve stakeholders at the earliest stage in consultation and discussion structured by the use of our Change Management Toolkit, which follows the ADKAR model (described below). This allows us to identify risks and issues to be addressed throughout the programme and generates:

- An impact assessment

- A communications plan

- A training plan

- A resistance management plan

At the same time, we have support for individuals, which particularly assists with managing resistance: this includes workshops that develop understanding and insight into how change can affect people. We are also able, if required, to provide coaching on an individual basis. We hope that we can involve people fully and, with a combination of clarity about what the programme is doing and insight into the potential effects of change on them as individuals, enlist their full support and maximise their input.

We consider that an effective approach will be to introduce the programme carefully and with the emphasis on its practical benefits and processes, decoupling an operational development from the wider organisational changes. As far as possible, introducing the new processes to thought leaders who can influence the reception given to a fuller rollout is desirable and, in any case, involving a wide range of potential users in workshops to assess readiness, risk and resistance is essential.

# Wellington Free Ambulance Change Management Approach – Executive Summary

The purpose of this document is to outline the change management approach that will be used for the Public Safety Network Project at Wellington Free Ambulance. The Public Safety Network (PSN) is an Emergency Services initiative encompassing Wellington Free Ambulance, Fire and Emergency New Zealand, St John Ambulance, and Police.

The PSN capability is intended to provide modern, sustainable, mobile communications, where and when needed, to ensure the safety of our staff, responders and others across our communities. PSN will enable Emergency Services to enhance productivity and effectiveness, and further evolve mobility strategies through innovative solutions - using a mix of voice, data and video services. The scope of this document is the change management related to the Wellington Free Ambulance tranche of the project. It contains details regarding the intended strategy and a comprehensive plan for the change management activities.

Change Approach Summary

To successfully change organisational systems, all technical and non-technical aspects must be effectively managed. Change management refers to the structured processes, methodologies and tools used to manage the people aspects of change. The foundations of change management are that change is a process not an event, and that it won't happen because of a single decree or training.

Organisational change can be represented as three states; current state (how things are done today), the transition state, and future state (how things will be done tomorrow). Typically, we take an organisational perspective but in reality, each employee has their own current and future states. An organisation's future state is actually the collection of many individual future states. If we do not support and enable individual transitions between the states, then an organisations future state looks nothing like that we expected.
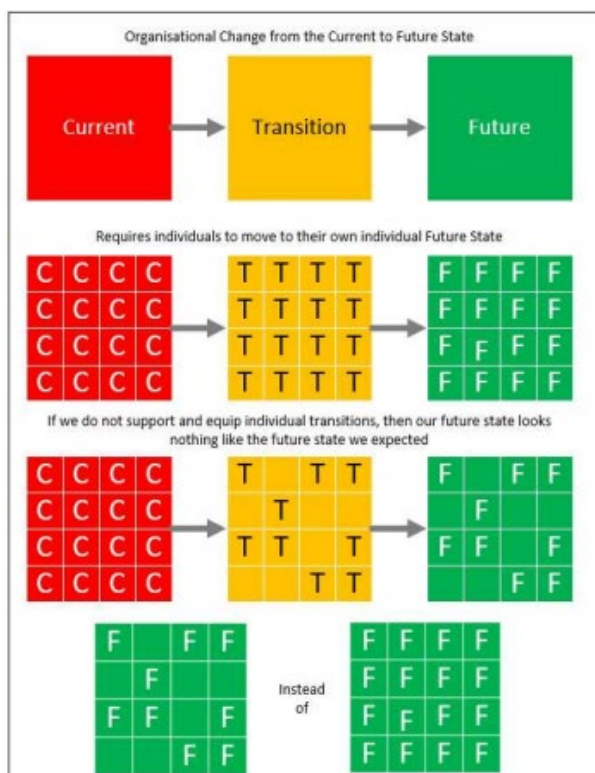
With the introduction of any change, temporary drops in productivity and some passive resistance and employee dissatisfaction can be expected. Poorly managed change results in a bigger impact that will last longer. This leads to lower return of investment, less benefits realisation, and unachieved improvement. It creates instability and introduces risk to the organisation. Consequences can include turnover of valued employees, tangible customer impact, active resistance and people simply opting out of the change. Multiple changes within an organisation aggravate and compound this risk.

Change management helps individuals and in turn the whole organisation transition. It increases speed of adoption, usage of the new systems and helps deliver expected project results and outcomes. Applying a structured, defined, and flexible change management methodology increases the success of projects. In 2017 an international study involving 1778 organisations was conducted. The results shown in the table below demonstrate the impact of effective change management.

Percentage of participants who:	Poor change management	Effective change management
Met or exceeded project objectives	15%	93%
Were on or below budget	49%	78%
Were on or ahead of schedule	14%	69%

Change Management Strategy

The PSN project is a complex multi-year programme of work that will introduce a number of new communications systems to WFA. It will impact all operational staff and a large proportion of support staff. It has multiple dependencies with other proposed projects planned to occur during the same period. The key benefits of change management for this Project are:

- Keeps attention on the difference between the practical delivery of the technology and actually realising the benefits from it

- Increases speed of adoption of new systems and processes

- Enables the benefits of the new capability to be optimised as more employees will be demonstrating 'buy-in' and using the new solutions

The WFA PSN project will use the Prosci Change Management methodology. This has been chosen because it is researched based and has easy to use tools and models. Furthermore, it is scalable in nature and so can be adapted to suit smaller projects that fall under the PSN umbrella as well as the overall programme. The WFA Change Lead is a qualified Prosci Practitioner.

Using the Prosci methodology will provide a structured approach for the project team and will help build change management competency within the wider organisation. Developed in 1994 by Jeff Hiatt, it has become one of the leading change management approaches because of its attention to continuous research and scientific method.

Prosci has conducted long term research in more than 900 organisations. This has found that projects with equally weighted technology components can have vastly different outcomes depending on the effectiveness of the people change component of the project. They determined that for an organisation to successfully transition through change, there are five key outcomes each individual has to accomplish: Awareness, Desire, Knowledge, Ability and Reinforcement. This led to the creation of the ADKAR Model of Change.

St John Change Management Approach – Executive Summary

This document is the St John change approach for the St John Public Safety Network (PSN) Programme. It is presented to the St John Project Board for approval and to the Programme Control Board for visibility and to provide assurance. This change approach will be reviewed and may be updated in line with critical milestones such as approval of Implementation Business Case, contracting and purchasing.

The change approach will enable change to be implemented into St John and factors in organisational, cultural and clinical elements to ensure that the PSN meets St John's needs.

Change Approach Summary

Standing in the future when the change is implemented, we hope that due to our actions St John staff have:

- Experienced engagement, communications and training which truly reflected their needs and the impact assessed

- An appetite and the necessary infrastructure for the further improvements they want to make

- Confidence when working with emergency sector agencies that we can work together on areas of common interest

- An aligned ambulance sector roadmap

- Confidence the Government will fulfil their commitment to the programme

Successful change means:

- Staff perceive the St John PSN programme and the deliverables of the individual projects positively

- Staff will have better tools and networks to support them when they do their job • Staff are capable and motivated to use the new tools

- St John is positioned to take advantage of future opportunities which PSN enables

- The rollouts do not disrupt St John or conflict with other initiatives

- The PSN programme has contributed to St John staff engagement and connectedness to purpose

It is an over-simplification that people who are attracted to working at St John are caring, practical and independent thinkers but this does represent a large portion of the organisation. The plus side of this as that people want to get things done and will welcome improvements if they understand what it means for them.

Improvements in clinical practice are ongoing so frontline staff are used to receiving changes through established channels on a regular basis. We will use these channels for PSN changes and integrate our messaging with BAU for a seamless delivery.

Change Management Strategy

This document will focus on the following areas:

- Leadership change and maturity

- Staff engagement and participation in designing the change

- Lessons learned from previous projects at St John

The St John Change Management philosophy and principles as shown in the diagram below will guide our change management approach and activities.

Involve

Run change impact and risk sessions with key impacted groups.

Build sense of ownership through co-creation of programme initiatives.

Set up a project change champion network.

Inform

Focus on tangible deliveries and immediate wins.

Keep people up to date on events and actions.

Keep it real – highlight both what is going well and what needs more attention.

Build trust

Do what we say we are going to do – always close feedback loops.

Address immediate needs even if the solutions are not perfect.

Learn from previous changes – do not repeat errors; take the best from the past.

Embed

Set up leadership roles and responsibilities – transition early in the change process to BAU.

Monitor change adoption and make results (good and bad) visible to impacted groups.

New Zealand Police Change Management Approach – Executive Summary

This document is the Change Approach for the PSN-PP under the Public Safety Network (PSN) Programme. It is presented to the Police Project Board for approval and to the Programme Control Board for visibility and to provide assurance. This Change Approach will be reviewed in line with critical milestones such as approval of Implementation Business Case, contracting and purchasing.

This will be a living document and will be updated once the final solution is known.

Change Approach Summary

Change Management is concerned with anticipating, planning for and acknowledging human behaviour and focusses on 'how' we change what we do as the transition planning focusses on the 'what'. It helps to explain what will change and what can be expected.

The key benefits of change management for this Project are:

- Recognising this is a people-centred project where technology is an enabler.

- Understanding the need and impact of change by getting know our stakeholders, then meeting (and exceeding) their expectations based on their engagement preferences.

- Aligning resources to deliver and support the change with the right people in the right place at the right time.

- Ensuring continuity of operations before, during and after transition, by ensuring there is sufficient knowledge of how to use the network and its equipment.

Police are adept with change – something that has been normalised over the last decade. Despite being a large organisation, we are in a strong position to lead the PSN journey through our mindset and experience in large scale operations – planning and delivering change relating to people, process and technology.

- **We are in a constant state of change.** We are always responding and changing in response to something – the strategic landscape with every change of Government or Commissioner; the technology 'curve' to ensure we are working effectively and efficiently; the increasing dangers on our frontline by implementing safety measures to keep our people safe.

- **We know the radio business.** We have been maintaining the existing radio network on behalf of Police, FENZ and Wellington Free Ambulance for 40+ years. We have teams of engineers making sure our existing network remains working 24/7 until it is finally decommissioned. We can provide reassurance to our people and stakeholders that this service will continue uninterrupted. We are able to provide clarity about our current and future state.

- **PSN may be perceived as a technology refresh programme for our frontline[10],** especially those in our digital radio districts whose greatest need will be learning how to use new equipment. For regional areas still operating on analogue, PSN will represent a bigger change as they learn new behaviours in order to use a digital network with new hardware.

These change principles will be applied to the Change Management Plan.

Change Management Strategy

Police will lead the change through the Police High Performance Framework (PHPF). This framework reflects:

---

10 This includes Emergency Communications Centres dispatchers using District channels (digital and analogue)

- **Leader-led change** – our people-leaders will be the face of the change within their workgroups, supported by our project change team located throughout the country. We will not be prescriptive in the way in which change is done at a local level, rather we will tailor approaches that are fit-for-purpose, thereby enabling and empowering our people; a fundamental principal of PHPF. The project change team will ensure these are achievable and aligned to programme schedules.

- **Using PHPF as a mechanism for change** – this familiar and all-encompassing leadership toolset will support the conversations and delivery of change activities within teams.

Summary of PHPF elements

PHPF Element	How it will support our change strategy
Strategy	Aligning our people with our strategy by clarifying our purpose and the outcomes we each need to deliver.
Culture	Helping us build the high-performance culture we need to support change.
Leadership	Equipping our leaders with the tools to help us deliver on our purpose in Police.
Capability	Equipping each of us with the tools to perform to our potential in our roles.
Performance Management	Enabling us to have more meaningful conversations about our performance and ongoing development.

Annex 8: LMR Commercial and Ownership Models considered

	Build, Own, Operate, Transfer (BOOT)	Government Grant	As a Service (DBC approach)
Structure	• Crown funds all capital needed for the construction of the asset. • Supplier is responsible for the build and ongoing operation and maintenance of the network over the contract term. • The supplier will Build, Operate and at conclusion of the contract Transfer the asset (BOOT contract structure). All financing components provided by the Crown. • Legal ownership is transferred on expiry or termination of the contract.	• The Crown provides a Grant as a contribution to the construction of the asset and the supplier provides equity funding and service over a contract period. • Supplier owns the asset through the term of the contract. If the supplier succeeds to the end of the contract, the asset remains theirs. If they terminate early, then the asset is returned to the Crown. • NGCC purchases services off the supplier.	• The supplier funds or arranges funding. • Supplier constructs the asset to provide a service and accepts the underlying risks of asset ownership • Supplier owns 100% of the asset into perpetuity. • NGCC purchases services off the supplier.
Government Accounting Treatment	• Classified as a Service Concession Arrangement (SCA) under PBE IPSAS 32; treated as a Crown Asset as Property, Plant and Equipment PBE IPSAS 17. • Operating costs for the service are treated as an expense.	• Treated as a Crown Asset for the life of the contract as an intangible asset PBE IPSAS 31. • Upon succession the asset is retired from the Fixed Asset Register. • Operating costs for the service are treated as an expense.	• The Crown purchases a service with the commitment being an annual consumption and meets the definition of an expense. • All asset ownership risks are vested with the vendor with no liability exposure to the Crown.
Economic life of the asset	• Asset life of 15 to 20 years with regular lifecycle replacement of assets making the investment enduring. s9(2)(b)(ii) ears.	• Contract maximum s9(2)(b)(ii)	• Enduring life with the vendor maintaining service and replenishing the assets throughout the life of the service.
Options analysis and risks	• Assets managed throughout the asset life with lifecycle replacements. • Maintain control over the network; with flexibility to make changes with additional investment and accommodate additional agencies. • Security and optionality on contract renewal or termination. • Retain leverage if supplier increases opex or upgrade costs unexpectedly; on renewal, Crown can choose not to renew, get asset back and go to another party to operate the asset or take on operation itself. • Opportunities to extend asset life if asset condition is adequately maintained.	• High risk for a mission critical network where the Crown agencies are the sole users. • Investment limited to the contract period; on termination, the Crown would have no asset or certainty around services. • Minimal negotiating leverage on renewal. • Probably recapitalisation of assets at end of contract; risk of asset condition reduced toward end of contract.	• No offers received during the RFP in support of this model. • No certainty to enable the construction or service on an enduring basis.

[end of document]