MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

NATIONAL QUARANTINE CAPABILITY

Programme Business Case

14 September 2022

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DOCUMENT CONTROL

Document Information

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Document History

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Document Endorsement

	Link
Programme Business Case was endorsed by the National Quarantine Capability Programme Sponsors Group	

GLOSSARY

List of abbreviations

Abbreviation	Definition
APSED III	Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies
AVSEC	Aviation Security Service
BORA	Bill of Rights Act
BWTR	Border Workforce Testing Register
CDEM	Civil Defence Emergency Management
COVID-19	Coronavirus disease 2019. The name of the illness caused by the coronavirus SARS-CoV-2
CSF	Critical Success Factors
DHB	District Health Board
DIA	Department of Internal Affairs
FTE	Full Time Equivalent
FY	Financial Year
H1N1	Swine flu
HUD	Ministry of Housing and Urban Development
Human Infectious Disease or Infectious Disease	Human infectious disease with epidemic or pandemic potential
ILM	Investment Logic Map
INZ	Immigration New Zealand
IPC	Infection Prevention and Control
MBIE	Ministry of Business, Innovation and Employment
MCA	Multi-Criteria Analysis
MERS	Middle East Respiratory Syndrome
MFAT	Ministry of Foreign Affairs and Trade
MIQF	Managed Isolation and Quarantine Facility
MIQ	Managed Isolation and Quarantine
MoT	Ministry of Transport
MPI	Ministry for Primary Industries
MSD	Ministry of Social Development
NEMA	National Emergency Management Agency
NGOs	Non-governmental organisations
NHI	National Health Index
NPV	Net Present Value
NQC	National Quarantine Capability
NZDF	New Zealand Defence Force
NZIPP	New Zealand Influenza Pandemic Plan: A framework for action
NZP	New Zealand Police
NZTE	New Zealand Trade and Enterprise
ODESC	Officials Committee for Domestic and External Security
OECD	Organisation for Economic Co-operation and Development
OF	Operations Framework

Abbreviation	Definition
OPCAT	Optional Protocol to the Convention Against Torture
PBC	National Quarantine Capability Programme Business Case
PHUs	Public Health Units
PMO	Project Management Office
PWF	Preferred Way Forward
QIC	Quarantine and Isolation Capability Readiness Plan
RAID	Risks, Assumptions, Issues and Dependencies
RFP	Request for Proposal
ROI	Registration of Interest
SARS	Severe acute respiratory syndrome
SIQ	Self-Isolation and Quarantine
SOPs	Standard Operating Procedures
SRO	Senior Responsible Owner
TTX	Table-top exercise
WHO	World Health Organisation
WINZ	Work and Income New Zealand

Glossary of terms

Term	Definition
Activation Plan	A plan for activating NQC capabilities that would succeed the Readiness Plan
Border restrictions	Decision to stop or restrict any tourist, or temporary visa holder such as students or temporary workers, from coming to, and entering New Zealand
Capabilities	The workforce, services, equipment and other assets that affect the capacity and capability to deliver quarantine and isolation functions
Community cases	People who test positive for COVID-19 in the community (outside of an MIQ facility)
Community quarantine	Community-supported quarantine for individuals required to refrain from contact with other individuals for a period of time during an outbreak of a contagious disease
COVID-19 Protection Framework	The COVID-19 Protection Framework (also known as the traffic light system) sets out our plan to manage life with Omicron while reducing the impact of future outbreaks
Economic benefits	A benefit quantified in monetary terms
Economic costs	The monetary value of goods and services
Elimination strategy	A strategy implemented by nations that focuses on a zero-tolerance towards new cases of COVID-19 infection in the community. This is not a focus on zero cases.
Endemic	A condition that occurs within a particular group of people or country at a predictable rate
Epidemic	An outbreak that spreads to larger geographical areas

Term	Definition
Evolving portfolio	Diversified portfolio of partnering arrangements for quarantine and isolation facilities and services
Genomic	The study of a person's genes (the genome), including interactions of those genes with each other and with the person's environment
Index case	The first documented case of an infectious disease
Isolation	Separating sick people with a contagious disease from people who are not sick
Lifetime costs	The total cost of all expenses relating to an investment over its expected life
Lockdown	Control measure to limit the spread of an infectious disease placing restrictions on people's movements by requiring people to stay home and forced closure of schools and non-essential businesses
Managed facility	A Crown-controlled facility or the Crown will assume responsibility for operating facility during activation in response to an infectious disease threat
Managed quarantine	See managed facility
Nominal costs	The unadjusted rate or current price, without taking inflation or other factors into account
Novel disease	A disease that has not previously been recorded
NQC	National Quarantine Capability, which may in future operate as one business unit or be dispersed across multiple business units that have functions and responsibilities broader than quarantine and isolation capabilities
Omicron	Variant on COVID-19
Outbreak	An unpredictable increase in the number of people presenting a health condition, or occurrences of cases in a new area

Term	Definition
Pandemic	An epidemic that spreads globally
Primary case	Directly exposed to the outbreak source
Quarantine	Separating and restricting the movement of people who were exposed to a contagious disease to see if they become sick
R' rating	The rating of any disease's ability to spread. R is the number of people that one infected person will pass a disease to, on average
Readiness Plan	Quarantine and Isolation Capability Readiness Plan
Returnees	People returning to New Zealand from overseas
Secondary case	Individuals who contract an illness through exposure to a primary case
Self-quarantine	Refraining from contact with other individuals for a period of time during an outbreak of a contagious disease usually by remaining at home and limited contact with family and others
Transmission	The means in which contagious, pathogenic microorganisms are spread from one person to another
Whole of life costs	The present value of total cash costs of an investment over its life cycle, calculated using the relevant Public Sector Discount Rate
Zoonotic	An infectious disease that is transmitted between species from animals to humans (or from humans to animals)

EXECUTIVE SUMMARY

Purpose

The purpose of this Programme Business Case (PBC) is to seek agreement for continued improvements to New Zealand's capabilities for responding to future human infectious diseases with epidemic or pandemic potential.

The analysis in this PBC supports investment over and above the current Quarantine and Isolation Capability Readiness Plan (QIC Readiness Plan) to:

- Undertake a comprehensive scan of the current operating environment and detailed gap analysis of the quarantine and isolation response system;
- Develop a long-term quarantine and isolation strategy, integrated with any future national pandemic plan. A fundamental objective will be to promote equitable solutions through all quarantine interventions;
- Prepare a target operating model for the future quarantine and isolation response system;
- Together with key stakeholders, collaboratively identify opportunities to enhance existing intelligence and surveillance functions to ensure alignment with quarantine systems; and
- Expand the nature, scope and scale of current retention arrangements to include a wider variety of facilities and services in a broader range of locations and over a longer-term to deal with a wider range of scenarios.

Ongoing investment in specific quarantine and isolation capabilities, as a risk mitigation, is needed to help ensure New Zealand is resilient in its response to future human infectious disease outbreaks.

However, we recognise balance is needed between the level of risk mitigation provided for responding to an unknown future threat and the cost of delivering and maintaining this capability.

Added to this is a health system going through significant change, facing current operational pressures, and is at the outset of considering its strategic approach to future public health challenges at the border.[i]

The proposed response recommends investment in a set of quarantine and isolation capabilities that can be deployed to meet a range of potential human infectious disease threats and scenarios, without limiting future choices, and minimising the risk of regretful spend.

Background and context

Our experience with COVID-19 highlighted New Zealand's existing pandemic arrangements were not fit-for purpose or scalable to the level needed

New Zealand's initial response to COVID-19 followed the New Zealand Influenza Pandemic Action Plan (NZIPP) which was based on a mitigation strategy for an influenza pandemic of 'flattening the curve' and delaying the peak of the epidemic. From February 2020, some entry restrictions and self-isolation and quarantine requirements were introduced for travellers from COVID-19 hotspots[1].

[i] Strategic approach to health at the border. (2022). NZ Public Health Agency.

However, as case numbers started to increase, this strategy was revised to one of elimination involving mass quarantine and isolation through a country-wide lockdown and placing significant restrictions on entry at the border.

Managed Isolation and Quarantine was instrumental in protecting New Zealand from COVID-19

New Zealand's Managed Isolation and Quarantine (MIQ) system played a key role, alongside border controls, infection prevention and control measures, community isolation requirements, contact tracing, case management, and testing, in preventing COVID-19 from entering the country and the community.

Despite some of its challenges, MIQ was successful in protecting New Zealanders from the worst impacts of COVID-19, when other countries were fighting widespread transmission in the absence of vaccination.

A QIC Readiness Plan has been developed to support border arrivals following full or partial border restrictions in response to a future infectious disease outbreak

The QIC Readiness Plan was developed as a short to medium term solution to ensure that New Zealand is prepared to respond to new variants of COVID-19 or other transmissible diseases in circumstances where the New Zealand Government chooses to fully or partially restrict international borders, requiring returnees to quarantine or isolate in managed facilities at the border upon arrival.[ii] For community-based quarantine and isolation, Te Whatu Ora is responsible for delivering COVID-19 Care in the Community, which supports self-isolation for those with COVID-19 who find this difficult to achieve for a variety of reasons.

A key component of quarantine and isolation capability is providing accommodation capacity of up to 6,000 rooms in eight weeks, primarily for the purposes of quarantining or isolating returnees to New Zealand from overseas, as well as providing all of the functions required to support the activities surrounding this capability at a regional and national level.

The QIC Readiness Plan includes retention contracts with eight hotels in Auckland and Christchurch; security and transport providers; information and communications technology (ICT) systems; Health New Zealand for personal protective equipment (PPE); and Aviation Security for security personnel. Work is also being progressed with Iwi to agree how advisory services will be compensated.

These arrangements are currently funded until June 2023.

The QIC Readiness Plan also includes separate plans to support alternative quarantine capabilities such as the Emergency Evacuation Accommodation Plan and the Self Quarantine Framework. The Emergency Evacuation Accommodation Plan aims to provide 250-300 rooms within one week of activation to quarantine individuals who have been evacuated from overseas disease hot spots and repatriated to New Zealand.[iii] The Self Quarantine Framework consolidates knowledge and information sources that MBIE has obtained on self-quarantine

[ii] Note, the QIC Readiness Plan does not have responsibility for delivering a self-isolation solution.

[iii] Note, this capacity is drawn from the standing 6000 rooms and is not additional capacity.

for border arrivals since late 2020 and presents the previously developed Reconnecting New Zealanders framework for self-isolation.[iv]

Additionally, plans have been created to support implementation activities should the QIC Readiness Plan be activated, such as a resource surge plan and Health model of care framework.

A full maintenance and testing plan has also been created. Information contained in the plans, including supporting information, will be contained within ICT systems enabling cross-sector access.

The next version continues to mature the QIC Readiness Plan and a workplan is under development by the newly created Readiness team within MIQ.

For community-based quarantine and isolation, COVID-19 Care in the Community has also been stood up

With greater focus on managing COVID-19 in the community, Te Whatu Ora, with the Ministry for Social Development (MSD), developed the *COVID-19 Care in the Community Framework*. Care in the Community assists community organisations deliver support to individuals and whānau to safely isolate at home or in their communities.

The model recognises the value of allowing people to quarantine and isolate within their communities.

There is an opportunity to develop an enduring national quarantine capability for New Zealand that goes beyond the QIC Readiness Plan and the support offered by COVID-19 Care in the Community

Despite the positive investments already made, ongoing investment in quarantine and isolation capabilities beyond what is provided through the QIC Readiness Plan and COVID-19 Care in the Community, would better support New Zealand's response to future human infectious disease outbreaks.

Our engagements with public and private sector stakeholders have highlighted and supported the need for an enduring quarantine and isolation function in readiness for, and to play a key role in, operational delivery as part of any future Government response to a human infectious disease outbreak.

The proposed investment in a National Quarantine Capability (NQC) seeks to address three main issues with our current quarantine and isolation capabilities:

- **Preparedness:** A lack of fit-for-purpose quarantine and isolation capabilities to respond to future human infectious disease threats exposes New Zealand to increased public health, social and economic risks
- **Readiness:** Without operational readiness to respond with timely quarantine interventions that are readily available and rapidly scalable, for future human infectious disease outbreaks, New Zealand may face unnecessary adverse public health, social and economic outcomes

[iv] Responsibility for delivering this framework is expected to sit with the agencies responsible for the functional area, and the framework is not a plan ready for implementation, but rather a starting point for subsequent detailed planning.

- **Equity:** Limited and inflexible quarantine options may exacerbate disproportionate impacts of future human infectious disease outbreaks on individuals, whānau and communities

For the purposes of this PBC, the reference to a 'National Quarantine Capability' or 'NQC' means a capability that may in future operate as one business unit or be dispersed across multiple business units that have functions and responsibilities broader than quarantine and isolation capabilities.

Preferred way forward

Through analysis, three options were shortlisted

Three options were shortlisted as part of the analysis in this PBC. These three options are:

- **Option 1: Quarantine and Isolation Capability Readiness Plan.** Option 1 is based on current arrangements under the QIC Readiness Plan for re-establishing managed quarantine and isolation capability for international arrivals in response to a significant public health threat. The current time horizon for the QIC Readiness Plan is until June 2023, however, this could be extended. The QIC Readiness Plan is also currently supplemented by COVID-19 Care in the Community, a multi-agency response to support individuals to self-isolate and quarantine in their own communities.
- **Option 2: NQC Ready.** NQC Ready builds on the QIC Readiness Plan, COVID-19 Care in the Community and existing self-isolation capability, by providing long-term strategic planning for managed, community and self-quarantine and isolation responses and a broader range of quarantine and isolation capabilities over time, including potential facilities in more locations and the ability to respond to a range of scenarios on a wider range of scales, to meet the challenge of future outbreaks, epidemics and pandemics.
- **Option 3: NQC Enhanced.** NQC Enhanced builds on NQC Ready to include Crown-owned, purpose-designed facilities at the border, offering flexibility for early and timely interventions and wider public value through alternate use where compatible.

For the purposes of this analysis, the shortlisted options are represented as being binary. However, in practice, and as reflected in the preferred way forward, these options are not discrete and can be viewed as a continuum of possible interventions that can be applied together in different configurations depending on risk appetite and the level of investment in potential risk mitigation sought.

Our analysis supports investment in a wider range of quarantine and isolation capabilities than the status quo

Since work began on this PBC in March 2022, there has been movement in the COVID-19 response system landscape in line with some of our findings and recommendations.

The work completed to date provides a solid foundation from which further investment in capabilities to respond to future human infectious disease threats can commence.

We consider that any investment in capabilities achieves best value for money not by duplicating functions within a response system but by working with, and making effective use of, existing functions. To that end, proper integration and coordination between a national quarantine capability and the wider response system is important – across strategy, planning, policy, intelligence and surveillance, data-sharing and operations.

The current QIC Readiness Plan, coupled with COVID-19 Care in the Community, seeks to leverage the knowledge, lessons learned and supplier relationships from the COVID-19 response to ensure New Zealand has a degree of preparedness

when faced with human infectious disease outbreaks in the short to medium term. The QIC Readiness Plan partially achieves the investment objectives for future capability, however it would benefit from formal integration with other quarantine systems and related functions such as existing health intelligence and monitoring.

The strategic case identifies a number of issues with the current human infectious disease response system. However, the context for how these problems and issues would eventuate in a future outbreak are unknown and, coupled with the rare occurrence of a pandemic on the scale of COVID-19, it is unknown what capabilities or interventions may be available (and required) to respond to a future event.

Finally, the recommendation for a preferred way forward has been made outside of the completion of any wider pandemic response plan that would consider a broader range of interventions and investments, such as surveillance, testing innovation, vaccination, primary and tertiary care supports, and other possible health system mitigations.

While Option 2 and 3 come out similarly scored in the multi-criteria assessment included later in this PBC, Option 2 is significantly less expensive, less risky to deploy, and preserves the Crown's options and reduces the risk of regretful spend. On its own, the purpose designed facility or facilities introduced in Option 3 has a capacity ceiling and cannot scale to meet quarantine demand during a pandemic. It therefore relies on the evolving portfolio introduced in Option 2 for scale.

Option 2 also builds on existing capability, plans and tools which have been developed as part of the QIC Readiness Plan and through COVID-19 Care in the Community, and these plans and capabilities can continue to be improved over time through testing, innovation and developments in technology.

For reasons of efficiency and interoperability, we recommend that preparedness (strategic) leadership and readiness (operational) leadership for quarantine and isolation capabilities should sit within the same agency or maintain strong links to one another and effective collaboration if dispersed across agencies.

Based on our current understanding of the response system landscape, we therefore recommend the following preferred way forward:

Recommendation 1: Augment existing quarantine capabilities by developing an enduring national quarantine capability to deliver a strategic, integrated quarantine and isolation system

The NQC would be tasked with:

- Undertaking a comprehensive scan of the current operating environment and detailed gap analysis of the quarantine and isolation response system
- Developing a long-term quarantine and isolation strategy, integrated with any future national pandemic plan. A fundamental objective will be to promote equitable solutions through all quarantine interventions.
- Preparing a target operating model for the future state
- Together with key stakeholders, collaboratively identify opportunities to enhance existing intelligence and surveillance functions to ensure alignment with quarantine systems
- Aligning and strengthening readiness capabilities, including through enhancements to existing self-quarantine and community quarantine planning and technologies
- Providing a broader cross-agency leadership function across the quarantine system

Recommendation 2: Provide a wider range of managed quarantine and isolation capabilities over time to meet the challenge of future outbreaks, epidemics and pandemics

Arrangements with the eight hotel facilities under the QIC Readiness Plan currently run until July 2023. Funding for Te Whatu Ora to deliver COVID-19 Care in the Community is confirmed through to December 2022, with the Ministry of Social Development's related work funded to June 2023.

With additional investment, arrangements could be developed and refined over time such that:

- a wider range of functions, service models, logistics and workforce arrangements (public and private) can be incorporated into the way managed, community and self-quarantine and isolation capabilities are provided
- a wider range of suitable facilities (for example, community-owned accommodation) and locations can be incorporated into the portfolio to support both border and community responses
- there is greater assurance of access to managed capabilities in a wider range of scenarios (for example, arrangements not being dependent on border settings) in response to localised outbreaks as well as epidemics and pandemics
- quicker deployment timeframes are anticipated
- there is opportunity to innovate through additional investment in targeted design, building IPC enhancements (for example, improved ventilation systems), technology and other improvements in selected facilities and related services to enhance IPC compliance and quality of service provision. This could be achieved through co-investment, where appropriate, in new builds or upgrades

This 'evolving portfolio' (and the capability to manage it) would be able to respond to different levels of presenting risk and a broader range of scenarios. It would be supported by a comprehensive NQC Activation Plan which will supersede the QIC Readiness Plan.

Recommendation 3: Cease exploratory work on purpose-designed facilities unless recommended otherwise in reviews of the all-of-government COVID-19 response and the New Zealand Influenza Pandemic Plan (NZIPP)

Our analysis indicates that a Crown-owned, purpose-designed facility or facilities could deliver additional benefits. However, these benefits would come with significant increased cost and risks.

Ongoing investment in quarantine and isolation capabilities as a risk mitigation against future epidemics and pandemics is needed to help ensure New Zealand does not lose the experience gained in responding to COVID-19 and is resilient in its response to future human infectious disease outbreaks. As we know, these threats are likely to increase in the coming years.

However, we recognise balance is needed between the level of risk mitigation offered for responding to an unknown future threat, and the cost of delivering and maintaining this capability, which would come with opportunity costs.

Added to this is a health system going through significant change and facing current operational and infrastructure pressures.

This PBC has therefore concluded that its investment objectives can be well-met through less costly and risky solutions.

Funding of approximately $5.5m per annum is required to be secured for FY23/24 and FY24/25 to progress the first tranche of work under Option 2

The programme team is proposing to fund costs for FY 22/23 from existing appropriations in the Isolation and Quarantine Management MCA under Vote Building and Construction.

All current funding for Isolation and Quarantine Management MCA currently expires on 30 June 2023. Funding needs to be secured now for the next two financial years to conduct initial investigative activities and roll over the Quarantine and Isolation Capability Readiness Plan.

As work progresses bids may be required in future Budget cycles if investigative work indicates further investment is justified (such as in the evolving portfolio).

The next steps include planning for a successful transition of the programme and existing activities to a new host agency or agencies and conducting foundational activities between now and June 2023

The proposed work between now and June 2023 would seek to deliver the immediate transitional components – covering the hand-over and bridging work – required to provide New Zealand with continued and reliable quarantine and isolation capacity and capability.

It is anticipated that any transfer of activity to another agency would have any associated funding transferred at the same time. However, if funding to support the future arrangements and the transition is not secured, any associated functions are likely to be dis-established by 30 June 2023.

Activities include:

- Completing transition to a new host agency or agencies and operational owners by the provisional target date, as approved by Cabinet (currently proposed as 30 June 2023).
- Creating a detailed roadmap for any transition, due to responsible Ministers in February 2023.
- Undertaking a comprehensive scan of the current operating environment and detailed gap analysis of the quarantine and isolation response system.
- Developing a long-term quarantine and isolation strategy, integrated with any future national pandemic plan and the Strategic Approach to Health at the Border (Public Health Agency),[v] a fundamental objective of which will be to promote equitable solutions through all quarantine interventions.

[v] Strategic approach to health at the border. (2022). NZ Public Health Agency.

STRATEGIC CASE

Strategic Context

Quarantine and isolation have a long history as a response to human infectious disease threats

The practice of quarantine began in the 14th century in Italy in an effort to protect citizens in coastal cities from plague. Ships arriving in Venice had to sit at anchor for 40 days before landing.[2] It has since been used globally to prevent sick travellers from infecting healthy populations.

In New Zealand, quarantine facilities were historically located on islands near significant ports, including Mātiu / Somes Island, Quail Island and Quarantine Island, to prevent the spread of diseases like influenza, smallpox and leprosy. However, as living standards, passenger screening and the quality of ships improved through the 19th century, the threats to human health rapidly declined, reducing the need for such facilities. The last quarantine islands were decommissioned in the 1940s.

Prior to 2020, New Zealand last applied a form of mandatory quarantine on individuals in 1948 in response to the outbreak of Poliomyelitis (otherwise referred to as polio or infantile paralysis). New Zealand schools were closed for approximately two months and children were banned from public transport and gatherings.

In this PBC **quarantine** is defined as separating and restricting the movement of people who were exposed to a contagious disease to see if they become sick. [3]

Isolation is defined as separating sick people with a contagious disease from people who are not sick. [4]

New Zealand has not been immune to epidemics and pandemics

Despite our geographic remoteness, over the past 30 years epidemics affecting New Zealanders have included influenza, Meningococcal B, pertussis (whooping cough), the H1N1 'swine flu' and measles.

In 2016, a common-source water-borne campylobacteriosis outbreak in Havelock North was the largest ever reported internationally. In 2019, a measles outbreak resulted in over 1,500 cases.

No cases of either severe acute respiratory syndrome (SARS) or Middle East respiratory syndrome-related coronavirus (MERS) have been diagnosed in New Zealand.

From 2020 until present day, New Zealand continues to be impacted by coronavirus SARS-CoV-2 (COVID-19).

Endemic is where a condition occurs within a particular group of people or country at a predictable rate.

An **outbreak** is an unpredictable increase in the number of people presenting a health condition, or occurrences of cases in a new area.

An **epidemic** is an outbreak that spreads to larger geographical areas.

A **pandemic** an epidemic that spreads globally.[5]

Human infectious diseases pose an ongoing and increasing threat to New Zealanders' health, wellbeing, and livelihoods

Globally there is a continuous threat of known or future diseases becoming endemic, many of which have epidemic or pandemic potential. **Figure 1** shows that both the number of outbreaks and number of infectious diseases causing outbreaks is increasing. While surveillance and reporting has improved substantially worldwide in recent decades, accounting for some of this recorded increase, it is nonetheless accepted the frequency of emerging infectious disease events is on the rise.[6]

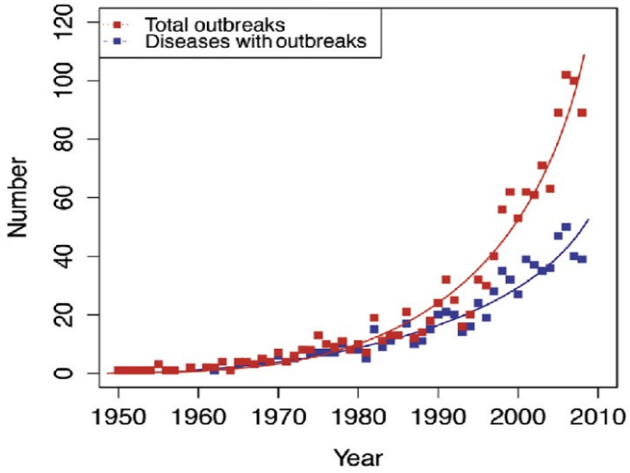


Figure 1: Increase in total outbreaks and total number of infectious diseases causing outbreaks since 1950 in Asia Pacific countries[7]

While New Zealand needs to be prepared for an epidemic of a known or novel disease emerging here, our biggest communicable disease threat is from overseas through the border. An inter-agency Communicable Disease (Human) Risk Profile developed in November 2017 assessed the risk for New Zealand of future human communicable diseases as Very High.[8] While it's impossible to predict with any degree of certainty when the next pandemic will occur, a range of between a 1-in-30 and 1-in-70 year likelihood for a pandemic of similar or greater severity to COVID-19 has been assumed and is considered justified on the basis of international pandemic literature and New Zealand's past pandemic experiences, noting the possibility that both shorter and longer timeframes may also be plausible.

Highly interconnected economies and rapid international transport of goods and people will almost certainly continue to provide the vehicle for localised epidemics to become global pandemics as trade and travel recover post-COVID-19.

Although New Zealand is geographically isolated, our economic and industrial profile creates high reliance on trading with other nations and the ability for people to travel internationally.

Figure 2 provides a representation of the emerging or established diseases that have epidemic or pandemic potential (however, note that it is not a comprehensive summary of all infectious diseases).

Zoonotic transmission and novel pathogens in humans have increased substantially over the past fifty years

It is widely accepted that the rate of disease emergence is likely to increase as human populations change in distribution – a trend increasingly driven by climate change and increasing natural disasters,[9] geopolitical tensions and conflict, continued population growth,[10] deforestation, and resource competition. This change in the spatial distributions of humans and animals also makes both more susceptible to disease emergence,[11] [12] and spreads diseases in new and

unpredictable ways, such as increasing the chance of diseases jumping between species.

Figure 2: Global examples of emerging and re-emerging diseases since 1970[13]

The impacts of climate change on disease distribution are already in evidence in some areas. The ranges of insects that carry disease such as mosquitos and ticks is expanding,[14] and concerns have been raised that many models show increased potential for such species and their diseases (for example, Dengue fever and West Nile virus) to survive in New Zealand, where before the climate was widely considered unsuitable.[15]

Quarantine capabilities are likely to be required to support future responses to epidemics or pandemics

Quarantine capabilities were a key feature of many countries' responses to COVID-19 (see Appendix 1 for the responses to COVID-19 implemented by other jurisdictions). Institutional quarantine, like New Zealand's Managed Isolation and Quarantine (MIQ), is a proven and effective intervention to human diseases with pandemic and epidemic potential. Together with a broader range of self- and community- supported options, these capabilities can offer New Zealand a mitigation for, and support during, future human infectious disease outbreaks.

Historically, quarantine has been a highly effective intervention against quarantinable human infectious diseases, particularly during the initial response phase – providing time for wider system responses, such as the development and rollout of vaccinations, to be more targeted and effective.

New Zealand has the opportunity to establish itself as a leading proponent in the delivery of the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III). Public health measures, such as risk assessment, contact tracing and quarantine and isolation capabilities have a role in contributing to this.

New Zealand's pandemic planning

Pandemic planning in New Zealand is largely defined at the national level through legislation and supporting plans[vi] including the National Health Emergency Plan and the New Zealand Influenza Pandemic Plan (NZIPP).

The NZIPAP was released in August 2017 to provide the all-of-government overarching framework for responding to an influenza pandemic. While its development was largely based on previous experience with influenza, including lessons learned during the 2009 H1N1 pandemic response, it was envisioned to be able to be applied to any pandemic, irrespective of the nature of the virus and its severity.

New Zealand's current pandemic governance and response arrangements are represented in **Figure 3**. Within these arrangements, Iwi and Māori are partners across national, regional and local levels – for example through the National Iwi Chairs Forum – Pandemic Response Group, and as members on Regional Leadership Groups.

New Zealand's infectious disease response system is provided in **Figure 4**.

The advent of COVID-19 highlighted our existing arrangements weren't fit-for purpose or scalable to the level needed

New Zealand's initial response to COVID-19 followed the NZIPAP which was based on a mitigation strategy[vii] for an influenza pandemic of 'flattening the curve' and delaying the peak of the epidemic.[16] From February 2020, some entry restrictions and self-isolation and quarantine requirements were introduced for travellers from COVID-19 hotspots.[17] However, as case numbers started to increase, this strategy needed to be revised to one of elimination involving mass quarantine and isolation through a country-wide lockdown and significant restrictions on entry at the border.

Appendix 2 shows a timeline of New Zealand's response to COVID-19.

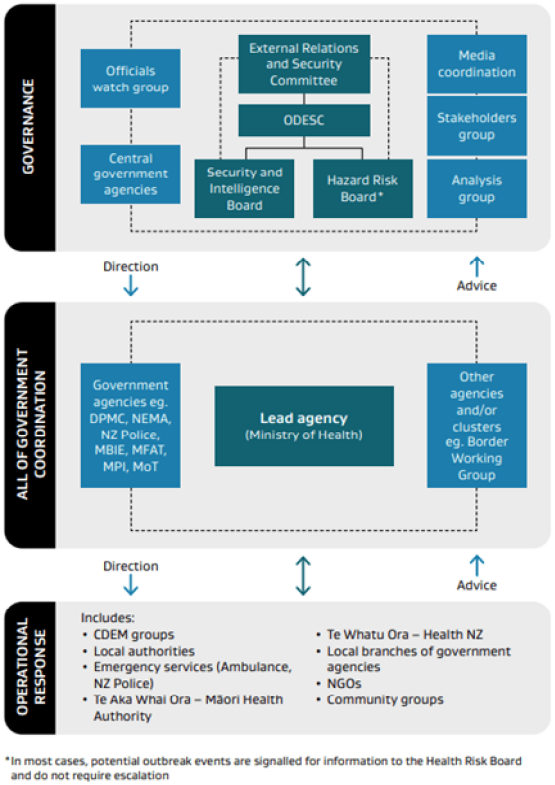


Figure 3: New Zealand's national crisis management model governance and response arrangements[18]

[vi] At the time of writing, the PBC has reviewed and aligned itself to all relevant Government plans and strategies.

[vii] The PBC notes that The Ministry of Health (Public Health Agency) does not share this view, as they expressed to the Programme Business Case Team on 30 August 2022.

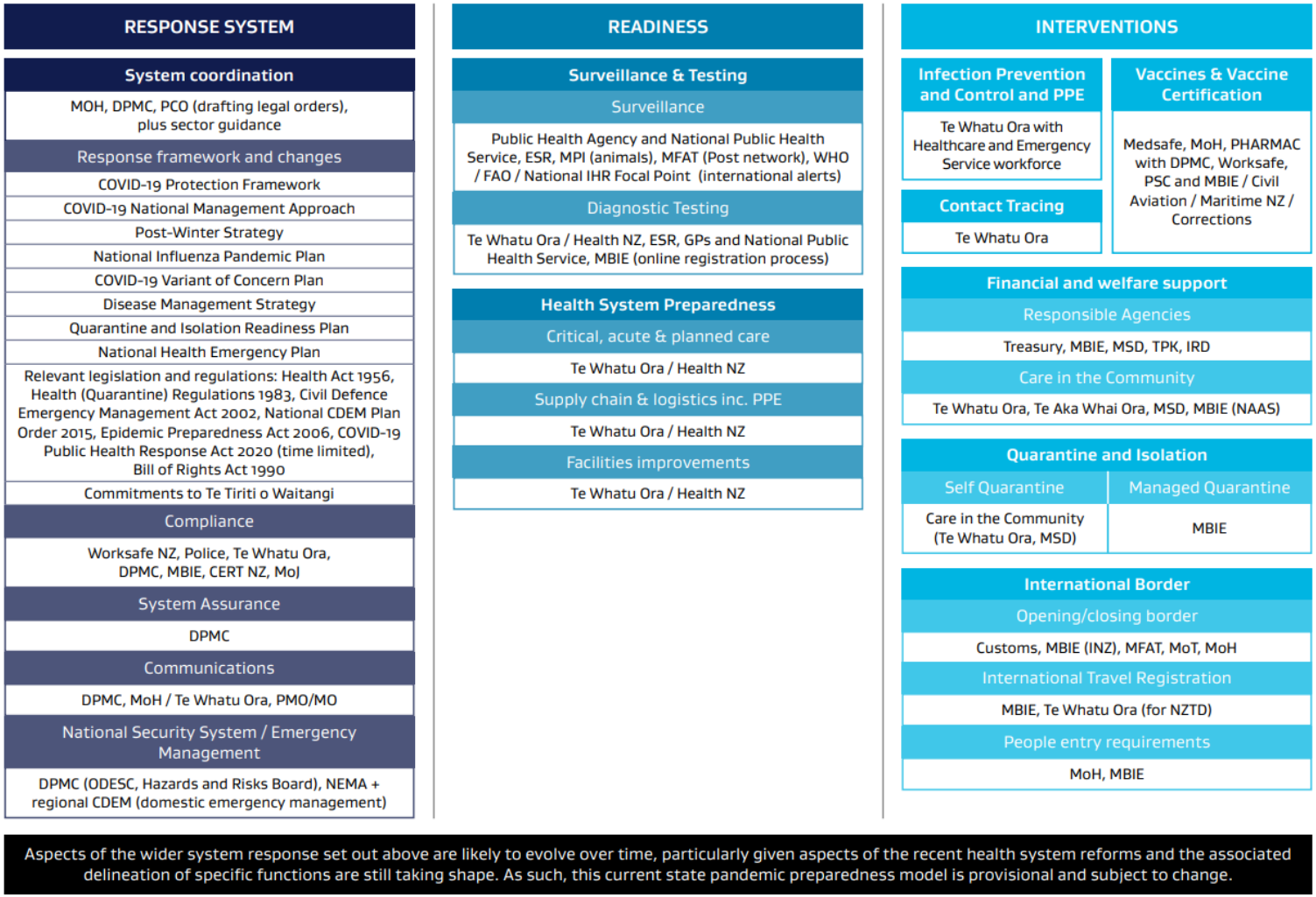


Figure 4: New Zealand's current human infectious disease response system

Managed Isolation and Quarantine was instrumental in protecting New Zealand from COVID-19

The use of dedicated MIQ started in New Zealand on 9 April 2020; 41 days after New Zealand's first COVID-19 cases were detected and 20 days after New Zealand border restrictions were implemented (see Appendix 2 for the timeline of New Zealand's response to COVID-19 and the evolving capacity of MIQ).

From its inception to April 2022, over 229,869 people entered New Zealand through an MIQ facility.

Throughout New Zealand's COVID-19 elimination strategy response in 2020 and 2021, MIQ played a central role in preventing COVID-19 from entering the country and the community, alongside border (air and maritime) controls, infection prevention and control measures, mass community quarantine and isolation, contact tracing, case management and testing.

Over this period, MIQ facilities and processes were enhanced and expanded, ultimately also functioning as quarantine and isolation facilities for individuals and whānau who were exposed to or diagnosed with COVID-19 in the community in New Zealand.

Our strategy bought New Zealand time – time to vaccinate a large proportion of eligible New Zealanders[viii] and provide appropriate community supports to manage the worst impacts of COVID-19, as well as allowing New Zealand to maintain some of the best economic performance and employment outcomes across the OECD throughout the pandemic.

More importantly, our initial elimination approach, coupled with quarantine and isolation requirements, helped to save lives. From the emergence of COVID-19, we had one of the lowest death rates from COVID-19 across the OECD (**Table 1** refers). The MIQ system played a role in making this possible.

Table 1: New Zealand's COVID-19 performance compared to a representative sample of OECD countries (as at 10 June 2022)[19]

Name	Total population	Cases per 100,000 population	Deaths per 100,000 population
United States of America	334,805,269	25,415	302
United Kingdom	68,497,907	32,942	264
Costa Rica	5,182,354	17,764	167
Ireland	5,020,199	31,635	149
Finland	5,557,312	20,172	85
Australia	26,068,792	29,431	35
New Zealand	**4,898,203**	**25,213**	**26**
Singapore	5,943,546	22,720	24

Changes to COVID-19 policy settings present an opportunity to better plan for the future

Beginning in late 2021, New Zealand's response strategy to COVID-19 shifted from an elimination strategy to one focussed on minimisation and protection, with the introduction of the COVID-19 Protection Framework (often referred to as 'the traffic light system').

The COVID-19 Protection Framework was designed to mitigate the impact of the Delta variant and was reliant on the strong uptake of vaccination and other public

[viii] 95% of New Zealand's eligible population at least partially vaccinated as at 8 June 2022

health interventions by New Zealanders. The COVID-19 Protection Framework also had a crucial role mitigating the impact of the Omicron variant of COVID-19, which was far more infectious but less clinically severe than previous variants, making an elimination strategy less justifiable and more difficult to maintain.

The framework primarily relies on self-isolation of infected individuals and household members, and the provision of localised lockdowns if necessary.

Changes to New Zealand's border settings reduced the use of MIQ

At the same time, the government also announced significant changes to New Zealand's border settings. With widespread community transmission of Omicron present in New Zealand, the public health need and justification for the border settings were reduced. The government's *Reconnecting New Zealanders to the World* framework lifted many restrictions on international travel. The plan represented the government's approach to re-opening New Zealand's international borders, and a gradual lifting of the requirements for travellers to enter MIQ.

The combination of these policy changes saw demand for MIQ reduce dramatically, with much greater focus placed on managing COVID-19 in the community, with people quarantining or isolating in their home in almost all cases, and quarantine requirements for international travellers removed.

As part of the adoption of this plan, Cabinet took in principle decisions in April 2022 which were then confirmed in June 2022 on delivery of version 1 of the QIC Readiness Plan, to accelerate deactivating the remaining MIQ hotel network, with it to be fully decommissioned by the end of August 2022.

A Quarantine and Isolation Capability (QIC) Readiness Plan has been developed in case MIQ capabilities are required again in the short to medium term

In response to the wind-down of the MIQ Network, the Ministry of Business, Innovation and Employment (MBIE) has developed the QIC Readiness Plan. The QIC Readiness Plan has been developed as an interim measure to enable the Government to re-establish quarantine arrangements in response to a significant public health threat over the next three to five years.[ix]

The plan provides for the rapid establishment of quarantine and isolation capabilities for international arrivals through:

- Partnership arrangements with key suppliers (hotels, transport and security services) and agencies (AVSEC, Te Whatu Ora), ICT in the form of retention contracts and Memoranda of Understanding.
- Discussion with Iwi on opportunities to work together and agree how advisory services will be provided.
- A step-by-step implementation plan for standing up capabilities across a phased implementation period
- A repository of Standard Operating Procedures and a blueprint of the current MIQ operating model
- A directory of key suppliers and critical personnel that would be required to assist in the initial stages of re-establishing managed quarantine and isolation

[ix] Funding of the Quarantine and Isolation Capability Readiness Plan is currently only available until June 2023

- A Self Quarantine framework for border arrivals– revisiting and updating the Reconnecting New Zealanders framework to include changes to the system since its development in late 2021
- An Emergency Evacuation Accommodation Plan which provides an implementation plan for standing up 250-300 rooms in the event of an emergency evacuation, similar to that undertaken with New Zealanders out of Wuhan, China in 2020
- Health model of care framework, codesigned with the health system
- Workforce surge plan codesigned with MBIE people and culture team and Te Kawa Mataaho | Public Service Commission
- A full maintenance and testing plan to ensure the QIC Readiness Plan remains up to date and ready
- ICT systems to house the plans and all supporting documentation, which enables cross agency access.

The next version of the plan is currently in development and a workplan for the newly established Readiness team is also being created to support ongoing assurance for implementation of the plan and system alignment.

COVID-19 Care in the Community was introduced to support community-based self-quarantine and isolation

With greater focus on managing COVID-19 in the community, Te Whatu Ora developed the *COVID-19 Care in the Community Framework* with support from the Ministry for Social Development (MSD) and several other agencies. The Framework has successfully and effectively supported a regionally coordinated, locally led approach to managing COVID-19 patients and their whānau, understanding that local health and welfare providers know their communities best.

Care Coordination Hubs in each region bring together local providers of public health and welfare support, including district health boards, public health teams, general practice teams, Ministry of Social Development, welfare providers, Iwi, Māori and Pacific providers.

Additionally, MSD delivered a network of Community Connectors ensuring people requiring additional support during their self-isolation period can readily access information, support and services across multiple government agencies (for example, to obtain a COVID-19 hardship allowance) and service providers (for example, local foodbanks). Once the public health requirement to self-isolate with COVID-19 is lifted the programme will cease, however it is currently funded out to June 2023.

COVID-19 Care in the Community is also supported by the National Alternative Accommodation Service (NAAS) which is funded and managed by MBIE. This service identifies self-contained accommodation for people who are COVID-19 positive that are unable to safely isolate at home.

There are a range of other tools available to manage COVID-19

Other strategies and measures available to New Zealand for responding to COVID-19 include:

- **COVID-19 Protection Framework:** the structure which replaced the Alert Level system aimed at minimising case numbers and protecting the health system and vulnerable communities. The COVID-19 Protection Framework set out the rules for different traffic light settings.
- **Aotearoa New Zealand's Strategic Framework for COVID-19 Variants of Concern:** developed by The Ministry of Health to support the Government's preparedness and response effort. The COVID-19 Variants of Concern Framework identifies the contextual factors, indicators and baseline and response measures for a possible new variant of concern including: relevant decision-making processes; principles and objectives that will inform a

response, including how Te Tiriti o Waitangi and equity are embedded; contextual factors and disease characteristics that will inform a response; the likely response levels; baseline measures that need to be in place in advance; assurance on baseline measures; and the social, economic and community impacts that will inform decisions.

- **COVID-19 National Management Approach:** identifies the response tools available to manage COVID-19 in New Zealand.
- **Public health and social measures:** these tools vary depending on the public health risk and desired outcome but can include for example, face coverings, basic hygiene, physical distancing, gathering limits, and ventilation.
- **Testing and surveillance:** surveillance testing is key to monitoring the spread of COVID-19. The Public Health Agency is responsible for the COVID-19 Surveillance Strategy and Plan.

Beyond the COVID-19 response, Health's intelligence and surveillance function sits within the Public Health Agency.[x] There are two primary components within this function: public health surveillance; and global health surveillance.

Public health surveillance involves the ongoing analysis and interpretation of information from multiple sources – primarily laboratory testing but other domestic monitoring including wastewater sampling, environmental health indicators and social media commentary. Intelligence derived from this informs disease outbreak prevention and control responses, and supports policy development, programme design and national health priority setting.

Domestic public health surveillance supports global health surveillance efforts – as well as receiving notifications and warnings regarding disease outbreaks and emerging concerns from WHO and other regional bodies, New Zealand's own

[x] DPMC also have an intelligence function that currently reports to the Minister for COVID-19 Response on strategic matters.

The COVID-19 experience demonstrated the wider social and economic impacts from strong interventions in the early phrases of a pandemic response which are likely to have ongoing implications for years to come. Examples include:

Economic impacts

- the general impact of the COVID-19 response on New Zealand's economy varies from conservative estimates of 3-4% of GDP at alert level 1 and 37% in level 4 lockdown[20]
- maintaining restrictions on the New Zealand border in 2021 amounted to approximately $100 million per week[21]

Social impacts

- St John Ambulance recorded a 30 per cent increase in calls for mental health or suicide attempt reasons in 2021 compared with 2020. Within these types of incidents an increasing number (33 per cent increase in 2021 from 2020) involved patients under 14[22]
- Youthline recorded a 23 per cent increase in suicide risk between March-April 2020[23]
- between 20-26 September 2021, coinciding with Auckland's move to Alert Level 3, Youthline had its busiest week for critical incidents in 50 years, managing 117 incidents[23]
- strict lockdowns at rest homes and aged care facilities exacerbated loneliness, anxiety and depression among elderly residents
- Māori and Pacific students were more likely to take part time work or extend the hours of existing work during lockdowns to support their families. A number of Māori and Pacific students did not return to school after lockdowns.

information is shared with these bodies.

The case for change

There is an opportunity to apply the learnings from our COVID-19 experience to ensure New Zealand is better prepared for the future

We have learnt from COVID-19 of the social, economic and wellbeing impact of a pandemic and the importance of pandemic preparedness.

Our engagements with public and private sector stakeholders have highlighted and supported the need for an enduring quarantine and isolation function in readiness for, and to play a key role in operational delivery, as part of any future Government response to an epidemic or pandemic.

A full list of our engagements with stakeholders is provided in Appendix 3.

As highlighted in this PBC, responsibility for separate parts of the quarantine and isolation ecosystem sits in a number of agencies. Whilst this is not surprising given the scale of the response to COVID-19, as we move back to a position of preparedness and readiness, there is merit in combining and aligning this activity with existing intelligence and surveillance functions.

We ran a series of future disease scenario simulation exercises to inform how, where and when future quarantine and isolation interventions could be effectively used

To explore how New Zealand's quarantine and isolation capabilities would manage several future human disease scenarios, the programme team facilitated four workshops with key stakeholders from public, private and community-based entities who would likely have a role in a future human infectious disease response.

The first two workshops focused on understanding a range of possible unknown infectious diseases (based on fictitious but scientifically feasible diseases) and the role that quarantine and isolation may or may not play in containing and limiting the spread and impact of those diseases. This disease scenario work informed the development of the disease narratives used for the Tabletop Exercise (TTX).

Two TTX workshops were then held to inform how agencies would likely respond in the event of another human infectious disease outbreak to identify what future scenario(s) would be sufficiently severe to warrant intervention from a National Quarantine Capability (NQC) as a proportionate response. Disease narratives were used to test how current emergency management and health systems would likely respond to each disease to:

- test quarantine and isolation requirements and existing capabilities;
- determine the impact of increased stress and complexity on these requirements and capabilities;
- consider both domestic and international impacts; and
- identify gaps and opportunities for improving future quarantine capabilities.

Workshop participants identified several gaps in the system specific to quarantine and isolation capabilities, namely:

- The need for an optimised domestic **surveillance capability** to detect and monitor human infectious disease outbreaks
- A lack of quarantine and isolation capacity that is **readily available to respond** to a future human infectious disease outbreak
- A lack of a **rapidly scalable quarantine and isolation capacity**

These system gaps and problems were carried forward to the investment logic mapping exercise.

A summary of the TTX is included as Appendix 4. A description of how the outputs from this exercise have informed the problem statements outlined within this Strategic case is included as Appendix 5.

We also identified lessons from our MIQ experience

Specific to New Zealand's MIQ, an MIQ-led review identified the following lessons learned themes (for further detail on lessons learned see Appendix 6):

- Establish **partnerships and relationships** in advance for example, with Iwi, community and private sector service providers.
- **Systems and processes** need to be fit for purpose, standardised (where appropriate) and as simple as possible for users.
- **Roles and responsibilities** need to be identified and defined early and be clear. A coordinated whole of system approach is essential to provide greater efficiency and effectiveness.
- **Quarantine and isolation capabilities and operating procedures** need to be appropriate for responding to the particular disease threat and meeting the needs to users.
- **Māori need to be involved in governance and decision-making from the outset,** so as to ensure that quarantine and isolation capabilities consider Te Tiriti o Waitangi.

Investment Logic Mapping workshops were held to clearly identify the problems with New Zealand's quarantine and isolation capabilities

The programme team facilitated Investment Logic Mapping (ILM) workshops with key public sector senior stakeholders on 29 April 2022 and 10 May 2022. The list of attendees is included in Appendix 3.

The problems identified in the ILM have since been iteratively refined and socialised with public and private sector stakeholders and were approved by the Programme Board and Sponsors' Group.

Since these exercises, improvements and system changes have already commenced

Since work began on this PBC, there has been movement in the COVID-19 response as well as changes within the health system landscape, including the introduction of the QIC Readiness Plan and COVID-19 Care in the Community.

However, given the continued risks presented by human infectious disease threats, there is an opportunity to consider ongoing investment in quarantine and isolation capabilities, beyond what is currently provided.

The programme team has identified three key problems

Three key problems with New Zealand's ability to respond to a future human infectious disease outbreak were identified. These are summarised below.

Problem Statement 1

Preparedness: A lack of fit-for-purpose quarantine and isolation capabilities to respond to future human infectious disease threats exposes New Zealand to increased public health, social and economic risks

The emergence of COVID-19 in January 2020 exposed New Zealand's lack of strategic pandemic preparedness[xi] and demonstrated the significant impact emerging infectious diseases can have on public health, society, and the economy.

The MIQ network was set up as an immediate and reactive response to COVID-19. It was put in place to deal with border arrivals, was not intended to be a long-term solution and was not designed for all uses to which it was put (such as the use of MIQ facilities for community cases, whom often have a different needs profile to that of border arrivals).

Being **prepared** in terms of future quarantine and isolation capabilities means having capabilities designed and developed, a clear mandate, and standard operating procedures so we know we have planned for what needs to happen – building and maintaining strong relationships with partners from across the system.

A lack of readily available quarantine and isolation capabilities, able to be deployed early, reduces the range of options available to decision-makers when faced with an infectious disease threat, resulting in a more reactive response. The QIC Readiness Plan has been developed to prepare New Zealand for responding to a new COVID-19 variant or other public health risk which requires international arrivals to quarantine or isolate. Because its focus is on the border, contingency capability is only provided in Auckland and Christchurch and has not been designed to support an infectious disease in the community.

Using quarantine and isolation capabilities not specifically designed or intended for infection prevention and control purposes increases the likelihood of disease spread and has the potential to put workers and the wider community at risk.

From our COVID-19 experience, we know that hotels are not designed for housing people for prolonged periods of time.[xii] Despite the low rates of transmission from an MIQ facility, hotels are sub-optimal for containing and preventing the spread of infectious diseases, in that they typically feature soft surfaces that are difficult to clean, a lack of open spaces that enable best practice physical distancing, enclosed communal spaces, and clinical waste disposal facilities, and physical layout and ventilation not specifically designed for IPC. For example:

- In March 2021, a Day 12 positive test (secondary case) was genomically linked to a previous Day 12 positive test (index case), strongly indicating in-Managed Isolation Facility (MIQF) transmission. A review found that while aerosol transmission seemed unlikely, it was nonetheless the most plausible transmission pathway. This potentially occurred via the ventilation system at the hotel.[24]
- In April 2021, three MIQ workers tested positive for COVID-19, with the cases genomically linked to a returnee at a MIQF. A review found that, while inconclusive, it was most likely that transmission from the returnee to Case A (a cleaner) occurred by aerosol transmission in a standard hotel hallway. Ventilation issues with the hotel may also have contributed to this. Transmission between the other MIQ workers (Cases B and C, both security guards) was most likely to be direct exposure from two workers on the same shift.[25]

Despite knowing that hotels are sub-optimal for infection prevention and control, we also know from experience that we can implement many interventions that reduce or limit the risks associated with using hotels as a quarantine and isolation

[xi] The PBC notes that The Ministry of Health (Public Health Agency) does not share this view, as they expressed to the Programme Business Case Team on 30 August 2022.

[xii] The average length of stay in a hotel within Auckland during 2019 was 1.71 days. Source: https://www.statista.com/statistics/1069330/new-zealand-average-length-of-stay-by-accommodation-type-auckland/ (12/10/2021)

facility. Similar conclusions were reached in the National Review of Quarantine commissioned by the Australian National Cabinet which found that:

> *Unlike purpose-built facilities, hotels were not designed for quarantine purposes or to reduce COVID-19 transmission risks. While this does mean that not all possible risk mitigations can be fully implemented, it has not prevented the establishment of a robust hotel quarantine system that implements many significant risk mitigations.*[26]

IPC hierarchy of controls refers to a range of control measures that mitigate the risk of exposure and transmission of infectious diseases and are a wider part of IPC measures. These include education and training of workforces, policies and operating procedures (for example, waste and laundry management), and physical features of the environment, such as improved ventilation within

A long-term strategy for quarantine and isolation capability, integrated into New Zealand's wider public health and emergency management systems, is needed to ensure these systems are viable and effective for future infectious disease control.

Quarantine and isolation capabilities need to be enduring, scalable and flexible to adapt to future unknown health threats, and to reflect improvements in international IPC best practice.

Problem Statement 2

Readiness: Without operational readiness to respond with timely quarantine interventions that are readily available and rapidly scalable, for future human infectious disease outbreaks, New Zealand may face unnecessary adverse public health, social and economic outcomes

The inability to predict with certainty the timing, nature, scale, and vectors of future infectious diseases of concern renders a 'cold start' approach inadequate for good infectious disease management outcomes. A flexible response capable of adapting continually to changing disease risk profiles is essential to avoid rigidity and ensure effectiveness and proportionality is maintained throughout any infectious disease outbreak.

A successful response to infectious disease outbreaks requires clarity around roles and responsibilities, collaborative governance structures and decision-making, strong communication and information-sharing, and practical, operational experience.

Being **ready** in terms of future quarantine and isolation capabilities means being able to use capabilities to action interventions, deploy workforces, draw on relationships and implement services that will have a tangible impact on the risk or emerging situation.

The public health system already provides operational readiness for most infectious disease scenarios. It is at the point where existing processes and capacity appear likely to be exceeded, in combination with the severity of the public health threat, where a coordinated, scaled response across multiple organisations that dedicated quarantine and isolation capabilities will need to be rapidly mobilised.

To achieve better outcomes, the requirements for these quarantine and isolation capabilities need to be addressed in advance, with solid, trusting and professional networks (within and between public agencies, with the private sector and throughout communities) being established and maintained ahead of any crisis, such as those established under the QIC Readiness Plan.

We know from our COVID-19 experience that not having effective governance systems and processes set up in advance of a health emergency, and inconsistent operating procedures risks further transmitting the spread of a disease. For example:

- In March 2021, breaches in procedures occurred when a person whose Day 12 test was positive, did not have their blue band (indicating they were low risk) removed after reporting symptoms, enabling them to be allowed to go for an offsite managed isolation walk via bus. Further non-compliance with standard operating procedures requiring physical distancing, bus seat allocation and non-adherence to wearing masks resulted in 14 other returnees on the bus being classified as close contacts, requiring them to stay an additional 14 days in managed isolation. This incident revealed inconsistencies in written procedures in use at the facility as well as a lack of standardisation.[27]
- In April 2021, a security guard in one of the managed isolation facilities was found to have failed to undergo their required tests for approximately four months before their positive test. At the time of the incident, the Border Workforce Testing Register (BWTR) was voluntary and was in a trial stage. As a result of delays in uploading data, and delays and inaccuracies in the linking of National Health Index (NHI) numbers with Person Profiles, the employer was unable to view the test dates of all of its employees.[28]

Following incidents of this nature, improvements were made so that by the end of the response, systems (for example, staff testing) were sophisticated enough to provide assurance that the risk of transmission was being managed. In addition to ensuring systems are set-up in advance of a health emergency, it is important they are maintained and continually improved to remain relevant and fit-for-purpose.

Quarantine and isolation capabilities require a trained, professional, capable, confident, and empowered workforce, able to deliver services to the required standards, with agility and multi-cultural competency. This in turn needs effective and enabling legislation and data sharing frameworks operating prior to future outbreaks, in combination with an educated and informed workforce and decision-makers who understand and can act in accordance with relevant protocols and regulations.

Operationally ready quarantine and isolation capabilities are needed as a form of long-term preparedness for New Zealand to face future infectious disease threats. Having a suite of pre-designed interventions able to be deployed and scaled rapidly in response to new infectious disease threats, offers response optionality, reduces initial pressures on New Zealand's public health system and buys New Zealand time to plan and implement other measures.

Problem Statement 3

Equity: Limited and inflexible quarantine options may exacerbate disproportionate impacts of future human infectious disease outbreaks on individuals, whānau and communities

Quarantine arrangements and facilities used to respond to COVID-19 were not sufficiently flexible and adaptable to meet the needs of vulnerable groups.

A lack of tailored, clear, and up-to-date information available to all population groups served to increase levels of anxiety for some vulnerable communities during the COVID-19 response.[29] Crisis call centres recorded spikes in call volumes which corresponded with lockdowns or shifts in alert levels.[30]

The Managed Isolation Allocation System was used from 5 October 2020 to allow people to book a room in MIQ. The System initially operated on a first come, first served basis (until the introduction of lobbies) and limited facility capacity meant that many prospective travellers to New Zealand encountered issues with entry or re-entry (see Appendix 2 for the detail on the supply of MIQ).

The quick stand-up and expected short-term nature of MIQ facilities and contracts meant that, in most instances, the design of facilities – and the facilities themselves, being largely hotels – were not well-suited to cater to a wide range of

user needs. They also did not adequately account for the needs of Māori, including the incorporation of design inputs, consideration of needs in the granting of emergency allocations and the importance of family reunification.[31]

Murray Jack and Katherine Corich's *Rapid Assessment of MIQ* report noted that:

> *There is recognition that there was a significant omission during the MIQ set-up phase to consider Treaty obligations. Interviewees confirmed that the initial engagement with Iwi during the establishment phase of MIQ was not deep or broad enough, and that the frameworks were not in place to ensure that this important relationship was nurtured and developed.*

We also know that during the early stages of the Delta outbreak, impacts were also initially most keenly felt in Pacific peoples' communities in South Auckland, who suffered significant racism and criticism.[32] [33]

As MIQ became increasingly used for community cases during this phase of the COVID-19 response, it also became apparent that MIQ facilities were not well-suited to accommodate or support the wellbeing of those impacted by COVID-19 in the community. The limit of four people per MIQ room meant larger families could be split across two or more rooms. Once Omicron became established within New Zealand communities, COVID-19 Care in the Community became an effective quarantine and isolation intervention that still had equity issues, but was considered a more proportionate response than putting people in managed facilities.

An April 2022 Human Rights Commission Inquiry found the needs of disabled people were not given prominence in government decision making throughout the pandemic. As with the experiences of Māori and Pacific people, the participation of advisory groups in decision-making processes did not necessarily guarantee that the views and concerns of disabled people were listened to or acted upon.[34]

The design and operation of quarantine and isolation capabilities needs to be tailored and adaptable to meet the needs of vulnerable groups, recognise diversity, and promote the wellbeing (mental, physical, spiritual and collective) of all users – taking into account the needs of individuals, whānau and communities. Te Tiriti, human rights and equity (including intersectional equity) considerations need to be central to and that there is greater choice to meet differing needs.

Communities and service providers must be empowered to influence and deliver services to their own communities and groups to ensure support is provided to those most in need.

Throughout New Zealand, MIQ and iwi partnered and engaged, to deliver quarantine and isolation facilities, in the locations where MIQ facilities were located (Ngāti Whātua Ōrākei in Auckland, Waikato Tainui in the Waikato, Te Arawa in Rotorua, Ngāti Toa Rangatira and Te Ati Awa in Wellington, and Ngāi Tahu in Christchurch).

As an example, under the direction of Kingi Tuheitia Pootatau Te Wherowhero VII, Waikato Tainui partnered with the Waikato DHB and central Government to ensure MIQ facilities in the Waikato were delivered the "Waikato way": manaakitanga, mahi tahi and kawea ake. The Pou Tiaki approach taken (pillars of care) provided support to staff and returnees and included cultural activities such as Zoom raranga (flax weaving) and Te Reo classes, exemptions system support, bereavement counselling, welfare navigation, Hapu mama services, and waka ama for staff.

This example of partnership with Waikato-Tainui, welcomed their leadership in delivering success to ~9,000 returnees, by (but not limited to) access to critical resources including hotels existing networks and relationships with local

In later phases of the response, as numbers of community cases increased, some facilities were transitioned to become community isolation quarantine facilities. There are also opportunities to partner with communities in advance of events to

support the care of local cases, such as through community isolation quarantine facilities.

Effective communication and data sharing between public agencies, the private sector and community support groups is needed to ensure vulnerable groups are identified and support can be better targeted.

For people coming through the border, there needs to be greater equity in the pathways for their arrival and stay and the prioritisation of emergency spaces.

In addition to equity, quarantine and isolation capabilities need to acknowledge and strive to uphold the principles of Te Tiriti o Waitangi[35], including:

- **Tino Rangatiratanga:** providing self-determination and mana motuhake for Māori in the design, delivery and monitoring of quarantine and isolation for Māori.
- **The principle of partnership:** the Crown and Māori to work in partnership in the governance, design, delivery and monitoring of quarantine and isolation for Māori.
- **The principle of active protection:** which requires the Crown to act, to the fullest extent practicable, to achieve equitable outcomes for Māori.
- **The principle of options:** requiring the Crown to provide for and properly resource Kaupapa Māori. Furthermore, the Crown is obliged to ensure any response is carried out in a culturally appropriate was that recognises and supports the expression of Māori models of care.

To ensure New Zealand is best positioned to respond to future infectious disease threats, a clear national strategy and plan for quarantine and isolation is needed

While continuous improvements have been made to address the system gaps and problems identified over the course of the COVID-19 response, there is an opportunity to ensure New Zealand is better placed for any future human infectious disease outbreak.

Quarantine and isolation are proven and effective interventions. When mixed with other measures (such as contact tracing, screening, and testing travellers), or included as part of a layered approach, quarantine and isolation is recognised as a viable response for responding to public health threats.

We have learned a lot from the COVID-19 experience. It is important this knowledge is retained for potential future use and that we consider improving our national model of quarantine and isolation interventions and continue to build on the advancements already made as part of the QIC Readiness Plan. Without this, New Zealand will be less able to efficiently and effectively respond to future human infectious diseases that have *pandemic or epidemic potential.*

Significant lessons learned work has already been completed across the MIQ system and many learnings and implementation support activities have been incorporated into the QIC Readiness Plan, with further improvement work underway or planned.

In addition, COVID-19 Care in the Community has also evolved significantly since its original establishment and has conducted several lessons learned exercises to improve this response.

There remains, however, a need to review and develop further the Self Quarantine Framework.

Quarantine and isolation capabilities must be ready in advance of any event, to enhance the operational effect of New Zealand's broader human infectious disease response system. The key considerations for determining when the use of quarantine would be appropriate for responding to an infectious disease threat are provided in Appendix 7.

Our work has highlighted that there is a need to cater for a range of scenarios and scales, ranging from a small to medium-scale response to a known disease (such as measles) to a less-likely global pandemic event as seen in the response to COVID-19.

Any solution must focus on enabling movement through New Zealand's international border – avoiding where possible unnecessary interference with international traffic and trade consistent with New Zealand's obligations under the International Health Regulations 2005; balance the ethical implications and social licence in restricting the movement and gathering of people; empower and enable communities to facilitate local quarantine responses (where feasible); and provide individuals and whānau with the ability to self-quarantine where risk tolerance allows.[36]

Any solution will need to balance the level of preparation and risk mitigation offered for responding to a potentially unknown future threat with the cost of delivering this response.

Delivery of future quarantine and isolation capabilities will achieve a range of benefits

The benefits of strengthening longer-term quarantine and isolation capabilities were identified through the ILM workshops and in consultation with public and private sector stakeholders.

The following benefits and key performance measures were approved by the Programme Board and Sponsors' Group:

Benefit	Key Performance Indicator (KPI)
1. More effective quarantine capabilities to address future human infectious disease risks and contribute to minimising health, economic, and social impacts of future outbreaks.	**KPI 1:** ↓ Rates of community infection **KPI 2:** ↓ Primary and secondary care health admissions **KPI 3:** ↓ Adverse economic and social impact **KPI 4:** ↑ Preparedness and effectiveness
2. Faster deployment of quarantine interventions to reduce infection spread, and allow time and scope for other system responses.	**KPI 1:** ↑ Readiness to deploy quarantine measures **KPI 2:** ↑ Optionality and efficiency **KPI 3:** ↓ Rates of community infection **KPI 4:** ↓ Primary and secondary care health admissions **KPI 5:** ↓ Reliance on other restrictive measures
3. More quarantine options to meet differing needs and enable equitable outcomes.	**KPI 1:** ↓ Infections/deaths that could have been prevented if the same level of access and care was available for all communities **KPI 2:** ↓ Risk of exacerbating existing inequalities **KPI 3:** ↑ Optionality and efficiency
4. Greater trust and confidence in future epidemic and pandemic responses.	**KPI 1:** ↑ Understanding of quarantine measures **KPI 2:** ↑ Public confidence in epidemic and pandemic responses

Realisation of these benefits supports government priorities

Figure 5 shows how the benefits of providing future quarantine and isolation capabilities supports meeting government priorities and delivers against outcomes in the Living Standards Framework. [37] [38]

Eight investment objectives have been identified to guide the design of future quarantine capabilities

The provision of future quarantine capabilities will require investment that delivers against the following investment objectives:

1 **Capabilities that can provide proportionate interventions to deliver against different levels of compliance needed in different risk environments (voluntary, assisted, directed, and enforced)**

This investment objective is about ensuring that in the event of a future human infectious disease outbreak, future quarantine and isolation capabilities will provide a mitigation to position New Zealand to adequately respond to most human infectious disease threats. This needs to be done in a way that delivers interventions which are proportionate to the risk profile and operating environment and balances the individual and collective rights of New Zealanders and the Crown's commitments to Te Tiriti o Waitangi.

Because we do not know the precise nature, scale or risk presented by emerging human infectious diseases, any future solution needs to include a range of empowered quarantine and isolation capabilities, spanning from community-supported self-quarantine through to managed quarantine and isolation facilities.

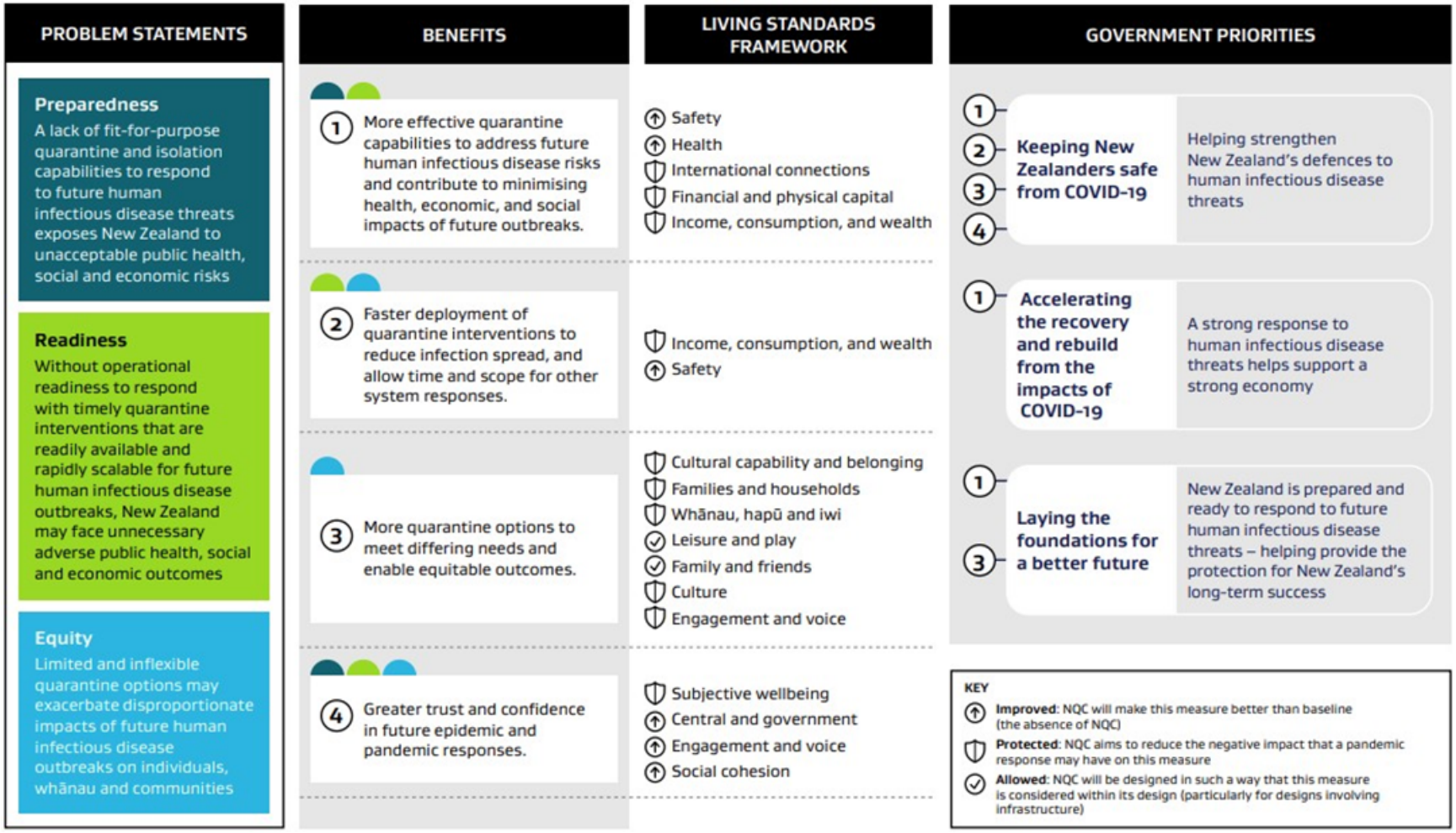


Figure 5: Alignment of problems and benefits to government priorities and the Living Standards Framework

2 **Quarantine capabilities and interventions that enhance the wider response system for human infectious disease outbreaks**

This investment objective is focussed on ensuring that future quarantine and isolation capabilities operate effectively as part of the wider system response and contribute meaningfully to whole-of-system outcomes.

This means for example, that quarantine and isolation capabilities could be used in tandem with existing public health responses and health infrastructure, to improve the overall performance of New Zealand's public health system while minimising impacts on society and the economy should a human infectious disease outbreak occur.

3 **Quarantine capabilities that can respond to concurrent risks or events**

This investment objective is about improving the resilience of our future quarantine and isolation capabilities, such as being able to support different disease outbreaks with differing levels of transmissibility or seriousness (for example, being able to respond to both a COVID-like influenza pandemic and a domestic measles outbreak[xiii]) or also dealing with resourcing needs in response to other emergencies (such as a large-scale flood or earthquake, requiring emergency accommodation and services to support displaced persons and communities).

4 **Quarantine capabilities and interventions that are fit for purpose**

This investment objective seeks to ensure future quarantine and isolation capabilities meet best practice IPC standards and are suitable for a wide range of people with a variety of needs.

5 **Quarantine interventions that can scale**

This investment objective seeks to ensure future quarantine and isolation capabilities can be quickly scaled up and down, depending on need.

This means for example, that quarantine and isolation capabilities are able to respond to threats at New Zealand's international ports of entry as well as being accessible for wider community and individual needs.

6 **Quarantine capabilities that can evolve over time to ensure continuous improvement of operating models**

This investment objective is focussed on ensuring that quarantine and isolation capabilities are able to adapt in response to new or unforeseen risks, emerging technologies, new methodologies and IPC standards, or market opportunities.

7 **Quarantine interventions that can be utilised in a timely manner to respond to human infectious disease threats**

This investment objective focusses on ensuring that the set of capabilities are able to be deployed quickly and early, reducing the reliance on measures such as lockdowns, sudden border changes and other disruptive responses and interventions. For example, having in place pre-approved powers and rights for deployment, operation and governance to enable the set of quarantine and isolation capabilities to be stood-up, used and adapted to meet real-time needs during the different phases of an outbreak response.

8 **Quarantine capabilities and interventions that embed wellbeing, manaakitanga (care for people), and kaitiakitanga (care for place)**

[xiii] During 2019 – 2020, a measles epidemic occurred concurrently to COVID-19 in New Zealand (primarily in the Auckland region)

This investment objective is focussed on ensuring that quarantine and isolation capabilities and interventions will improve the delivery of equitable outcomes across all users, caring for people's wellbeing (mental, physical, spiritual and collective) and minimising disproportionate impacts on particular groups.

Delivering future quarantine and isolation capabilities supports New Zealand's national and international commitments and responsibilities

The development of national quarantine and isolation capabilities for responding to future infectious disease threats aligns with and supports requirements for health and national emergency planning and response and contributes towards New Zealand meeting its international obligations in this area.

Scope

The proposed solution will support responses to a broad range of human infectious disease outbreaks

The proposed solution will need to respond to a wider range of human infectious disease outbreaks, but there are practical limits to the coverage that quarantine and isolation capabilities could and should provide. The programme team has bounded scope largely according to the following parameters:

- Diseases within scope have infectiousness and virulence that are similar to influenza and COVID illness – that is, they have a high infectiousness rating (generally referred to as an 'R' rating), and a low virulence rating (a small number of individuals – such as less than 5% - become severely ill and require secondary and tertiary level healthcare)
- This may include highly infectious diseases which are occasionally present in New Zealand and not novel (for example, measles), but have significant impacts where they do present in the community, and where isolation or quarantine meets a system need.

This means there are some significant exceptions which quarantine and isolation capabilities would not cover or be suitable for. Although not exhaustive, examples of the types of diseases that would not be covered include:

- Human infectious diseases that are commonly present in the New Zealand community (endemic or seasonal), including the current COVID-19 outbreak and the common cold.
- Human infectious disease outbreaks where isolation or quarantine are not of utility. This would include, for example, human infectious diseases where the primary vector of transmission is not human-to-human contact (such as Zika or West Nile virus).

The proposed solution includes a range of capabilities and interventions that will be more effective, proportional, equitable and timely than were possible for COVID-19

As part of developing solutions, the programme team identified a set of key service requirements, which are outlined in **Table 2**. This set of service requirements cover a broad range of potential quarantine and isolation capabilities, inclusive of requirements beyond just facilities.

These service requirements also focus on ensuring that a solution is delivered equitably, and in line with legislation.

Table 2: Key Service Requirements

Service Requirement Description	Rationale
1. The solution should consider a range of interventions with focus on mitigating the risk of human infectious diseases at New Zealand's international border in the first instance	The most likely point of entry for a human infectious disease is at the border.
2. The core function of the solution should focus on quarantine in the first instance with some support for isolation	Isolation capabilities have different requirements than for quarantine. It is anticipated that if someone presents while in quarantine, the solution will be able to support basic primary level healthcare treatment. Any support beyond this will require transferring to specialist isolation care.
3. The solution should also support quarantine and isolation capabilities by and for individuals and groups in the community in relation to existing and novel infectious diseases within the scope of this programme	It is possible that a human infectious disease could navigate the border before it is detected or emerges in New Zealand. The use of community-supported quarantine and self-isolation would offer significant capacity to any proposed solution. Offering the ability for individuals to self-isolate and self-quarantine would also align with the public health principle of utilising the least restrictive means of quarantine to deliver the largest public health benefit.
4. The solution should include a number of capability components, including workforce, technology, systems, tools and support	To be effective, a national quarantine and isolation capability needs a range of resources. A key lesson from the MIQ experience was that supporting capabilities – both centrally and in the community – were as important as facilities.
5. The solution needs to include system integration and leadership	A key lesson from both the tabletop exercise and lessons learned from the MIQ experience was that the system needed an overall 'operational coordination' or collaborative leadership function to assist all participants to successfully stand up and deliver actions included under the National Pandemic Action Plan
6. The solution needs to be able to quickly scale 'up' and 'down' from business as usual to 'response' settings	The solution is likely to require both a core workforce that is always 'on call' to respond to an immediate threat and the ability to scale if the response needs to increase, as well as reduce proportionately to the risk and need.
7. The solution needs to offer primary level healthcare support	It is anticipated that workforce requirements would include some basic primary level healthcare, focussed on activities and support such as testing and wellbeing check ins
8. The solution needs to be integrated with existing intelligence and surveillance capabilities	We know that upstream research and threat analysis are crucially important to identifying emerging human infectious disease outbreaks. Similar to how we monitor emerging plant and animal-based biosecurity risks, we envisage a need for an intelligence capability that can support elements of

Service Requirement Description	Rationale
	the existing system including being fully connected to WHO and the international science community which scan for overseas human infectious diseases that have the possibility of becoming epidemics or pandemics. There is also a 'downstream' need during outbreaks to understand traveller pathways at the border and to monitor those who enter New Zealand.
9. The solution needs to cater to a range of users and needs to ensure equity and support is provided to meet particular circumstances	Solutions need to be designed in a way that consider the needs of a broad range of users and needs such as individuals with a large whānau, those with disabilities, or certain ethnic groups.
10. The solution needs to be supported by an enabling legislative framework	A lesson from the MIQ experience was the need for a clear, fit for purpose, legislative framework to support and enable decision making and enforcement.
11. If a Crown-owned facility or facilities are built or repurposed, they would also require a compatible alternate use	The frequency of human infectious disease outbreaks that rise to a level of epidemic or pandemic may leave facilities not being required for long periods. Therefore, any facilities identified as part of the solution should also have an alternate use to ensure wider public value. This alternate use should provide for rapid access to the facility for quarantine when required.

There are a range of services that are out of scope of the proposed solution, and relate to responsibilities of other government agencies

Future quarantine and isolation capabilities will be designed to complement and evolve within a wider human infectious disease response system. However, for the purpose of this programme, there are some important limitations to the sets of capabilities and functions that the proposed solution covers. This is mainly because it is expected that the mandate for these activities or functions sits, or will sit, within other government agencies.

We recognise that any solution will need to operate as part of a unified, national, public health response system, and this this will likely involve many public agencies, including health and social service, and private sector and community providers.

A summary representation of the bounds of the proposed solution – and its placement in the overall system – is included in **Figure 6**.

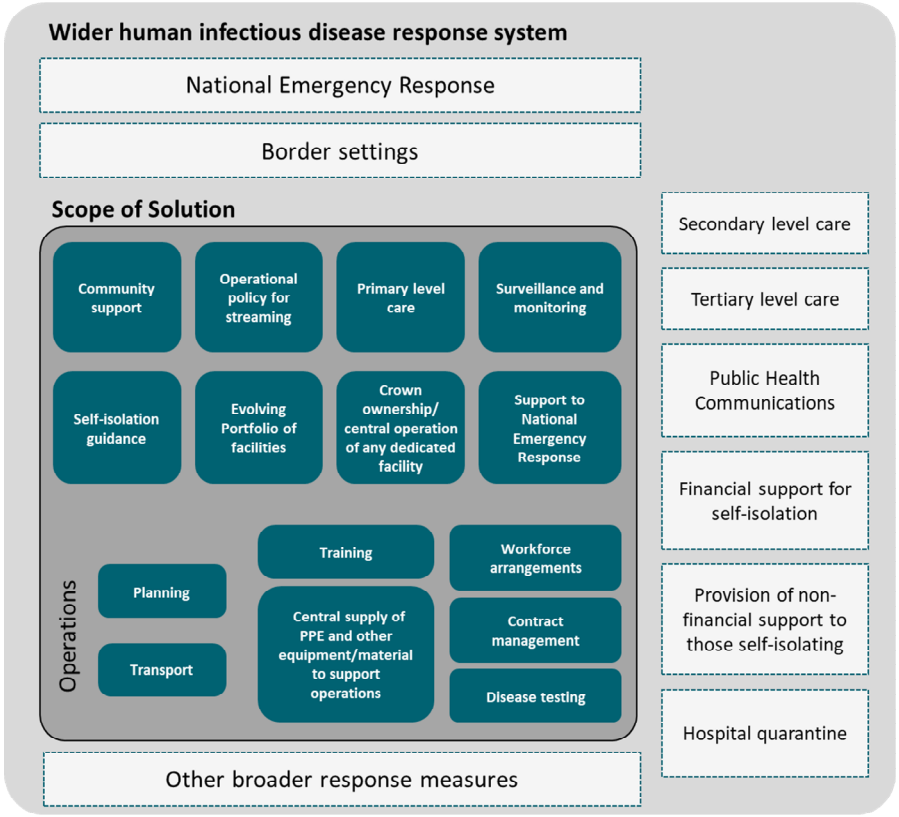


Figure 6: Scope of the NQC Solution

Risks, constraints, dependencies and assumptions

There are a number of risks to realising the objectives of future quarantine and isolation capabilities

The main risks with the potential to impact achieving the investment objectives are provided in **Table 3** below.

Table 3: Key risks and mitigations

Risk	Consequence	Untreated / no mitigation applied			Mitigation strategy
		Likelihood	Impact	Rating	
Uncertain nature of future disease threats	Inability to plan for all disease scenarios: each disease will require a different response depending on factors including its prevalence, transmissibility, transmission vector and mortality risk impacting the ability to deploy the right capabilities at the right time (and cost). Capabilities do not meet the response requirements of a specific disease threat. Novel diseases may require changes to capabilities, delaying response. Additional costs to implement modifications under urgency to meet the response requirements. Failed infection prevention. Transmission of the pathogen.	Likely	Severe	Very High	• Design of future capability to recognise and respond to most likely disease scenarios, including providing for surge capacity • Design and operation of future quarantine capability is integrated with the wider health and emergency management systems • Design and operational procedures continuously updated to align with changing environment and knowledge
Accuracy of surveillance and the speed at which a disease threat is picked up	Shortened timeframe for response impacting quality of delivery. Disease presence in New Zealand may only be picked up when already prevalent within community, limiting range of response options.	Almost certain	Severe	Very High	• Design and operation of future quarantine capability is integrated with the wider health and emergency management systems

	Reduces the effectiveness of containment measures to mitigate transmission.				
Long timeframe between potential pandemic or epidemic events	Atrophy or redundancy of knowledge, processes and capabilities or capabilities no longer being practical for current operating environment and specific disease threat. Capabilities sitting idle. Service gaps and reduced efficiency. Loss of capabilities (trained or experienced personnel, relevance of lessons learned from previous threats). Additional costs to implement improvements. Reduced importance placed on response planning and need for associated standing capabilities – public and/or political buy-in to capabilities deployment wanes.	Likely	Major	High	• Periodic quality assurance planning, review and reporting • Regular epidemic and pandemic response exercises • Ongoing action, review and updating of support plans and procedures • Ongoing intelligence and portfolio management • Regular system engagement and integration improvement work
Ongoing and extensive review and changes to the health system	Capabilities may not align with the wider health system to deliver the required response (for example, changes to DHB structure, the role of new health entities, the architecture of the new system or changes to key strategic plans (for example, the Pandemic Action Plan)). Potential efficiency and/or equity impacts from solution not being implemented as intended or designed. Additional costs to implement improvements. Stakeholder relationship impacts.	Almost certain	Severe	Very High	• Periodic quality assurance planning, review and reporting • Regular system engagement and integration improvement work
Decisions (ministerial or other body with key decision-making powers for example, health officer) taken at point where capabilities need to be utilised may not be aligned to the original intent or design	Potential efficiency and/or equity impacts from solution not being implemented as intended or designed. Health, safety, wellbeing and fairness outcomes are negatively affected. Stakeholder relationship impacts.	Possible	Major	High	• Regular system engagement and integration improvement work • Clear operating documentation such as an Operations Framework (OF) and supporting Standard Operating

						Procedures (SOPs) to clearly capture and articulate the design and operating parameters.
Insufficient market capacity (to implement preferred capabilities and/or as part of a response to disease threat)	Costs higher than expected due to supply and demand issues. Delays in service delivery due to the additional time to procure products and services. Solution may be unable to provide a fit-for-purpose response.	Likely	Severe	Very High	• Early market notice and engagement • Use of commercial and contract mechanisms to mitigate supply issues • Design and implementation of a strategic recruitment and retention strategy to secure the required expertise and services (permanent staff or retainer arrangements)
Cost drivers are annually higher than forecast i.e., cost escalation, implementation/delivery delays and optimism bias	Funding pressures for deploying capabilities requiring additional Budget funding or supplementary appropriation. Scope reduced to keep solution within the original cost estimate – solution not being implemented as intended or designed. Objectives and benefits not achieved.	Likely	Major	High	• Cost contingency allocation and management • Embed robust cost and schedule estimation processes • Embed programme governance to ensure management attention • Embed regular market reviews and monitor cost indices periodically

There are some constraints and risks to successfully delivering future quarantine and isolation capabilities at this time

1 The way New Zealand's health and emergency management system is structured, and health services are delivered, is changing.

2 There are currently gaps in the overarching strategy and policy settings for a national pandemic response.

3 Integrated cross-government pandemic preparedness work has only just begun.

4 There are currently nine infectious diseases listed as quarantinable for the purposes of 'liability to quarantine' for arriving craft and travellers under Part 4 of the Health Act 1956 (Schedule 1, Part 3 refers).

Separate from the Part 4 border health provisions, mandatory use of quarantine and isolation, either on a case-by-case basis, or as a matter of risk-based policy, is potentially available, in exceptional circumstances, for all scheduled infectious diseases under s70 of the Health Act 1956.

There are also dependencies that need to be managed

Dependency	Management approach
Annual Budget approval processes:	• Input into Budget processes • Engagement with Treasury
Government procurement processes: to establish and maintain arrangements for facilities, technology, services and workforce	• Communication and engagement with internal procurement team • Training for staff involved in procurement activities
Whole-of-system alignment and cooperation: alignment with wider strategic health and emergency management response plans, and the roles and responsibilities of different parts of the system	• Tranche of activity developed to map out how and when a national strategy and policy settings can be developed and by whom.
Sufficient forewarning of disease threat (surveillance capability)	• Design and operation of future quarantine capability is integrated with the wider health and emergency management systems
Long term agency responsible for capabilities identified / created	• Joint agreement on transition timing and capabilities to be transferred between MBIE and host agency(ies)

A number of assumptions have been made for the delivery of quarantine and isolation capabilities

1 The set of capabilities developed will be able to contain or minimise any in-scope future human disease threat, even if not perfectly designed for that specific disease.

2 Long-term agency ownership will be confirmed by Cabinet before detailed design stages.

3 There will be a number of agencies/teams responsible for delivery of subsequent stages of development.

4 The suite of capabilities developed will sit as part of a wider set of levers at the border and within the health and emergency management systems.

5 Key systems, strategies and plans will be regularly tested and refreshed to include lessons learned with assurance reporting every five years.

6 The proposed solution outlined in the economic case will be able to be established and deployed, and the Crown will retain the social licence and have the legislative framework that would be required to deliver the proposed interventions.

7 While is impossible to predict with any degree of certainty when the next pandemic will occur, a range of between a 1-in-30 and 1-in-70 year likelihood for a pandemic of similar or greater severity to COVID-19 has been assumed and is considered justified on the basis of international pandemic literature and New Zealand's past pandemic experiences, noting the possibility that both shorter and longer timeframes may also be plausible.

ECONOMIC CASE

This economic case explores a range of options that meet the requirements identified in the Strategic Case for quarantine and isolation capabilities to protect New Zealand from future human infectious diseases.

It outlines and recommends the preferred way forward and sets out the process that was followed to reach it.

Preferred Way Forward

At the heart of this PBC is the fact that both the nature and incidence of future human infectious disease threats are unknown. The proposed response recommends investment in a set of quarantine and isolation capabilities decision-makers can deploy to meet a range of potential infectious disease threats and scenarios, without limiting future choices, and limiting any regretful spend.

The preferred way forward therefore seeks to balance speed and efficacy of response, with cost, flexibility and achievability.

The Economic Case supports investment in a wider range of quarantine and isolation capabilities than the status quo

Since work began on this PBC in March 2022, there has been movement in the COVID-19 response system landscape, including continued improvements to capabilities, such as the introduction of the QIC Readiness Plan and the COVID-19 Care in the Community model.

The work completed to date provides a solid foundation from which further investment in capabilities to respond to future human infectious disease threats can commence.

We consider that any investment in capabilities achieves best value for money not by duplicating functions within a response system but by working with, and making effective use of, existing functions. To that end, proper integration and coordination between a national quarantine capability and the wider response system is important – across strategy, planning, policy, intelligence and surveillance, data-sharing and operations.

The current QIC Readiness Plan and the COVID-19 Care in the Community approach seek to leverage the knowledge, lessons learnt and supplier relationships from the COVID-19 response to ensure New Zealand has a degree of preparedness when faced with human infectious disease outbreaks in the short-medium term.

The strategic case identifies a number of issues with the current state. However, the context for how these problems and issues would eventuate in a future outbreak are unknown and, coupled with the rare occurrence of a pandemic on the scale of COVID-19, it is unknown what capabilities or interventions may be available (and required) to respond to a future event.

We are also making a recommendation on a preferred way forward outside of the completion of any wider pandemic response plan, that would consider future investment in a broader range of interventions, such as surveillance, vaccination, primary and tertiary care supports, and other possible health system mitigations.

While Option 2 and 3 come out similarly scored in the multi-criteria assessment included later in this PBC, Option 2 is significantly less expensive, less risky to deploy, and preserves the Crown's options and reduces the risk of regretful spend.

Option 2 also builds on existing capability, plans and tools which have been developed as part of the QIC Readiness Plan and through COVID-19 Care in the Community, and these plans and capabilities can continue to be improved over time through testing, innovation and developments in technology.

For reasons of efficiency and interoperability, we recommend that preparedness (strategic) leadership and readiness (operational) leadership should sit within the same agency or maintain strong links to one another and effective collaboration if dispersed across agencies.

Based on our current understanding of the response system landscape, we therefore recommend the following preferred way forward, which most closely aligns with Option 2:

Recommendation 1: Augment existing quarantine capabilities by developing an enduring national quarantine capability to deliver a strategic, integrated quarantine and isolation system

The NQC would be tasked with:

- Undertaking a comprehensive scan of the current operating environment and detailed gap analysis of the quarantine and isolation response system. (Though the PBC has delivered a gap analysis of the NZ infectious disease response system, the environment and system continue to evolve. Further gap analysis is recommended as lessons from COVID-19 are identified and wider relevant strategies and plans are updated.)
- Developing a long-term quarantine and isolation strategy, integrated with any future national pandemic plan. A fundamental objective will be to promote equitable solutions through all quarantine interventions.
- Preparing a target operating model for the future state
- Together with key stakeholders, collaboratively identify opportunities to enhance existing intelligence and surveillance functions to ensure alignment with quarantine systems
- Aligning and strengthening readiness capabilities, including through enhancements to existing self-quarantine and community quarantine planning and technologies
- Providing a broader cross-agency leadership function across the quarantine system.

Recommendation 2: Provide a wider range of managed quarantine and isolation capabilities over time to meet the challenge of future epidemics and pandemics

Arrangements with the eight hotel facilities under the QIC Readiness Plan currently run until July 2023. With additional investment, arrangements could be developed and refined over time such that:

- a wider range of functions, service models, logistics and workforce arrangements (public and private) can be incorporated into the way managed quarantine and isolation capabilities are provided
- a wider range of suitable facilities (for example, community-owned accommodation) and locations can be incorporated into the portfolio to support both border and community responses (community-based response may need delivery alongside other uses of accommodation facilities, for

example housing support for homeless or vulnerable people, or accommodation for those unable to safely self-quarantine at home.)

- there is greater assurance of access to managed capabilities in a wider range of scenarios (for example, arrangements not being dependent on border settings) in response to localised outbreaks as well as epidemics and pandemics
- quicker deployment timeframes are anticipated
- there is opportunity to innovate through additional investment in targeted design, building IPC enhancements (for example, improved ventilation systems), technology and other improvements in selected facilities and related services to enhance IPC compliance and quality of service provision.

This 'evolving portfolio' (and the capability to manage it) would be able to respond to different levels of presenting risk and a broader range of scenarios. It would be supported by a comprehensive NQC Activation Plan which will supersede the QIC Readiness Plan.

Recommendation 3: Cease exploratory work on purpose-designed facilities unless recommended otherwise in reviews of the all-of-government COVID-19 response and the New Zealand Influenza Pandemic Plan (NZIPP)

Our analysis indicates that a Crown-owned, purpose-designed facility or facilities could deliver additional benefits. However, these benefits would come with significant increased cost and risks.

Ongoing investment in quarantine and isolation capabilities as a mitigation policy against future epidemics and pandemics is needed to help ensure New Zealand does not lose the experience gained in responding to COVID-19 and is resilient in its response to future human infectious disease outbreaks. As we know, these threats are likely to increase in the coming years.

However, we recognise balance is needed between the level of investment in capabilities offered for responding to an unknown future threat, and the cost of delivering and maintaining this capability, which would come with opportunity costs.

Added to this is a health system going through significant change and facing current operational and infrastructure pressures.

This PBC has therefore concluded that its investment objectives can be well-met through less costly and risky solutions.

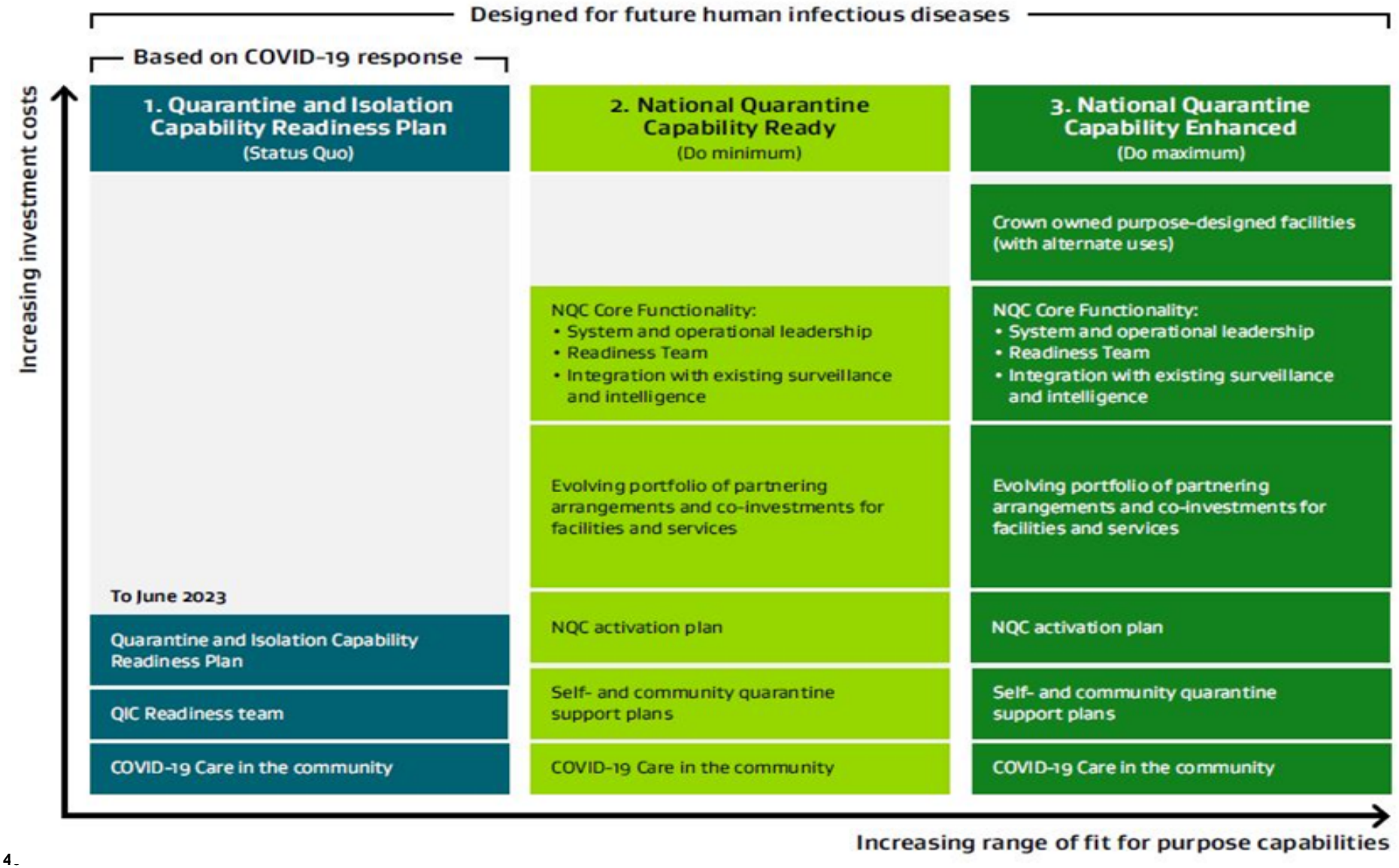
Through analysis, three options were shortlisted

The placemat diagrams that follow show the detail of each shortlist option and how each option compares.

For the purpose of the analysis, shortlist options are represented as being binary. However, in practice, and as reflected in the preferred way forward, these options are not discrete and can be viewed as a continuum of possible interventions that can be applied together in different configurations depending on risk appetite and the level of investment in potential risk mitigation sought.

In addition, we would anticipate that the current state as represented by Option 1 would continue to evolve and improve over time – that is, becoming closer in practice to Option 2.

Shortlist options



1. Quarantine and Isolation Capability Readiness Plan (Status quo)

Quarantine and Isolation Capability (QIC) combines:

- the QIC Readiness Plan, to respond to a COVID-19 variant of concern or other public health risk requiring people arriving at New Zealand's border to quarantine or isolate; and
- COVID-19 Care in the Community.

Current funding for arrangements under the QIC Readiness Plan is until June 2023, however this could be extended.

QIC READINESS PLAN

A plan to stand up and operate quarantine and isolation capabilities similar to those delivered by MIQ, including:

- A step-by-step guide for a phased implementation; an operating model blueprint; a repository of Standard Operating Procedures and guidelines; and a directory of key suppliers and critical personnel to be called on
- Commercial arrangements with eight hotels in Auckland and Christchurch, transport, private security and ICT suppliers; and MOUs with government agencies (AVSEC, Te Whatu Ora)
- Engagement with Iwi to agree how advisory services will be compensated
- An Emergency Evacuation Accommodation Plan to stand up 250–300 rooms within 1 week for a one-off emergency evacuation in both a border and non-border restriction
- Workforce surge plan for national and regional offices
- A full maintenance and testing plan
- Systems to store plans and information with shared access for relevant government agencies
- Health model of care framework
- Self-quarantine framework (updated from the 2021 Reconnecting New Zealanders framework)

A readiness team to continuously review and update the plan, mitigate implementation risks, and provide assurance on implementation as well as manage relationships, contracts and systems.

COVID-19 CARE IN THE COMMUNITY

The COVID-19 Care in the Community programme supports the care of people with COVID-19 in the community, generally in home isolation. Through Care Coordination Hubs, health, welfare and manaaki support is coordinated by providers (general practices, community pharmacies, Kaupapa Māori, Pacific Health) and government agencies (Te Whatu Ora, MSD and MBIE).

It currently includes the National Alternative Accommodation Service established to help identify self-contained accommodation for people who cannot safely isolate at home.

Managed facilities: Hotels for border arrivals only

Managed capacity: 1,500–6,000 rooms (for border arrivals)[1]

Co-governance with Māori: Part of COVID-19 Care in the Community

Time to establish full capability: Immediate

Annual running costs: $5.9m

Geographic reach:
- Facilities in Auckland and Christchurch for border arrivals
- COVID-19 Care in the Community nationally
- Self quarantine nationally

'Peacetime' workforce requirements: 22 FTE as part of Readiness Plan

Time to deploy first managed capacity: One-off 250–300 rooms within 1 week for emergency evacuees. Up to 4 weeks for facilities for border arrivals

Risk to realising outcomes: Low: already established

National disease outbreak 'mitigation' cover level

1 Basic 2 Basic + 3 Comprehensive 4 Comprehensive + 5 Premium

1. Retention contracts in place for 1,500 rooms

2. National Quarantine Capability Ready (Do minimum)

National Quarantine Capability (NQC) Ready builds on QIC, providing long-term strategic planning for managed, community and self-quarantine responses and a wider range of quarantine capabilities over time to meet the challenge of future outbreaks, epidemics and pandemics.

NQC STRATEGY
A long-term strategy that sets direction for the development and deployment of risk-based national quarantine capabilities, within wider response system strategies and plans.

NQC ACTIVATION PLAN
An activation plan aligned to the NQC strategy and maximizing the utility of portfolio options, including:
- roles and responsibilities of NQC within wider response systems
- pre-approved decision rights under enabling legislation
- documented deployment steps and operational policies
- agreed call options for services and workforce
- agreed triggers for activation and scaling of operations

EVOLVING PORTFOLIO
Portfolio of partnering arrangements for facilities and services that supersedes QIC arrangements over time, taking advantage of knowledge gain and market opportunities to enhance IPC design and service models, and logistics and workforce arrangements, while diversifying regional coverage and offloading suboptimal or surplus arrangements.

NQC CORE FUNCTIONALITY
- A system leadership function which provides quarantine capability inputs into wider strategies and plans, and operational leadership in responding to threats or outbreaks.
- A readiness team responsible for: partnering arrangements; facilities; services and technology; readiness, surge, workforce and communications plans; quarantine expertise thought leadership; guidance, advice, training and other support; and operational response readiness working with key system participants.
- Integration with existing intelligence functions to ensure quarantine capability is ready to respond to threats or outbreaks, incorporates international best practice, offers insights generation to inform decision-making, and provides real-time advice for trigger events.

COMMUNITY QUARANTINE AND SELF-QUARANTINE SUPPORT PLANS
- Community quarantine and self-quarantine, supported by the COVID-19 Care in the Community programme, are existing quarantine interventions which can be deployed in a wide range of threat scenarios.
- NQC will investigate enhancements to the existing operating model as well as emerging approaches, technologies and infrastructure over time to ensure its development into long-term, nationally consistent and future-proofed response planning.

COVID-19 CARE IN THE COMMUNITY
As per QIC (Option 1).

Managed facilities: Expanded portfolio of facilities for both border and community users

Managed capacity: Up to 6,000 rooms

Co-governance with Māori:
- Community quarantine support model and evolving portfolio
- Care in the Community

Time to establish full capability: 1–3 years

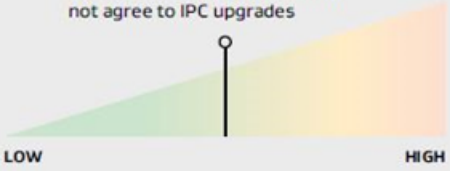
Annual running costs: $10.9–13.5m

Geographic reach:
- Evolving portfolio in targeted locations for both border and community users (as appropriate)
- Self quarantine and community quarantine nationally

'Peacetime' workforce requirements: 38 FTE for NQC Core Functionality

Time to deploy first managed capacity: One-off 250–300 rooms within 1 week for emergency evacuees. Up to 4 weeks for managed facilities

Risk to realising outcomes: Medium: non-government accommodation providers may not agree to IPC upgrades



National disease outbreak 'mitigation' cover level

1 Basic 2 Basic + 3 Comprehensive 4 Comprehensive + 5 Premium

3. National Quarantine Capability Enhanced (Do maximum)

National Quarantine Capability (NQC) Enhanced builds on NQC Ready to include Crown-Owned purpose-designed facilities at the border, offering flexibility for early and timely interventions and wider public value through alternate use where compatible.

NQC CORE FUNCTIONALITY
As per NQC Ready (Option 2).

NQC STRATEGY
As per NQC Ready (Option 2).

NQC ACTIVATION PLAN
As per NQC Ready (Option 2).

COMMUNITY AND SELF-QUARANTINE SUPPORT PLANS
As per NQC Ready (Option 2).

COVID-19 CARE IN THE COMMUNITY
As per QIC (Option 1) and NQC Ready (Option 2).

EVOLVING PORTFOLIO
As per NQC Ready (Option 2).

PURPOSE-DESIGNED FACILITIES
Up to three Crown-owned facilities with 250–500 rooms each (giving a total capacity of 250–1,500 rooms), developed over time as the nucleus of the NQC Activation Plan.

Provides access to high quality quarantine accommodation and related services, with utility for epidemics and pandemics, as well as for more localised threats and outbreaks.

Offers early, timely, targeted and repeatable interventions to threats and outbreaks; a nerve centre to evolve responses during outbreaks; and an everyday live environment for workforce training, testing processes and equipment, and piloting developments in IPC protocols, services and technology.

Potential to provide wider public value through alternate uses where appropriate, for example as a national centre for infectious diseases.

Managed facilities:
- Portfolio of facilities for both border and community users (as per Option 2)
- Up to 3 purpose-designed facilities

Managed capacity: Up to 7,500 rooms

Co-governance with Māori:
- Community quarantine support model, evolving portfolio and design of facilities
- Care in the Community

Time to establish full capability: 5–8 years

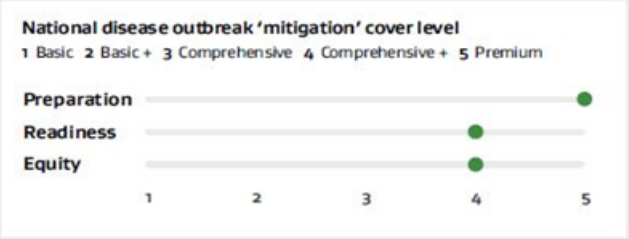
Annual running costs: $20.1–32.1m

Geographic reach:
- Evolving portfolio and purpose-designed facilities in targeted locations for both border and community users (as appropriate)
- Self-quarantine and community quarantine nationally

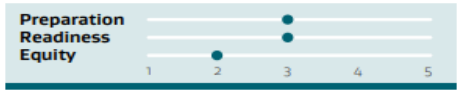
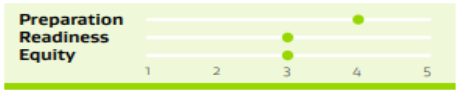
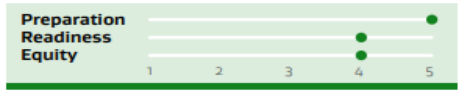
'Peacetime' workforce requirements:
- 45 FTE for NQC Core Functionality
- 34–54 in facility/ facilities (assumes no alternate use)

Time to deploy first managed capacity:
One-off 250–300 rooms within 1 week for emergency evacuees. Up to 4 weeks for managed facilities

Risk to realising outcomes:
High: construction risks and path dependency of design and operation of facilities

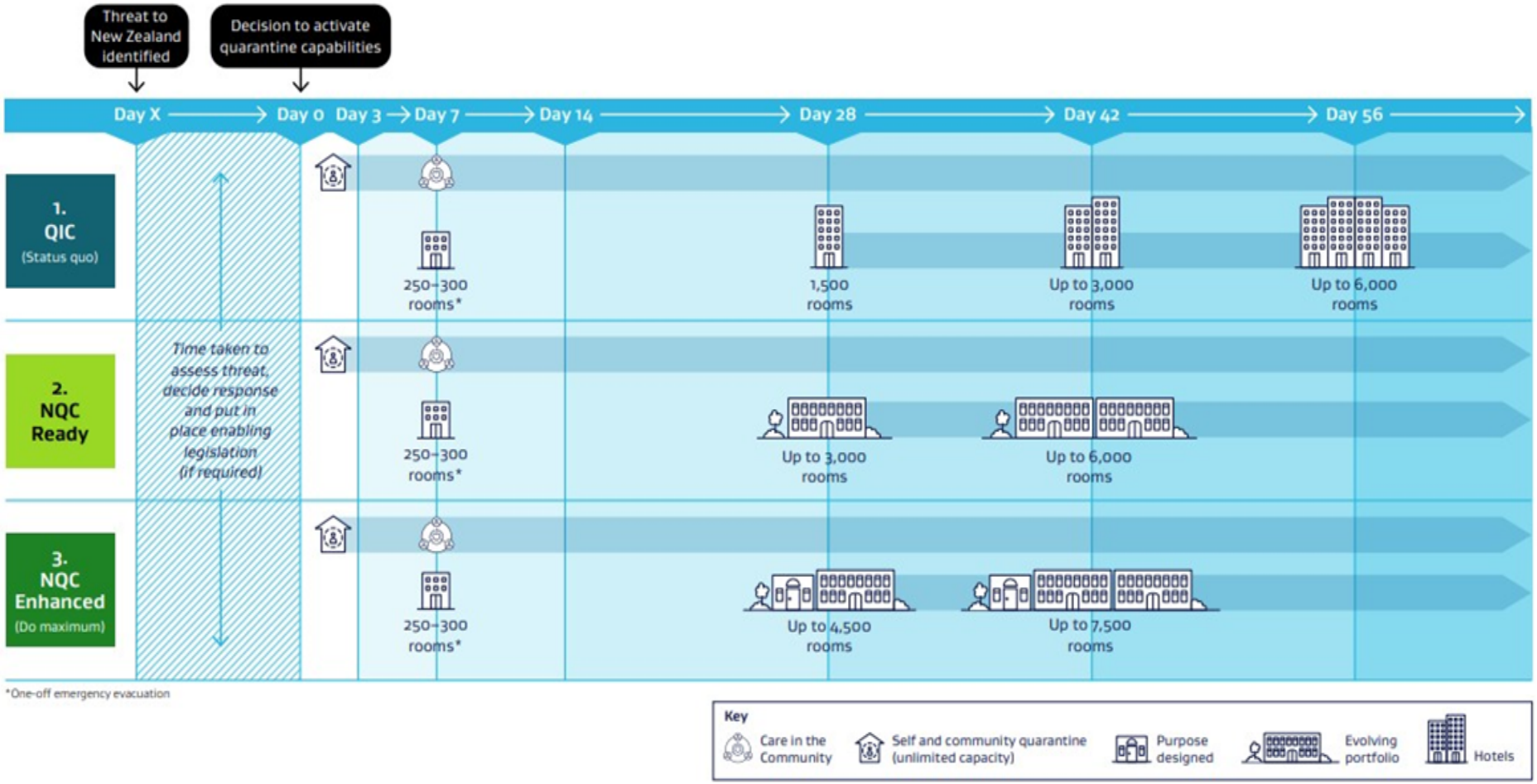


Shortlist options compared

	1. Quarantine and Isolation Capability Readiness Plan (Status quo)	2. National Quarantine Capability Ready (Do minimum)	3. National Quarantine Capability Enhanced (Do maximum)
Option components	• Quarantine and Isolation Capability Readiness Plan • COVID-19 Care in the Community	• NQC Core Functionality • NQC Strategy and Activation Plan • Self Quarantine and Community Quarantine Support Plans • Evolving Portfolio • COVID-19 Care in the Community	• NQC Core Functionality • NQC Strategy and Activation Plan • Self Quarantine and Community Quarantine Support Plans • Evolving Portfolio • Purpose-Designed Facilities • COVID-19 Care in the Community
Managed facilities	Hotels for border arrivals only	Expanded portfolio of facilities for both border and community users	• Portfolio of facilities for both border and community users (as per Option 2) • Up to 3 purpose-designed facilities
Managed capacity	1,500–6,000 rooms (for border arrivals)[1]	Up to 6,000 rooms	Up to 7,500 rooms
Time to deploy first managed capacity	• One-off 250–300 rooms within 1 week for emergency evacuees • Up to 4 weeks for facilities for border arrivals	• One-off 250–300 rooms within 1 week for emergency evacuees • Up to 4 weeks for managed facilities	• One-off 250-300 rooms within 1 week for emergency evacuees • Up to 4 weeks for managed facilities
Geographic reach	• Facilities in Auckland and Christchurch for border arrivals • COVID-19 Care in the Community nationally • Self quarantine nationally	• Evolving portfolio in targeted locations for both border and community users (as appropriate) • Self quarantine and community quarantine nationally	• Evolving portfolio and purpose-designed facilities in targeted locations for both border and community users (as appropriate) • Self quarantine and community quarantine nationally
'Peacetime' workforce requirements[2]	22 FTE as part of Readiness Plan	38 FTE in NQC Core Functionality	• 45 FTE in NQC Core Functionality • 34–54 FTE in facility/ facilities
Co-governance with Māori	COVID-19 Care in the Community	• Community quarantine support model and evolving portfolio • COVID-19 Care in the Community	• Community quarantine support model, evolving portfolio and design of facilities • COVID-19 Care in the Community
Time to establish full capability	Immediate	1–3 years	5–8 years
Risk to realising outcomes	**Low:** already established	**Medium:** private accommodation providers may not agree to IPC upgrades; medium construction risks	**High:** implementation risks associated with construction, and design and operation of fit-for purpose facilities
MCA score[3]	0.96	1.77	1.76
Lifetime costs[4]	$104m	$212–331m	$557–1,909m
Economic benefits[5]	N/A	$165–406m	$284–684m
Net present value over 40 years[5]	N/A	$(166)–$194m	$(1,625)–$127m
National disease outbreak 'mitigation' cover level 1 Basic 2 Basic + 3 Comprehensive 4 Comprehensive + 5 Premium			

1. Retention contracts in place for 1,500 rooms
2. The workforce FTEs have been developed based on what would be required to provide an adequate national and regional capability independent of specific lead agency resourcing, while also excluding common roles that would be expected to be part of any agency business partnering model.
3. A score of 0 on the MCA indicates 'average', 1 is above average, 2 is good and 3 is excellent.
4. Note the indicative whole of life costs are estimated for 'peacetime' and until 2062. For MIQ Ready, this costing assumes current provisions continue over this timeframe, rather than concluding in July 2023.
5. Net present value = Lifetime Costs – Economic benefits. Option 1 does not have an economic benefit or Net Present Value because under this option the border must be fully or partially closed. The benefit amounts displayed here are incremental to status quo Option 1 and relate to facilities only.

Estimated time to stand-up quarantine capacity in each option



Preparedness

The tabletop exercise signalled the need for improvements in the planning, coordination and operational implementation of quarantine capabilities. The QIC Readiness Plan (Option 1) goes a significant way towards addressing this.

For example, Option 1 includes partnership arrangements, the development of standard operating procedures, guidance for standing-up capabilities, Health model of care, workforce surge plans and the development of a directory of key suppliers and critical personnel. Option 1 also includes maintenance and testing of the QIC Readiness Plan.

The NQC options (Options 2 and 3) provide an opportunity to enhance the QIC Readiness Plan through continuous improvement and an innovation focus (for example, through testing and technology developments). Further, a higher level of preparedness can be achieved by enhancing existing intelligence and surveillance, in partnership with Te Tiriti partners and key stakeholders, to ensure efficient coordination and reporting of intelligence into quarantine systems. This will facilitate clearer communication and cohesion with wider health and emergency management systems, with stronger controls and guidance to prevent accidental transmission of infectious diseases.

Improved preparedness under NQC options is also achieved through the development of self-quarantine and community quarantine support plans. These will bolster the existing COVID-19 Care in the Community response by providing additional training, guidance, facilitation of logistics, and national coordination and management of community quarantine accommodation and any upgrades (as required).

While risks associated with hotels in QIC Readiness can be partially mitigated, the NQC options enable additional preparedness through the provision of managed quarantine facilities and associated services with higher building IPC and security standards, which reduce the risk of transmission events and consequent disease spread. This could be achieved through co-investment, where appropriate, in new builds or upgrades (in the case of the evolving portfolio) or bespoke design (in the case of purpose-designed facilities). When included as part of wider response strategies, these enhancements would help minimise the need for, and duration of, possible lockdowns.

However, these higher standards would only apply to the marginal additional capacity, with the remainder of managed quarantine rooms likely to be supplied through hotels or other non-adapted accommodation. Therefore, the additional benefit would be limited in cases where the human infectious disease threat is of significant scale (for example, a pandemic scenario).

Readiness

In the case of a human infectious disease outbreak, the status quo option offered in the QIC Readiness Plan will require 3-4 weeks to activate initial managed quarantine capacity of 1,500 rooms and national and regional functions to support operations of the capability. Capacity is planned to be increased later (within 6-8 weeks) to 6,000 rooms with an aligned increase in regional and national office capabilities to support full operation as required.

This is similar to the number of contracted rooms stood-up through the MIQ network in response to COVID-19 (see Appendix 2 for the capacity delivered through MIQ).

The development of the evolving portfolio offers an opportunity to negotiate arrangements with a wider range of providers on different terms, and therefore managed facilities and associated services in Options 2 and 3 may be able to respond to a wider range of scenarios. However, through the course of continuous improvements and advancements in Option 1 over time, it is possible it could be adapted to incorporate some of these benefits.

Additional readiness is offered through Options 2 and 3 through enhancements to existing self-quarantine and community quarantine planning and technologies.

Equity

The experience of operating MIQ during the initial phases of the COVID-19 pandemic was instructive in terms of understanding the impact of both the pandemic and the subsequent response on communities.

At the border, excess demand for managed quarantine facilities coupled with workforce and capacity constraints led to a supply challenge, with subsequent negative impacts on people seeking to enter New Zealand and the creation of legal risk for the Crown.

While Option 3 provides greater capacity than Options 1 and 2, this additional capacity is not at a scale that would make a meaningful difference to the need for rationing rooms in the case of a wide-scale outbreak that would require mandatory quarantine for all arrivals.

However, greater coordination, supporting allocation systems and reporting of intelligence under Options 2 and 3, in some disease scenarios, could be expected to facilitate more sophisticated triaging of arrivals at the border based on country or person-specific risk of disease spread. This would allow for a more nuanced allocation of managed quarantine capacity versus self-quarantine or community quarantine. Triaging capabilities could also be used in community outbreaks.

In some cases, MIQ had negative impacts on the wellbeing of occupants due to, for example, lack of access to outside amenities. While COVID-19 Care in the Community offers wrap around services targeting wellbeing for those isolating at home or in the community, the evolving portfolio in Options 2 and 3 provides an opportunity to access a wider range of facilities for managed quarantine that may provide a higher quality of experience of managed quarantine for the range of people using it. Option 3 goes further in providing opportunity for bespoke facilities which could be designed to better meet cultural, religious and health (physical and mental) and a wide range of other (for example, elderly, disabled, pregnant) needs, and could also incorporate mana whenua values and tikanga into their design. For example, engagement with Iwi in previous phases of the programme regarding interest in land sites for purpose designed facilities was well received with positive feedback and appetite for further discussion.

However, these advantages only relate to incremental capacity in these options, and it is possible that a significant proportion of managed quarantine rooms would remain in hotels under a pandemic scenario.

The Crown has an obligation to fulfil the commitments made under Te Tiriti O Waitangi, including partnering with Māori, facilitating participation in decision-making and providing active protection. Option 1 provides opportunities for Iwi and Māori partnership and participation through the COVID-19 Care in the Community response. Options 2 and 3 provide further specific opportunities for partnership and participation in the development of self-quarantine and community quarantine support plans.

The COVID-19 pandemic has illustrated the disproportionate negative impact of human infectious diseases on Māori. The additional efficacy of managed quarantine facilities provided by Option 2, and particularly Option 3, will allow for the strongest defence against disease threats, and therefore the strongest active protection.

These benefits would extend to other groups at disproportionate risk from specific human infectious disease threats, as the expanded range of facilities and services could be focused on protection for vulnerable communities in targeted locations. However, there is a necessary upper limit to these options in terms of managed capacity coverage with the highest IPC standards that could be offered through an evolving portfolio and/or purpose-designed facility, and so this would

need to be supplemented by community and self-quarantine support plans in large-scale pandemic scenarios.

It is difficult to estimate the economic and wellbeing benefits of the options at this stage, but COVID-19 gives us an approximation

Although the incidence of future human infectious disease outbreaks is uncertain, as noted in the strategic case, the likelihood of such outbreaks has been increasing for some time. Although New Zealand has not been affected to the same degree as other countries by previous human infectious disease outbreaks, such as SARS or MERS, the risk of communicable diseases arriving in New Zealand is considered very high.[xiv]

We anticipate that New Zealanders will expect a higher level of preparedness in the event of another outbreak, and that the social licence for many of the more restrictive measures used at the outset of the COVID-19 pandemic, such as the use of severe border restrictions and lockdowns, may not exist to the same extent the next time a significant outbreak occurs.

Improved infection prevention and control in Options 2 and 3 with the evolving portfolio and purpose-designed facilities could reduce the incidence of accidental disease transmission, providing economic and social benefits by reducing the need for, duration and severity of lockdowns and border restrictions

We know from our experience with COVID-19 that although hotels can improve their infection prevention and control, purpose-built facilities provide the strongest defence from infectious diseases, compared to facilities with other primary uses.

This is because both the physical environment and the workplace practices and procedures that they would enable provide for a greater sophistication of controls.

Based on this knowledge and the design parameters of our options, we can model the relative avoided costs each option provides as it reduces disease escape and improves infection prevention and control.

The economic costs have been risk adjusted, presuming that there is a 1-in-70 year (low probability) a 1-in-50 year (medium probability) or a 1-in-30 year chance (higher probability) of the risk eventuating.

A summary of the estimated avoided economic costs (and therefore economic benefits) for each of the options is included in **Table 5.**

We have not quantified additional benefits of strengthening self-quarantine and community quarantine

The limitations of existing self-quarantine provisions, including community-supported options for quarantining, have been well-documented[xv] and it is reasonable to expect that improvements to these will result in additional benefits, including reduced disease transmission and improved wellbeing.

[xiv] See Communicable Disease Assessment, 2017

[xv] See, for example, the Northern Region Health Coordination Centre review of two deaths in Community Supported Isolation and Quarantine, and the MBIE review of the Reconnecting New Zealand Self-Quarantine Framework

However, these have not been quantified given the wider system settings that would need to be aligned to realise such benefits.

There are also a range of wellbeing benefits that Options 2 and 3 deliver compared to the status-quo, which we have not quantified but could be expected to eventuate

In addition to the economic benefits, we know that there are a range of broader wellbeing benefits that each of the options would deliver compared to the status quo of Option 1.

We have not quantified these in this PBC, because they are second-order effects from the proposed options but are likely to eventuate for each of Options 2 and 3 to an increasing effect.

Table 4: Estimated economic benefits

Category	Description
Improved health and safety benefits for staff and workforces that would be required to staff quarantine facilities	Purpose-built facilities and/or facilities with improved IPC will also provide stronger health and safety benefits to staff that may be required to work in facilities where individuals with a novel human infectious disease are quarantining or isolating. This will allow us to ensure that staff and workers in the facilities are better protected than if they were in non-purpose-built facilities, or in facilities with weaker IPC.
Broader preparedness and training benefits	Having a clear strategy and associated activation plan will mean that it will be possible to conduct training exercises and simulations of responses to potential pandemics on a more regular basis. In addition to this, purpose-built facilities offer a live environment for training, testing and piloting developments, in turn familiarising the workforce to such environments and incrementally improving planning and operations.
Secondary mental health and educational benefits associated with a reduced reliance on localised lockdowns	A reduced need to rely on lockdowns will likely generate second-order benefits to individual and community mental health and wellbeing and educational outcomes.
Stronger equity compared to the status-quo	Lockdowns have a much stronger impact on the overall socio-economic wellbeing of those on lower incomes, compared to those on higher incomes. By avoiding lockdowns, we would prevent some of the negative impacts on low-income New Zealanders.[39] In addition, a reduced reliance on localised lockdowns and border restrictions in Options 2 and 3 will mean that individuals who work in industries that are most impacted by lockdowns (hospitality and tourism, for example) are less impacted by proposed public health interventions.

Table 5: Annualised economic benefits of each option

Benefit Type	Option 2	Option 3
Improved infection prevention and control and reduced disease escape	Presumes that the risk of disease escape from home quarantine is 1%, and staying in an evolving portfolio facility is 0.05% Cases per month that would escape: 2 cases Improvement of 1.25 cases per month means a 38% improvement in the escape rate, and an attendant reduction in the cost of a Level 3 lockdown in across the country costed @ $110m per day[40]. Presume 21 days in a lockdown similar to alert level 3 = $2,310m *.38 = $877.8m Risk adjusted value = $877.8m total * 0.014 or .02 or 0.033 = **$12.29m - $28.96m per annum in avoided economic costs**	Presumes that the risk of disease escape from home quarantine is 1%, staying in the evolving portfolio is 0.05%, and staying in the purpose-built facility is 0.01% Cases per month that would escape: 1 Improvement of 2.25 cases per month means a means a 69% improvement in the escape rate, and an attendant reduction in the cost of a Level 3 lockdown across the country costed @ $110m per day. Presume 21 days in a lockdown similar to alert level 3 = $2,310m *.69 = $1,593.05m Risk adjusted value = $1,593.05m total *0.014 or 0.02 or 0.033= **$22.30m - $52.57m per annum in avoided economic costs**
Total annualised benefits	**$12m - $29m**	**$22m -$53m**
Total NPV of Benefits over 40 years[xvi]	**$165m-$406m**	**$284m-$684m**

[xvi] The range here is primarily driven by the assumption around the likelihood of a disease outbreak; the low-end represents a likelihood of 1-in-70 years, the high-end represents a likelihood of 1-in-0/30 (once every thirty years)

Identifying the preferred way forward followed a six-step process

To determine the preferred way forward, a six-step appraisal process was followed (**Figure 7** refers).

Stakeholders were engaged throughout the options development and assessment process

Iwi[xvii] and public and private sector stakeholders were engaged in the development and refinement of the Critical Success Factors (CSFs) and in the longlist options assessment.

Engagements were essential to ensure a broad range of perspectives were captured during the options identification process

The programme team recognised that quarantine and isolation capabilities form part of a wider system, and that delivery of services will involve a range of partners from across the public and private sectors.

Engagement also supported due diligence and testing the longlist options assessments

Stakeholders assisted the programme team to better understand the potential advantages and disadvantages of options and to recognise the trade-offs between them. The engagement influenced the criteria and analysis in the Multi-Criteria Analysis (MCA), used to help identify the preferred way forward.

A list of stakeholders involved in these engagements is provided in Appendix 3.

[xvii] Iwi and network from the MIQ Iwi Engagement group, which included representatives from the areas MIQ facilities were located between 2020-2022.

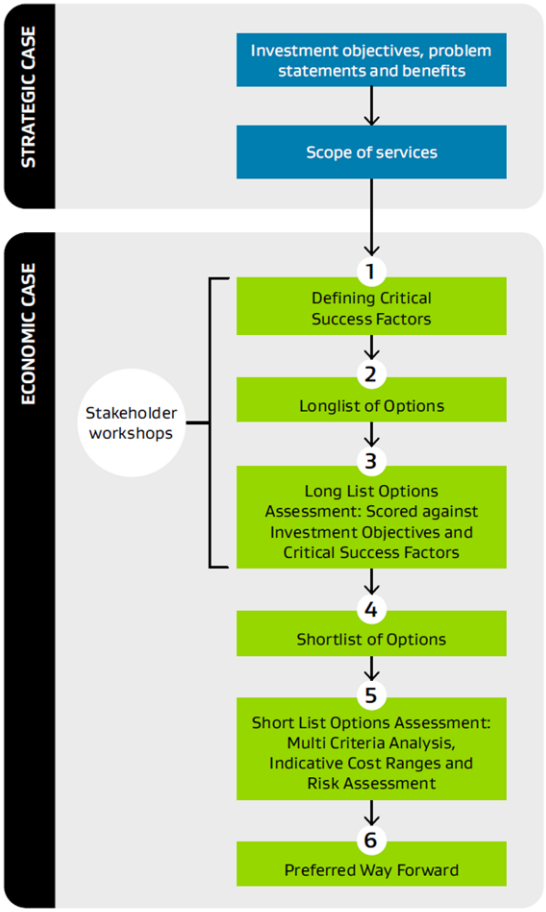


Figure 7: Six-step approach to identifying the recommended preferred way forward

Four Critical Success Factors for investment were identified (Step 1)

Table 6 below sets out the Critical Success Factors that must be met to achieve the objectives in delivering future quarantine and isolation capabilities. These were informed by the problem statements, investment objectives and programme benefits identified in the Strategic Case.

The CSFs were approved by the Sponsors' Group on 17 May 2022.

Table 6: Critical Success Factors

Critical Success Factor	Description	Weight
Strategic fit and business needs	How well the option: • helps to mitigate the threat posed to New Zealand by future human infectious diseases with epidemic or pandemic potential • enhances the wider system response to future human infectious disease outbreaks • prevents community transmission or the spread of serious human infectious diseases • supports individuals and groups from different community profiles to isolate and quarantine safely and effectively, including pastoral care and culturally appropriate support • allows time for other measures to be implemented and reduces the load on domestic public health responses • balances the rights of individual New Zealanders with collective rights of the people of New Zealand • recognises the Crown's obligations under Te Tiriti	30%
Flexibility	How well the option: • can be scaled up or down in response to demand pressures	30%

Critical Success Factor	Description	Weight
	• can deliver against different levels of compliance needed in different risk environments • can be deployed early, quickly, efficiently and effectively	
Potential value for money	How well the option: • optimises value for money (i.e., the optimal mix of potential benefits, costs and risks)	20%
Potential achievability	How well the option: • aligns with available resources and capability (i.e., health workforce, etc), and capacity (i.e., location flexibility) for successful operation and delivery • matches the ability of potential suppliers to deliver the required services • can take advantage of current accommodation offers in the broader market	20%

A longlist of potential options was developed by the programme team (Step 2)

The longlist options identified for delivering future quarantine and isolation capabilities are provided in **Table 7**. The options were developed by the programme team and approved by the Sponsors' Group on 17 May 2022.

Table 7: Longlist options summary

Option Name	Brief Description
Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)	The Quarantine and Isolation Capability Readiness Plan and associated arrangements for re-establishing managed quarantine and isolation capabilities for international arrivals in response to a significant public health threat.
Option 2: Self-quarantine	Self-quarantine in private accommodation, with guidance and direction by appropriate authorities.
Option 3: Community support	Quarantine services delivered in partnership with Iwi and community groups.
Option 4: Repurpose existing government assets	Repurpose existing government assets (for example, Defence land and facilities) to deliver managed quarantine and isolation services.
Option 5: Rent accommodation	Rent accommodation (e.g., hotels and motels) and work with the private sector to deliver managed quarantine and isolation services.
Option 6: Build or buy dedicated facilities	Build or buy dedicated facilities to deliver managed quarantine and isolation services.

The longlist options were developed at a high level to capture the ways quarantine and isolation capabilities could be delivered, providing solutions which could respond to various disease scenarios, outbreak locations and sizes.

The attributes which define each longlist option across the following four dimensions includes:

1. Service Delivery – who can deliver the services?
2. Service Solution – how can the services be provided?
3. Scope and location – In relation to the proposal, what levels of coverage are possible?
4. Implementation – when can services be delivered?

Further detail on these attributes is included in Appendix 8.

The longlist of options was assessed through a series of stakeholder workshops (Step 3)

A discussion with some existing MIQ Iwi representatives, followed by workshops with public sector stakeholders on 13 May 2022 and private sector stakeholders on 16 May 2022, were held to assess the longlist options.

During these workshops, attendees were split into smaller groups to systematically assess the longlist options against the investment objectives and CSFs.

Each option was ranked on its ability to: Meet (green), Partially Meet (amber), or Does Not Meet (red) the investment objectives and CSFs.

An overall assessment for each longlist option was then produced by the programme team, based on an amalgamation of all scores. Following stakeholder feedback, and to reflect advancements in the wider system over the course of developing the PBC, the scoring of longlist options was subsequently revisited and revised.

A summary of this is included in **Table 8** below. The detailed options assessment is included in Appendix 9. Stakeholder feedback on the strengths and weaknesses of options is summarised in Appendix 10.

Table 8: Longlist option assessment

Option	Assessment	Rationale
Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)	Proceed	This has been scored as 'meets' due to the history of MIQ showing that it is achievable and successful.
Option 2: Self- quarantine	Proceed	This has been scored as 'partially meets' as while self-quarantine will likely form part of a response in almost all scenarios, there are monitoring and enforcement challenges.
Option 3: Community support	Proceed	This has been scored as 'partially meets' as the capacity and capability of potential community providers varies by region.
Option 4: Repurpose existing government assets	Proceed	This has been scored as 'partially meets' as it depends if an appropriate government asset exists.
Option 5: Rent accommodation	Proceed	This has been scored as 'partially meets' as it depends on what private accommodation type is used and if owners agree to use their facilities for quarantine.
Option 6: Build or buy dedicated facilities	Proceed	This was scored as 'meets' as facilities could be built to be fit-for purpose and MIQ are already aware of potential sites that exist.

The longlist was combined into a suite of packaged options to form the shortlist

The longlist identified a set of discrete capabilities. However, following feedback it was determined that a combination of the longlist option choices would likely be required within the design and delivery of any future quarantine and isolation capabilities, given the inherent uncertainty of future human infectious disease threats and the need for flexibility to respond to these.

Following the stakeholder engagement workshops, the programme team reviewed the scoring and detailed feedback received to develop a shortlist of viable, 'packaged' options, plus the status quo option of the QIC Readiness Plan and COVID-19 Care in the Community.

Appendix 11 describes why and how elements of the longlist options have been incorporated into the shortlist

Each shortlist option includes support planning for self-quarantine and community quarantine to allow for better responsiveness, scalability and flexibility

While self-quarantine as a discrete option may not be suitable for all people, for example, those who can't safely isolate at home, it is likely to form part of a response in almost all scenarios, with this option being the least restrictive on rights, and so should be used according to the principle of utilising the least restrictive available measure that in an individual's or court's judgment will achieve the objective of minimising the public health risk posed by a person.

In the case of community quarantine, regional disparities might limit the ability of some providers of quarantine facilities and services to meet the needs of their communities. However, both options facilitate the greatest degree of scalability for any response and have therefore been integrated within the shortlist options.

Each option also features access to managed quarantine facilities or accommodation to provide the strongest protection from disease spread

Each shortlisted option includes access to quarantine facilities or accommodation, by way of contract, co-investment or Crown ownership.

Such facilities or accommodation options were considered to be the most effective intervention to prevent severe human infectious diseases from spreading in the community, as well as enabling the provision of quarantine services to those who cannot safely quarantine elsewhere.

To better support preparedness, core NQC functions are included in Options 2 and 3

The tabletop exercise revealed that the response system needed an overall 'operational coordination' or collaborative leadership function to assist with the implementation of quarantine and isolation capabilities when these are required.

For this reason, the programme team has proposed the inclusion of core NQC functions within shortlist options 2 and 3. This reflects the importance of cross-government collaborative functions to coordinate preparation (e.g., plans, contracts relationships, etc), monitor infectious disease outbreaks, and provide training, guidance and support to quarantine providers.

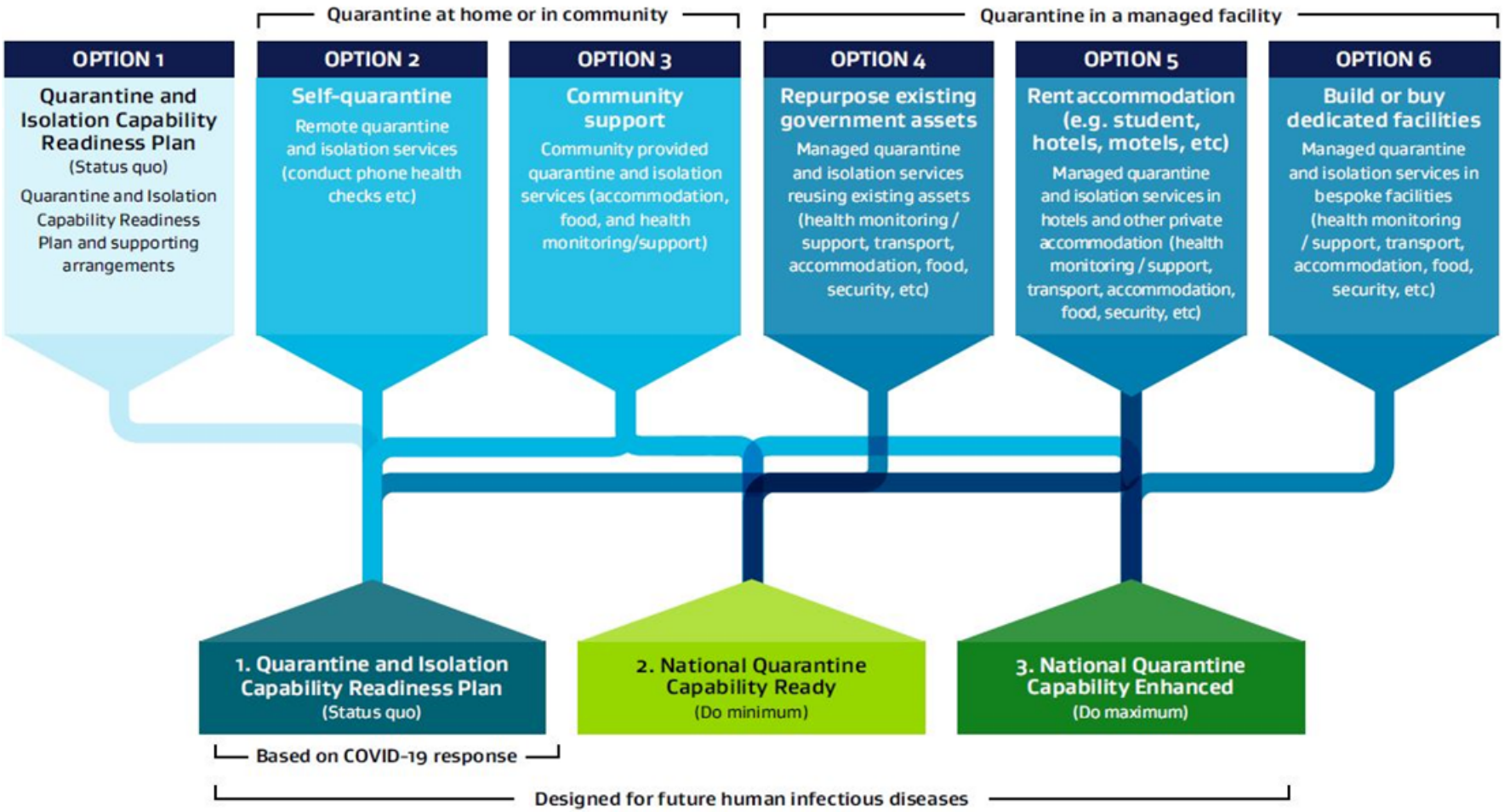


Figure 8: Moving from longlist to shortlist options

Analysis was undertaken to compare shortlist options (Step 5)

A Multi Criteria Analysis was completed to understand the degree to which the shortlist options would meet the problem statements, investment objectives and benefits identified in the Strategic Case.

Shortlist options were assessed and scored against criteria developed by the programme team. The development of criteria was informed by the CSFs (see Appendix 12).

Following stakeholder feedback and advancements in the wider system over the course of developing the PBC, the MCA was revisited with key stakeholders to validate the original scores. The relative scores and option rankings from this exercise are provided in **Table 9** below.

Table 9: Shortlist option MCA scores

	1. QIC	2. NQC Ready	3. NQC Enhanced
Score	0.92	1.67	1.64
Ranking	3	1	2

Indicative costs from the financial model were included. An internal workshop was held to identify risks to achieving outcomes (summarised in Appendix 13). Both financials and risks were then combined with the MCA to provide a complete comparison of shortlist options to help inform the preferred way forward.

The analysis shows that Option 2 provides the best balance of costs and benefits

Based on the economic case analysis, it was determined that Option 2 provides the best balance of costs and benefits, delivering an expanded suite of quarantine capabilities without risking regretful spend. This option allows adaptation over time as more information becomes available around both effective quarantine responses and the shape of the wider disease response system.

COMMERCIAL CASE

The procurement needs

This case outlines the proposed procurement arrangements for delivering Option 2 as recommended in the Economic Case.

It contemplates the need to commercially transition from the QIC Readiness Plan to NQC and outlines the proposed key commercial principles and high-level selection criteria to support procurement.

A range of capabilities need procuring to deliver the preferred way forward

The preferred way forward contemplates an initial continuation of the retention contracts under the existing Readiness Plan

Retention contracts are in place under the Quarantine and Isolation Capability Readiness Plan for access to MIQ facilities. These arrangements are currently funded and set to expire on 30 June 2023.

Some retention contracts continue to be contracted under rule 12.3, Military and Essential Security Interests, of the Government Procurement Rules (transport and security are contracted under traditional procurement approaches). Any extension of contracts that were contracted under Rule 12.3 would need to consider Government Procurement Rules and follow the high-level procurement processes outlined in this Commercial Case. Additional funding will also be required beyond June 2023 to maintain access to these facilities under the retention contracts.

The retention contracts are between MBIE and external providers. If changes are made to the lead agency, the arrangements will be novated to, or re-negotiated and signed, as agreed with the external providers and the new lead agency.

There is an opportunity to review contracting arrangements to support a broader range of providers and facilities

The current contracts for facilities are structured primarily to support border cases and quarantine and isolation. The facilities were all used in response to COVID-19, but it is likely that the programme would want to consider alternatives to these and provide an opportunity for other providers to bid, noting that facilities in communities are likely to have different requirements and contracting arrangements compared to those as part of the existing retention network.

The contracts put in place as part of the QIC Readiness Plan will require expansion and review

The retention contracts put in place for the QIC Readiness Plan will require commercial review to assess whether they remain appropriate for the preferred way forward. The review will consider the extended length, cost, any additional or new requirements for a trigger event, risk transfer and increased scope, including the potential to explore and manage future investment by Government into facilities.

The preferred way forward contemplates an expansion of the type of contracts utilised to support retention arrangements, as well as increasing the number of retention contracts required, time to stand up operations and subsequent commercial management. It is also likely that different approaches to contracting

and partnership would be explored. For example, some suppliers and providers could be sourced through retention contracts; in other instances, MoU arrangements may be more appropriate.

Each approach will follow the high-level approach outlined in this Commercial Case.

There are a range of other capabilities that will need to be procured for an NQC

To deliver an NQC, the services covered by retention contracts will need to cover some technology, workforce and ancillary services, following the procurement and commercial processes outlined in this PBC.

Delivery of the preferred way forward requires acquiring the following capabilities:

Component	Description
Technology	Back-office technology solutions to support NQC Core Functionality, enabling rapid scaling, time sheeting and rostering for temporary staff, payroll, inventory management and basic communication across diverse teams and organisations, if the host agency does not have this capability. A range of technology solutions will also be considered to support allocation and streaming of potential individuals between self-quarantine, community-supported quarantine, and quarantine in a managed facility.
Workforce	Procurement for potential supplementary resources to existing BAU resources, and the potential to draw on the contractor and consulting market to staff up as required, as aligned with the current retention and workforce surge plans.
Ancillary Services	Implementation of other arrangements to ensure ancillary services is available. Ancillary services include standby temporary management services, transport services (air and land) and other services that may be required in a to enable the move beyond readiness.

In sourcing these capabilities, the scope of procurement covers:

- Engagement, negotiation and provisional agreements with identified providers in relation to the provision of accommodation facilities and support services; and
- Undertaking the selection and contracting processes for the services/functions identified.

The precise scope of services, sourcing approach and packages would be determined through the scoping phase of the procurement process and as detailed requirements are developed.

The procurement strategy

Procurement activities should fulfil Te Tiriti o Waitangi obligations and achieve broader outcomes

The procurement strategy shall be applied to any of the options to be explored further

The procurement strategy outlined in this section provides an overarching strategy for all options discussed in the PBC, with varying opportunity to engage the market in a manner that fosters positive relationships with Māori and drives positive broader outcomes.

Further exploration of any of the options shall include procurement strategies specific to the activity to be undertaken.

Commercial and procurement activity will be consistent with obligations to Te Tiriti o Waitangi

The procurement approach recognises the importance of fostering partnership and creating positive health outcomes for Māori. Procurement activities will:

- Foster partnership between the Crown and Māori, in line with the principles of Te Tiriti in all commercial and procurement activity
- Maintain consistency across government where appropriate, particularly in relation to references to Te Tiriti in contracts.
- Ensure procurement processes are aligned to the principles of Te Tiriti early in the procurement process.
- Identify any preference to Iwi and Māori in the planning or business case phase and how that preference will be communicated in any competitive procurement process
- Explore options for co-design of the procurement process
- Develop strong relationships and partnerships with Māori providers

We will support the Government's Broader Outcomes

Procurement activity must take a thorough, exhaustive approach to Broader Outcomes opportunities. This means:

- All applicable commitments will be implemented through procurement planning, design, delivery and ongoing management phases.
- Our commitment will be discounted by exception. Compelling circumstances must exist to discount an applicable commitment. The discounting of any applicable commitments must be explained and justified via the relevant procurement plan.

Table 10 sets out the high-level commitments against each Outcome. These commitments are intended to form a baseline of activities to be undertaken as part of each procurement activity

Table 10: High-level commitments to Broader Outcomes

Broader Outcome	Commitments
Increasing access for New Zealand Businesses Increasing access to government procurement contracts for New Zealand businesses, with particular focus on those less able to access opportunities and those working in priority sectors (such as ICT, Māori and Pasifika businesses and businesses in the regions).	• Engaging intermediaries such as Amotai to understand opportunities to engage a wide base of external providers. • Aim to award contracts to a diverse pool of New Zealand-based suppliers, including Māori, Pasifika, female-owned and local (regional) suppliers where possible. • Look for local business from all industries • Design opportunities to enable a diverse pool of NZ-based suppliers to participate.
Construction skills and training Increase the size and skill level of the domestic constructions sector workforce and provide employment opportunities to targeted groups	• Include specific requirements for skills and training where possible, and reporting and monitoring obligations in the applicable contract arrangements. • Encourage sub-contracting arrangements where possible, to support upskilling of local/regional workforces. Provide the ability to look-through sub-contract arrangements to ensure fair allocation of risk. • Partner with organisations delivering training and accreditation initiatives in the construction sector.
Improving conditions for New Zealand workers Improve conditions for workers and future-proof the ability of New Zealand business to trade.	• Ensure good employment standards for employees directly and indirectly (e.g., via sub-contracts) that include the living wage as a minimum level of pay and sound health and wellbeing standards. • Consider the impact of the ask on the market during the engagement and design phases and keep an open dialogue with suppliers and communities to limit the impact of projects on constrained groups/workforces. • Include specific requirements for skills and training (non-construction sectors) where possible and reporting and monitoring obligations in the applicable contract arrangements. • Partner with organisations delivering training and accreditation initiatives in the relevant sector.
Reducing emissions and waste Support the transition to a zero net emissions economy and reduce waste from industry by supporting innovation.	• Consider how the programme can contribute to the Carbon Neutral Government Programme (CNGP), • Include specific requirements for waste and emissions reduction in both the supply chain and the delivery of goods/services. • Engage with suppliers and communities early, to understand the innovation and emissions/waste reduction opportunities during the procurement planning phase.

The procurement approach will comply with Government Procurement Principles and Rules, and the procurement processes and policies of the receiving agency

The Government Procurement Rules must be followed

Any procurement must follow the Government Procurement Rules unless specific exemption or opt-out is approved in accordance with approved delegated authority. This is required as part of the procurement planning process.

MBIE has not run an open tender process and executed current retention contracts under an exemption to the Government Procurement Rules. As part of the MBIE approval to the exemption, a commitment to undertaking a full and open procurement process was made should facilities be required beyond June 2023.

The NQC Programme will plan to incorporate within the Government Procurement Rules.

The principles of Government Procurement underpin the procurement approach

The five principles of Government Procurement underpin the procurement strategy:

- Plan and manage for great results
- Be fair to all suppliers
- Get the right supplier
- Get the best deal for everyone
- Play by the rules.

These principles apply even if the Government Procurement Rules do not.

The Procurement Strategy will also consider broader social procurement goals under development

The Government is committed to work to stamp out migrant worker exploitation with a focus on exploring the implementation of modern slavery legislation in New Zealand to eliminate exploitation in supply chains. The NQC Programme will commit to the goals associated with the legislative and policy response in development to modern slavery and worker exploitation.

A Procurement Strategy will be prepared describing the broad procurement approach and principles

An overarching procurement strategy will be prepared outlining the principles, methods, practices, and accountabilities for procurement activities. Detailed procurement plans will be developed for each project within the programme, as required.

Procurement methodology

There are a range of procurement approaches that enable delivery of an NQC

The methods proposed for delivery include:

Method	Description	Procurement approach
Leverage	Utilise current tools within host Agency or Government	Use of existing tools provided by facilities or host agency with amendment or extension of existing contracts
Procure	Acquiring the capability to support the NQC through a standard buyer – provider approach.	Utilisation of existing All of Government contracts, go to market for new products
Retain	The use of stand-by or other contracts to establish and stand-up support as required, either with Government, private or other third-party providers.	Implement stand-by contracts with providers ready for implementation should they be required
Partner	Working with other government agencies, Iwi and / or the private sector to a common goal.	Canvas and discover opportunities where there is value in collaborating to create a partnership to deliver the NQC.

There are a number of options available within these basic methods that target the transfer of risk. Each method will be reviewed against the requirements for the capabilities to ensure benefits are maximised.

A three-step procurement process, including market engagement is proposed

Subject to approval of this PBC, the programme will likely conduct market engagement to inform future procurement activities, in advance of the expiry of the existing retention contracts.

It is likely that this activity would not commence until early 2023 and would include an early analysis of the type of contracting approach that is likely to be the most appropriate for each set of services.

This would include developing an assessment of the best form of contracting to conduct with various suppliers, depending on the type of capability provided. This may include, for example:

- Memorandums of Understanding (MoU)
- Cross-agency agreements or partnerships to draw on resources across the public service
- Partnering arrangements between local and central government
- Registrations of Interest (ROI)
- Requests for Proposal (RFP)

A tendering process will broadly be made up of the following standard steps:

- premarket engagement to test interest, capability and capacity.

- an open, competitive tendering process through ROIs
- a closed, competitive tender process through a Request for Proposal (RfP).

As there are other significant activities in the health and disability system and the broader Government sector which could result in supply-side capacity and capability constraints, the intent of market engagement will be to ensure the programme is attractive to suppliers.

Contractual arrangements

The programme requires capability provided across various types of providers. These include commercial suppliers, other government agencies and non-government organisations. Contractual engagement may take the form of:

- Commercial supply contracts (including, where suitable, existing supply arrangements with the Lead Agency and, for example, All-of-Government panel and syndicated contracts and services via DIA Marketplace that may already be in place)
- Memorandum of understandings, between Crown entities and providers
- Participation agreements (used to access other government agency contracts).
- Partnering arrangements with Iwi and Māori
- Partnering arrangements with other community or commercial providers.

The duration of each contract will vary, depending on the nature of the activity being undertaken, the complexity of the relationship and services being provided.

Contracts established to respond to a new infectious disease threat will need to carefully consider the risk that services may not be available or available in time when a trigger event occurs. The contracts will need to contemplate the scenarios they may need to be utilised under and provide realistic delivery timeframes.

Contract management plans will be put in place for each contract

Contract management plans will address:

- Supplier relationship management
- Contract administration
- Contract provider performance management.

The Contract management plan will consider and assess whether the agreements fall within the requirements of being classed as Significant Service Contracts.

Each contract will have a contract manager appointed.

Evaluation process

A cross-functional team will evaluate bids and recommend the preferred supplier for each [stream / project / tender] as relevant to the procurement being undertaken. The evaluation team(s) will have a broad coverage of skills, including representation from senior roles within the Ministry and, where relevant, partner agencies.

Evaluation criteria will generally be weighted and follow the technical merit of the proposal, the provider's capability and capacity to deliver, Broader Outcomes and value-for-money.

Probity will be of paramount importance when conducting procurement activity

A probity plan will be prepared to guide the promotion and application of probity practice and to ensure probity risks are identified and managed.

Procurement activity will be conducted in accordance with the following six key 'probity fundamentals' as stated by the Office of the Auditor-General:

- Accountability
- Openness
- Public value
- Lawfulness
- Fairness
- Integrity.

A probity management plan would be established as part of the programme establishment, to cover all aspects of the programme including procurement.

A number of risks to procurement have been identified

Risk	Mitigation
External vendors do not accept transfer of retention contracts	Early engagement where the decision to change the lead agency is made. If agreement is not reached, alternate external providers are sourced in accordance with this Commercial Case.
from MBIE to a future lead agency	
Lack of clarity of what retention contracts can deliver	Clear guidance and information the scope, extent and capability of retention contracts as drafted.
Relationship with providers not well managed	Clear handover and detailed handover documents to lead agency supplier and contract relationship teams on lead agency on signing and established supplier relationship methods.
Broader Outcomes objectives not supported or delivered	Clear focus and commitment from Programme delivering agency and with the Programme Board. Support from New Zealand Government Procurement where required.
Provider instability	Ongoing supplier and contract relationship management by lead agency
Lack of provider competition	Engage a wide range of market services

FINANCIAL CASE

Overall funding requirements

Funding for FY23/24 and FY24/25 needs to be secured now to progress the first tranche of work under Option 2

All current funding for the Isolation and Quarantine Management MCA currently expires on 30 June 2023.

To progress work on Option 2, we need to secure funding now to conduct initial investigative activities (for example, the capability gap analysis), and roll over the Quarantine and Isolation Capability Readiness Plan – in advance of any further investment in additional capabilities contemplated by Option 2 (for example, the evolving portfolio).

We estimate that this first tranche of work, over FY 23/24 and FY24/25, will require funding of approximately $5.5 million per annum.

As work under Option 2 progresses, bids may be required in future Budget cycles to secure the full funding required to give effect to Option 2.

The indicative on-going running costs of Option 2 in 'peacetime' are estimated to be between $10.9m and $13.5m per annum

These costs include:

- The annual costs required to hold a set of retainer contracts for a range of facilities and services, as noted as part of the 'evolving portfolio'
- A small team that would maintain preparedness capabilities for re-activating quarantine capabilities; and,
- Costs of BAU resources that can progress the work programme as outlined in the Management Case.

We have also included indicative annual running costs of all options operating at full capacity. These annual operating costs indicate the upper level of potential operating expenditure in response to a pandemic on the scale of COVID-19. A number of significant assumptions were made to forecast these costs (see table below) resulting in low confidence in their veracity. The economic benefits of establishing and maintaining these options as an insurance policy against future infectious disease are outlined in the Economic Case. Those benefits are not factored into the forecast annual operating costs here.

We have also included estimates of the nominal whole-of-life costs of each of the options, in line with the principles below.

- Total operating costs for each of the options beginning in FY 23/24, and using a whole of life assessment period of 40 years, ending in FY 62/63

- Inflation in line with the Treasury's most recent forecasts, which estimates higher inflation in FY 22, FY 23, and FY 24, before returning to a long-run inflation forecast beginning in FY 25
- Differing contingency amounts of between 5% and 50%, depending on the level of uncertainty associated with the functions and activities, with higher contingency amounts applied to estimates for the evolving portfolio and Crown-built facilities, representing the higher degree of uncertainty associated with these activities.

Table 11: Annual running costs

$m	Option 1	Option 2	Option 3
Annual costs	$5.9m	$10.9m - $13.5m	$20.1m - $32.1m
Annual Operating Costs at Full operating capacity	$600.0m - $800.0m	$600.0m - $800.0m	$800.0m to $1.0b

A summary of the total nominal costs of each of the options, inclusive of inflation and over the whole-of-life period of the programme is included in Table 12 below.

Table 12: Total nominal whole-of-life costs to the Crown for each option

$m	Option 1	Option 2	Option 3
Operating cost	$375m	$701m - $948m	$1,311m - $2,168m
Capital cost			$154m to $1,169m
Depreciation			$154m to $1,169m
Capital charge			$338m to $2,525m
Contingency	$19m	$243m to $300m	$825m to $3,342m
Total nominal costs	**$394m**	**$944m to $1,248m**	**$2,782m to $10,372m**

Total nominal cost estimate ranges of the Options, over the whole-of-life of the proposed investment, inclusive of inflation and including both cash and non-cash costs.

The significant range in costs for Option 3 is based on both the use of capital in this option, and a wide range of potential rooms for the facility – from 250 potential rooms up to 1,500 potential rooms, and the significant contingency applied to the cost estimates associated with the inherent risk of any construction project prior to the completion of concept and/or detailed design.

Lifetime costs, used for comparison in the economic case, are discounted total nominal costs (using an annual discount rate of 6.0%).

A cost model supporting the estimates included in this programme business case has been developed

A cost model supporting the estimates included within this PBC has been developed by the programme team, including the key input assumptions for funding requirements. A copy of the detailed model is available on request.

A detailed list of the key assumptions supporting the financial case are included in the tables, overleaf.

Category	Assumptions
General structure of the cost model	The cost model develops each of the options outlined in the economic case (Option 1, Option 2 and Option 3) using what is known as a 'building blocks' method. This attempts to cost each component of the options (as presented in the Economic Case on Page 37) as independent 'blocks', before combing them into option packages. The blocks included in the cost model are: • Blueprint – the costs associated with developing the Blueprint • Retention – the costs of the existing Retention contracts and arrangements for eight hotels under the QIC Readiness Plan (assuming these continue for 40 years rather than ending in June 2023 as is currently funded) • Readiness Team – the costs of the Readiness team that would be required to activate the QIC Readiness Plan • Implementation Costs – the costs of the team that would be required to implement the preferred way forward • Self-Quarantine and Community Quarantine Support Plans – the costs associated with providing guidance, support and tools to individuals and communities to support self-quarantine and community quarantine options • NQC Core Functionality Team – the costs associated with running and operating the proposed NQC Core Functionality Team • Evolving Portfolio – the costs associated with providing an evolving portfolio of up to 16 quarantine facilities which, under Options 2 and 3, would replace the Retention block. This also includes making some operating contributions to improving some facilities' IPC specifications at $6m per facility (represented as operating grants in the financial modelling) • Crown-Owned Purpose-Built Facilities – the costs associated with developing potential purpose-built quarantine facilities that would be owned and operated by the Crown **The costs presented in this financial case are what we refer to as 'peacetime' costs.** That is, these are the costs of providing risk mitigation against a future human infectious disease outbreak. Should an outbreak occur, there will of course be additional operating expense to respond to a particular event that would be **over and beyond** the cost estimates included in this financial case.

	The **indicative full operating capacity annual running costs** outlined in table 11 are predicated against the following assumptions: • They represent the total anticipated annual Opex costs of each option, operated to their fullest capacity/extent for a 12-month period in response to an infectious disease. • As such, the predictive costs represent a worst-case infectious disease pandemic. • In line with NQC intent, it is likely that options 2 and 3 would be used to preventatively mitigate/manage the threat of outbreaks and epidemics, thus they would reduce the likelihood of wider spread and scale. • These predictive costs are 'low confidence' as they are forecast over an extended period (5-30 years), during which many operational costs are likely to fluctuate considerably (for example, workforce and technological evolutions.) • The numbers are calculated on a pro rata basis, reflective of the number of rooms available in each option at full operating capacity. The baseline cost estimate is the actual total expenditure incurred during the Covid-19 pandemic. • There is no adjustment for NPV or Discounted Cash Flow for these numbers. They are all based on values at the time of writing. • These costs do not factor in the economic benefits outlined in the Economic Case in the PBC. • The cost of a room is roughly the same as it was during the Covid-19 Pandemic. • There is no cost difference between Options 1 and 2 because there is no difference in the expected overall capacity; however, speed and reach at full capacity is anticipated to be greater for Option 2. • Cost savings generated through efficiencies over time (for example, through evolving technology) are not included in these estimates. The cost estimates here are simply based on the Covid-19 response experience and the efficiencies learned therein. • Additional room capacity in Option 1 is not certain, so there is less cost certainty around Option 1 than Option 2. The risk premium involved with Option 1 could mean that it would cost more to set-up than Option 2; however, this does not affect the numbers above as these costs only reflect the facilities at full operating capacity.
Overhead assumptions	For each FTE assumed in the cost model, a generic $50,000 in additional overhead costs are applied to each FTE. A generic overhead amount is used, as it is not settled on the host agency in which any potential solution would progress.

Headcount estimates (largely drives the cost estimates associated with the NQC Core Functionality Team)	The headcount and FTE estimates come from initial operating model work conducted on Options 1, 2, and 3. A detailed copy of the workforce pack supporting these estimates is available on request, but the presumption is that Option 1 requires the existing 22 FTEs funded as part of the QIC Readiness Plan, Option 2 includes an incremental 16 FTEs to bolster capabilities within public health (for example, intelligence analysis, community engagement specialists, commercial investment and portfolio management and digital channels specialists), and Option 3 includes an incremental 86 FTEs largely to manage and operate Crown-owned facilities (for example, facility managers, site administrators and security officers). The FTE costs are individually broken down in the cost model.
Timing of expenditure	All information in the cost model is presented in financial years, and each 'block' of the cost model presumes different start and end dates, depending on the type of expenditure. A summary of the general commencement and end dates for each option blocks are included below: • Blueprint – the Blueprint costs are incurred in FY 22/23, and are mainly one-off development costs • Retention – the costs of the existing MIQ Retention contracts and commence beginning in FY 22/23, and are annual costs • Readiness Team – the costs of the Readiness team commence in FY 22/23, and are presumed to be annual costs which continue to 2062 • Implementation Costs – the costs of the team that would be required to implement the preferred way forward commence in FY 22/23, and presume to run for six years, completing in FY 28/29 • Self-Quarantine and Community Quarantine Support Plans – the costs associated with providing guidance, support and tools to individuals and communities to support self-quarantine and community quarantine options, commencing in FY 23/24, and running for the life of the programme (until FY 62/63) • NQC Core Functionality – the costs associated with running and operating the proposed NQC Core Functionality Team, which are largely annual costs, and presuming to commence in FY 23/24 • Evolving Portfolio – the costs associated with providing an evolving portfolio of quarantine facilities, which under Options 2 and 3, would replace the Retention block, which is the current 8-property portfolio of retention contracts, are presumed to commence in FY 23/24, FY 24/25 and FY 26/27 • Crown-Owned Purpose-Built Facilities – the model presumes on the low-end, a two-year build commencing in FY 25/26, and for the upper end, a three-year build, also commencing in FY 25/26.

Inflation assumptions	Inflation is included in the financial model and aligns with the Treasury's most recent inflation forecasts as part of the Budget Economic and Fiscal Update. All information presented in the financial case is presented in nominal dollars (the information in the economic case is presented in real dollars with a discount rate applied). The inflation rates used are: • For FY 23/24, 5.2% • For FY 24/25, 3.6% • For FY 25/26, 2.7% • For FY 27/28 and beyond, 2.2% per annum
Contingency amount	For each 'block' in the cost model, different contingency amounts have been applied, based on the level of uncertainty associated with each of the blocks. Generally speaking, the cost estimates for Options 2 and Options 3 include a greater amount of contingency, because the evolving portfolio has not been fully designed, and no concept design on the purpose-built facilities has been undertaken at this point. A summary of the contingency amounts applied to each block are included below: • Blueprint – 5% • Retention – 5% • Readiness Team – 5% • Implementation Costs – 10% • Allocations Technology – 50% (high contingency amount applied because these cost estimates do not have a detailed design) • Self-Quarantine – 25% • NQC Core Functionality Team – 5% • Evolving Portfolio – 50% • Crown purpose-built facilities - 50%
Assessment period	The whole-of-life assessment period used in the financial case is a total of 40 years - this means that the model runs from FY 22/23 through to FY 62/63.

Key assumptions included in the Evolving Portfolio	The evolving portfolio includes a range of between 12 and 16 facilities, presuming that capacity of between 3,800 and 6,000 rooms are provided as part of the evolving portfolio. Confidential advice to Government Confidential advice to Government The majority of the cost estimates for individual services included in the evolving portfolio are based on costs and contracts that already exist as part of the QIC Readiness Plan.
Key assumptions included in the purpose-built facilities	The design and scale of any potential Crown purpose-built facility is unclear at this early stage, given the lack of concept design and further information. That said, the assumptions that underpin the estimates included in this PBC are: • The low-end estimate presumes a facility of up to 250 rooms, in a future location to be determined • The high-end estimates include three facilities (at 500 rooms each), again in a future location(s) to be determined The cost estimates roughly presume an estimate of roughly $24,000 per square metre in construction costs, which would align with the cost of constructing a facility with the appropriate negative air pressure and ventilation system requirements should the facility be constructed. The cost estimates also include assumptions on annual running and maintenance costs, which are estimated at 1% of the build cost per annum. Although there may be opportunities for alternative use, the benefits (and costs) of these alternative uses are not included in this PBC. Costs for QS reports, concept and detailed design are not yet fully included in these cost estimates.

MANAGEMENT CASE

Successfully delivering NQC

The management case describes the proposed arrangements to support successful delivery of the programme.

Responsibility for delivery should sit with an overall lead agency

Delivery of the programme should be the responsibility of an overall lead agency and aligned to wider response system reviews and changes.

Table 13 sets out the proposed activities, based on this PBC's recommendations, as the basis for a delivery plan.

Table 13: PBC recommendations and proposed delivery activities

Recommendation 1: Augment existing quarantine capabilities by developing an enduring national quarantine capability to deliver a strategic, integrated quarantine and isolation system
• Undertake a comprehensive environmental scan and detailed gap analysis of the quarantine and isolation response system • Enhancing existing intelligence and surveillance functions • Developing a long-term NQC strategy • Establishing a multi-stakeholder engagement model that will focus on strategic partnership and co-design of facility or response with stakeholders, including Iwi and Māori, as well as continued public and private sector engagement. • Providing a broader leadership function across the public health quarantine system

Recommendation 1: Augment existing quarantine capabilities by developing an enduring national quarantine capability to deliver a strategic, integrated quarantine and isolation system
• Undertake market engagement and lead the tender process to renew/restructure the existing retention contracts established under the QIC Readiness Plan

Recommendation 2: Provide a wider range of managed quarantine and isolation capabilities over time to meet the challenge of future outbreaks, epidemics and pandemics
• Investigate a wider range of service models, logistics and workforce arrangements (public and private) that could be incorporated into the way quarantine and isolation capabilities are provided • Investigate how to provide greater assurance of access in a wider range of scenarios (for example, arrangements not being dependent on border settings) • Investigate opportunities to accelerate deployment timeframes to quicker than the current 3-4 weeks • Investigate opportunity for additional investment in targeted design, building IPC enhancements (for example, improved ventilation systems), technology and other improvements within selected facilities • Develop a capability framework for developing a future operating model • Develop a plan for an environmental capability and capacity evaluation • NQC Activation Plan (to supersede the QIC Readiness Plan)

Recommendation 1: Augment existing quarantine capabilities by developing an enduring national quarantine capability to deliver a strategic, integrated quarantine and isolation system

- Investigate a wider range of facilities (for example, community-owned accommodation) and locations that could be incorporated into the portfolio

Other non-PBC-oriented activities

- Mapping out a recommended all-of-government approach to strategy and policy to ensure NQC contributes to and is aligned with a future pandemic response plan
- Developing a long-term NQC strategy
- Transition NQC to a new host agency or agencies

Agencies will be accountable for end-to-end delivery of the PBC's recommendations, under the leadership and governance of a lead agency

To manage and deliver against this PBC, the proposed work programme will need to be delivered across a number of agencies, key stakeholders, service providers and suppliers.

While responsibility for delivering certain functions may reside with particular agencies or in the market, the proposed work programme will require joint accountability across agencies under the leadership and governance of an overall lead agency to ensure that outcomes are delivered.

Expertise and intellectual property should be developed and maintained in-house, reducing the reliance on external consultants and independent contractors

As the preferred way forward in this PBC is intended to be managed through existing operational functions, a robust resource plan should be developed that is based on a clear resource strategy. For example, it is important to identify early the key business as usual areas of work that would benefit from permanent, in-house resources, as opposed to contracted skills that are highly transient and/or costly.

Any continuous improvement activity would benefit from reliable access to a knowledgeable, informed and experienced business analysis skills. It would make sense that these skills are recruited as permanent resources that could then be used across workstreams to ensure sharing of ideas and solutions.

Specialist skills that are required intermittently could be sourced from specific outcomes-oriented service providers. Work associated with temporary increases in demand, or that are specific to a short-term output, could leverage independent contractors or be resourced from an agency's corporate centre.

There should be ongoing assessment of whether the programme has the right skills for each workstream and phase of work.

A risk of this approach is it will be more difficult to maintain scope integrity, compared to an approach with a dedicated programme team.

It is essential comprehensive scope management and control is maintained

Given that this management case does not propose the establishment of a dedicated programme team, to maintain scope integrity, scope management and control protocols with full traceability to the programme objectives will require sound reporting and governance.

Report backs should focus on realisation of the intended benefits to ensure scope is well aligned.

Given the criticality and importance of having an agreed, clearly defined and documented scope, an Initiation Document that defines the scope, key stakeholders, assumptions and dependencies, timelines and benefits, roles and responsibilities and describes how quality will be managed needs to be developed. This is not just a document to provide evidence of controls for external assurance but is a guiding document to ensure all parts of the workforce are clear on their responsibilities, paths, delegations and risk ownership.

Governance, assurance and oversight arrangements are recommended to provide delivery confidence

In addition, we recommend that cross-agency governance, advisory and working groups are retained by the programme.

These should include opportunities for key stakeholders and expertise to regularly gain insights into progress and for broad engagement with interested bodies, other agencies and third parties to ensure the changes proposed meet needs.

These should be seen as a mix of governance, oversight and engagement bodies to ensure the work programme follows the correct trajectory, and to minimise the need for course correction. Table 14 below shows the proposed groups for the programme. Further work - alongside Te Kawa Mataaho Public Service Commission - is needed to refine the nature, composition and formal standing of these groups. Particularly how Māori could be involved in governance and decision-making from the outset, and how communities and service providers could be empowered to influence and deliver services to their own communities.

Table 14: Proposed governance, advisory and working groups

Forum	Purpose	Frequency
Sponsors Group	A forum to enhance governance at a senior level across the breadth of responsible agencies. It is anticipated this Sponsors Group would provide strategic decisions and ongoing direction and appropriately manage risks and issues.	Monthly
Advisory Group	A forum for identified expertise to share their opinions and perspectives, study issues, and develop recommendations. It is to contribute to improving the outcomes of those that NQC intends to serve by sharing knowledge and perspectives from a mix of expertise, drawing on existing thinking and frameworks, draw from information gathered from stakeholders, review and provide comment on key change proposals, and to endorse forward paths or provide strategic feedback on areas of concern.	Monthly
Engagement Working Group	A core group of stakeholders with diverse knowledge; skills and experience are representative of cross government needs, and the develop recommendations on opportunities to improve participation and decision - making processes. The group will consider innovative solutions as well as provide advice and effective feedback in advance of decisions, promoting cohesion, coordination	Monthly

Forum	Purpose	Frequency
	and sharing of ideas. Learnings from past initiatives will be identified to instigate new work based on that learning.	

Risks to Delivery

Top Risks	Description	Likelihood	Impact	Rating
Agency Transition	A lack of timely transition to a new host agency or agencies puts delivery at risk and risks losing the necessary expertise and intellectual property to achieve beneficial outcomes	M	M	
Resource Contention	Industry forecasts suggest it will become increasingly difficult to obtain and retain skilled and experienced resources	M	M	
Interim Event	If an event arises ahead of the solution being in place, then New Zealand will have to rely on the existing or default response	L	H	

APPENDIX 1: RESPONSES TO COVID-19 IMPLEMENTED BY OTHER JURISDICTIONS

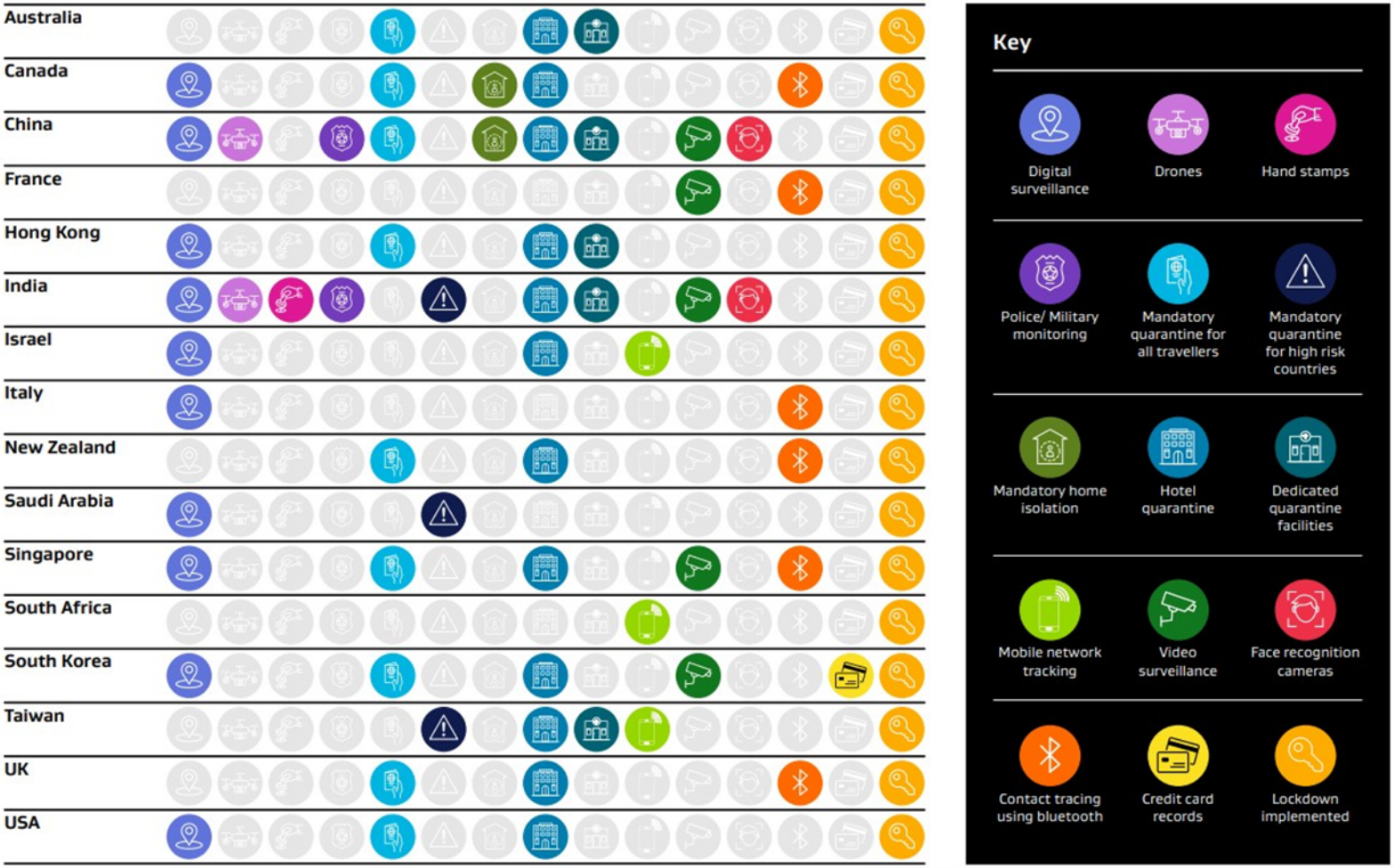
Quarantine has formed a critical part of many countries' COVID-19 response system. However, it was not universally implemented and was most effective in island nations or where borders could be rigidly controlled (for example, Israel). Few countries were able to successfully stamp out COVID-19 once it was prevalent in communities before vaccine availability. This led most countries to respond with a combination of national lockdowns, limitations on international transit and targeted health interventions. Some of which had a detrimental impact on respective health, social and economic outcomes by country.

Figure 9 below shows that while quarantine interventions looked contextually different from country to country (although hotels were widely used for the purpose of quarantine and isolation), almost all adopted some level of state-directed quarantine intervention.

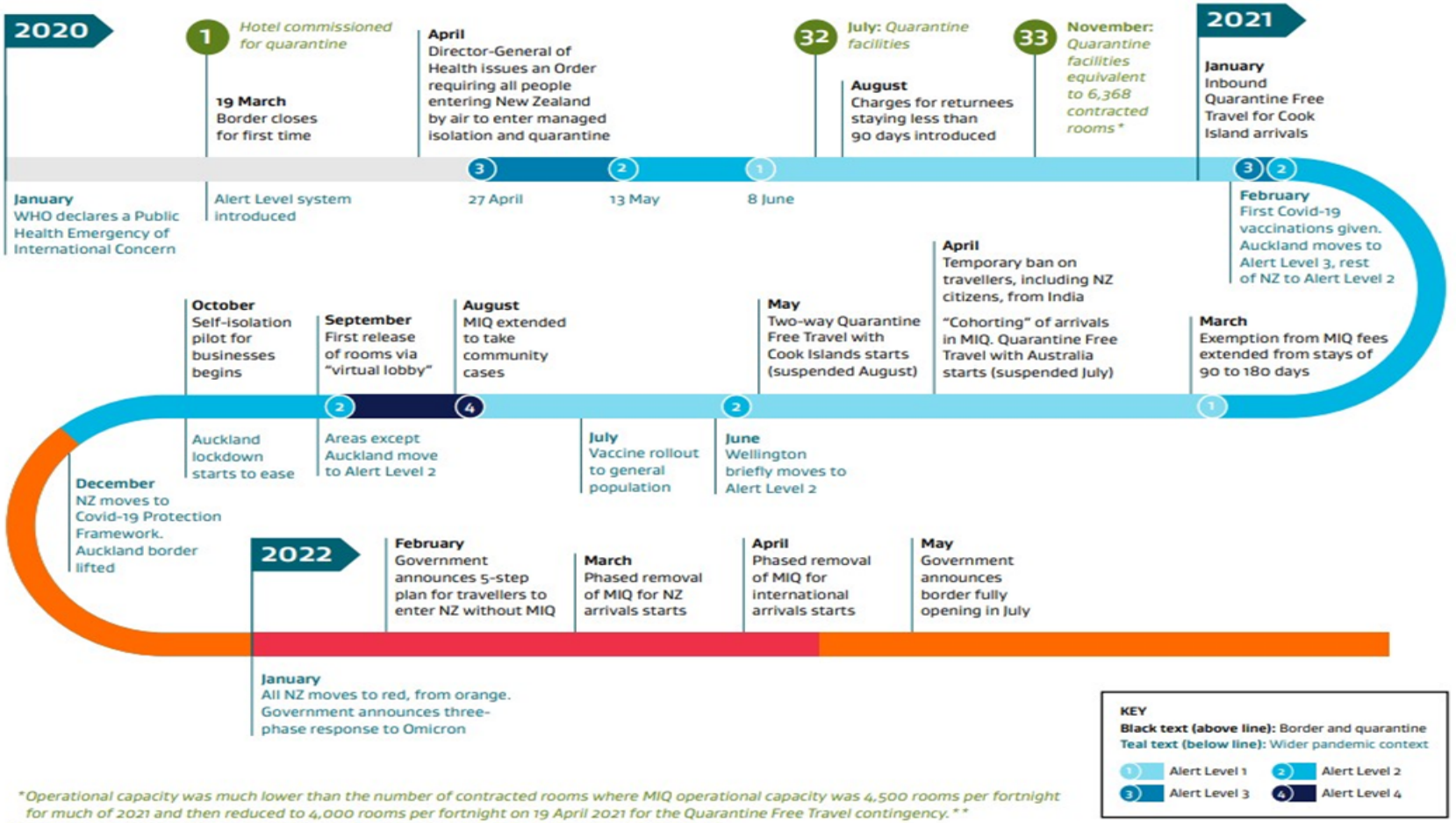
While some countries had existing dedicated quarantine infrastructure as a legacy of previous epidemics (for example, H1N1, SARS), most were unprepared for a pandemic of the scale and nature of COVID-19 and had to stand-up facilities quickly – repurposing existing infrastructure such as hotels or government-owned facilities. In most instances, countries implemented a home isolation (requiring people to stay at home if they were sick) and hotel quarantine-based (for inbound travellers or those suspected of being sick) approach[xviii]

[xviii] In New Zealand the definitions and response strategy for how quarantine and isolation were applied differed to how it was used internationally. In New Zealand people suspected of being sick in the community were required to isolate at home and those that were sick, to quarantine in a dedicated hotel facility. This changed during the course of the response.

Figure 9: Representative example of international border and domestic COVID-19 quarantine and isolation interventions



APPENDIX 2: TIMELINE OF NEW ZEALAND'S COVID-19 RESPONSE



*Operational capacity was much lower than the number of contracted rooms where MIQ operational capacity was 4,500 rooms per fortnight for much of 2021 and then reduced to 4,000 rooms per fortnight on 19 April 2021 for the Quarantine Free Travel contingency. * *

* *Grounded Kiwis Group Inc. versus Minister of Health (2022-NZHC-832.pdf (courtsofnz.govt.nz).

MIQ Capacity

Initially, in March 2020 when most people were permitted to self-isolate, only one hotel was commissioned. By July 2020 there were 32 facilities and, by late November 2020 there were 33 facilities. The 33 facilities equated to 6,368 contracted rooms.

However, operational capacity was much lower than the number of contracted rooms. Rooms had to be set aside for a variety of operational needs including staff accommodation, testing and equipment rooms. Rooms were also taken out for cleaning and maintenance, and ventilation issues also reduced capacity. Capacity was further reduced when cohorting was introduced from May 2021 and quarantining infected community cases and their close contacts in MIQFs also reduced availability for overseas arrivals.

MIQ operational capacity was 4,500 rooms per fortnight for much of 2021 and then reduced to 4,000 rooms per fortnight on 19 April 2021 for the Quarantine Free Travel contingency. Some of these rooms were then set aside for emergency allocations, time sensitive travel and group allocations.

Demand for MIQ

While the Managed Isolation Allocation System (MIAS) was used from 5 October 2020 to allow people to book a room in MIQ, the system did not reveal how many prospective travellers were looking to return to New Zealand, as it was a booking system, operating on a first come, first served basis – when a room became available, it was able to be booked.

The lobby system was introduced when demand for MIQ rooms was significantly higher than supply. From September 2021 to February 2022, a total of 15 room releases through the virtual lobby took place. People would be held in the virtual lobby as they arrived and would then be randomly assigned a place in the queue at the start of the room release (those arriving after would join the back of the queue). **Figure 10** below shows the number of people in the queue and the total number who received vouchers between September 2021 and February 2022[xix].

[xix] The total number people in the queue in the first five room releases (1 Sept to 21 Oct 2021) may be higher than represented as in some cases groups of travellers may have been counted together.

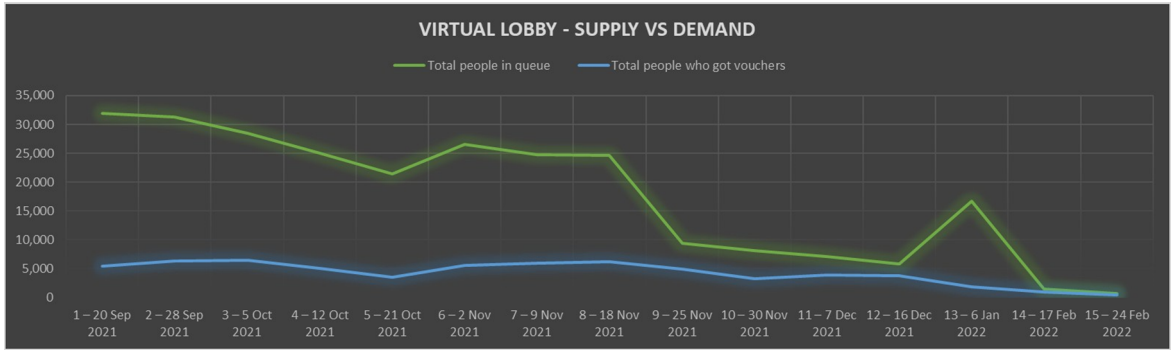


Figure 10: Use of the virtual lobby system September 2021 to February 2022

APPENDIX 3: STAKEHOLDER ENGAGEMENT

Date	5 April 2022	7 April 2022	27 April 2022	
Workshop	**NQC Scenario Generation Workshop 1**	**NQC Scenario Generation Workshop 2**	**TTX Workshop 1: Public Sector**	
Attendees	Privacy of Natural Persons (Facilitator – PwC) Privacy of Natural Persons (Facilitator – MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (EY) Privacy of Natural (MoH) Privacy of Natural Persons (MoH) Privacy of Natural Persons (INZ) Privacy of Natural Persons (MFAT) Privacy of Natural Persons n (MFAT) Privacy of Natural Persons (MFAT) Privacy of Natural Persons (DPMC) Privacy of Natural Persons (DPMC) Privacy of Natural Persons (INZ) Privacy of Natural (Customs)	Privacy of Natural Persons (Facilitator – PwC) Privacy of Natural Persons (Facilitator- MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (EY) Privacy of Natural (MoH) Privacy of Natural Persons (MoH) Privacy of Natural (MoH) Privacy of Natural Persons (INZ) Privacy of Natural Persons (MFAT) Privacy of Natural Persons (MFAT) Privacy of Natural Persons (DPMC) Privacy of Natural Persons (MPI) Privacy of Natural Persons (MPI) Privacy of Natural Persons (Customs)	Privacy of Natural Persons (Facilitator – NZP) Privacy of Natural Persons (Facilitator – PwC) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (NZDF) Privacy of Natural Persons (NZDF) Privacy of Natural (MPI) Privacy of Natural Persons (MPI) Privacy of Natural (MoH) Privacy of Natural (MoH) Privacy of Natural (MoH) Privacy of Natural Persons (MoH) Privacy of Natural (MoH) Privacy of Natural (MoH) Privacy of Natural Persons (MoH) Privacy of Natural (MoH) Privacy of Natural (MoH)	Privacy of Natural Persons (DPMC) Privacy of Natural Persons DPMC) Privacy of Natural Persons (MoH) Privacy of Natural Persons (Health NZ) Privacy of Natural (NZP) Privacy of Natural Persons (INZ) Privacy of Natural Persons (NEMA) Privacy of Natural Persons (Customs) Privacy of Natural Persons (Customs) Privacy of Natural (Aviation Security) Privacy of Natural Persons (Aviation Security) Privacy of Natural Persons (MFAT) Privacy of Natural Persons (MFAT)

Date	5 April 2022	7 April 2022	27 April 2022
		Privacy of Natural Persons (Stats NZ) Privacy of Natural (Civil Aviation Authority)	Privacy of Natural Persons (MoH) Privacy of Natural (MoH)

Date	29 April 2022	29 April 2022	10 May 2022	11 May 2022
Workshop	**TTX Workshop 2: Private Sector**	**ILM Workshop 1: Problem definition**	**ILM Workshop 2: Benefits**	**Longlist options engagement with MIQ Iwi Hui Group**
Attendees	Privacy of Natural Persons (Facilitator – PwC) Privacy of Natural Persons (Facilitator – PwC) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons i (MBIE) Privacy of Natural Persons (Auckland Airport) Privacy of Natural Persons (Auckland Airport) Privacy of Natural Persons (Christchurch Airport) Privacy of Natural Persons (Christchurch Airport) Privacy of Natural Persons (Wellington Airport) Privacy of Natural Persons (Jet Park Hotels) Privacy of Natural Persons (Air New Zealand)	Privacy of Natural Persons (Facilitator - EY) Privacy of Natural Persons (NEMA) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (Treasury) Privacy of Natural Persons (Health) Privacy of Natural Persons (Health) Privacy of Natural Persons (DPMC) Privacy of Natural Persons (DPMC) Privacy of Natural Persons (Health) Privacy of Natural (NEMA) Privacy of Natural Persons (EY) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE)	Privacy of Natural Persons (Facilitator - EY) Privacy of Natural Persons (NEMA) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (Treasury) Privacy of Natural Persons (Health) Privacy of Natural (Health) Privacy of Natural Persons (EY) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE)	Privacy of Natural Persons (Ngāti Toa) Privacy of Natural Persons (Ngāti Whātua Ōrākei) Privacy of Natural Persons (Ngāi Tahu) Privacy of Natural Persons (Ngāti Whatua, Ngāpuhi, Ngāti Torehina)

Date	29 April 2022	29 April 2022	10 May 2022	11 May 2022
	Privacy of Natural Persons (Air New Zealand) Privacy of Natural Persons (Jetstar) Privacy of Natural (Accor) Privacy of Natural (Government COVID-19 business advisor)			

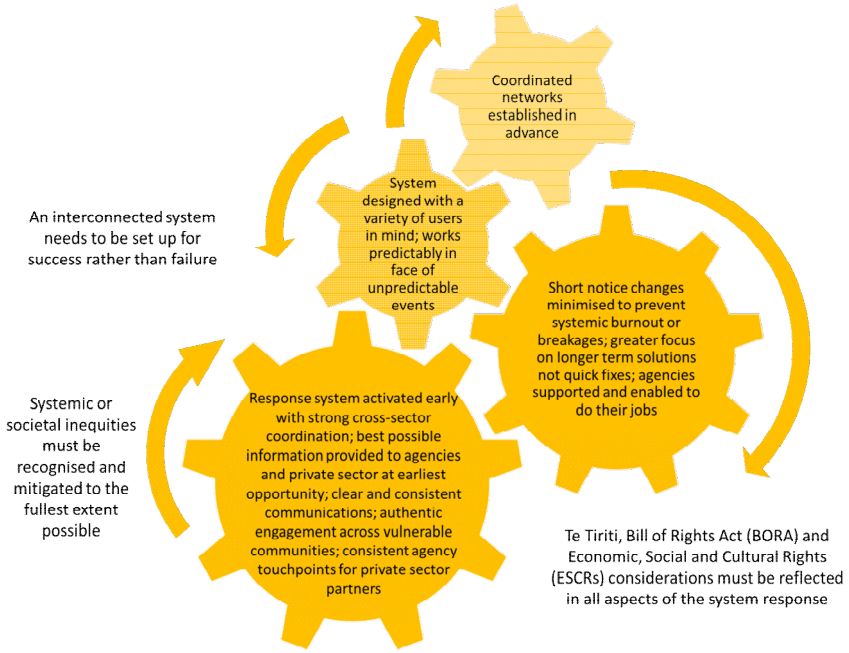
Date	13 May 2022		16 May 2022
Workshop	**Economic Case Workshop 1**		**Economic Case Workshop 2**
Attendees	Privacy of Natural Persons (MBIE) Privacy of Natural (MOH) Privacy of Natural Persons (PwC) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (Te Rūnanga o Ngāti Pikiao) Privacy of Natural Persons (MOH) Privacy of Natural (PWC) Privacy of Natural (MOH) Privacy of Natural Persons (WREMO) Privacy of Natural Persons (MBIE) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural (MOH) Privacy of Natural Persons (MFAT) Privacy of Natural Persons (Health NZ) Privacy of Natural Persons (MPP)	Privacy of Natural (MOH) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (Police) Privacy of Natural Persons (MBIE) Privacy of Natural Persons NEMA Privacy of Natural Persons (MBIE) Privacy of Natural Persons (Health NZ) Privacy of Natural (MOH) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (NEMA) Privacy of Natural Persons (MOH) Privacy of Natural (MOH) Privacy of Natural Persons (Waikato DHB)	Privacy of Natural Persons (Whakarongorau) Privacy of Natural Persons (Christchurch Airport) Privacy of Natural Persons (PWC) Privacy of Natural Persons (MBIE) Privacy of Natural (Accor Group) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (Jet Parks) Privacy of Natural (MBIE) Privacy of Natural Persons (Christchurch Airport) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (MBIE) Privacy of Natural Persons (Jetstar) Privacy of Natural (MBIE) Privacy of Natural Persons (MBIE)

Date	29 April 2022	29 April 2022	10 May 2022	11 May 2022
	Privacy of Natural Persons (AVSEC)			

APPENDIX 4: DISEASE SCENARIO WORKSHOP OUTPUTS

The following summarises the key insights from the TTX workshops held with public and private sector stakeholders.

System considerations



Key themes

Coordination prior to an infectious human disease outbreak / health emergency is essential

- Networks need to be established and maintained ahead of a crisis so that trusting relationships already exist. This allows for free and frank discussions, and speedier responses. Cold starts are unacceptable in the face of emerging risks.
- Concept of a back-pocket 'war ministry' – create a team of the best / most relevant people from private and public sectors who are able to overlook agency partisanships and commercial issues to work together for best outcomes for New Zealand.
- Maintaining the community links created during COVID-19 response is critical to better understand and respond to differing needs.
- Due to constant staff movement in all sectors, running regular exercises or other solutions will help decrease the risk of relationships degrading over longer timeframes, and will keep the impact of future health emergencies front of mind.

Quick action and ongoing communication/engagement once an epidemic or pandemic emerges is also critical

- Early activation of response processes is essential, with clear direction from lead agencies: Health, NEMA, local CDEM etc.
- Priority requirements: coordinating within and across government agencies and ensuring clear communications with impacted communities.

- Messaging needs to be sufficiently clear to prevent different interpretations around implementation at all levels.
- Government agencies and the private sector need the best information as quickly as possible in order to make the best decisions.
- Engagement with vulnerable communities is essential. The definition of what constitutes a vulnerable community can change quickly throughout the course of a health emergency.
- Cohesion in engaging with the private sector is required: while staff will be surged to agencies to support a response, engagement touchpoints should remain as consistent as possible and have a clear understanding of what the commercial sector needs.

System design considerations

- The system needs to behave predictably in an unpredictable environment.
- Cohorts and groups of people have different needs. The focus should always be on people and population groups, not borders or regions – with a clearly identified customer being the central consideration.
- How can peoples' homes become an effective part of a health response? How can technology help? How do we mitigate the effect of the digital divide?

Ongoing considerations

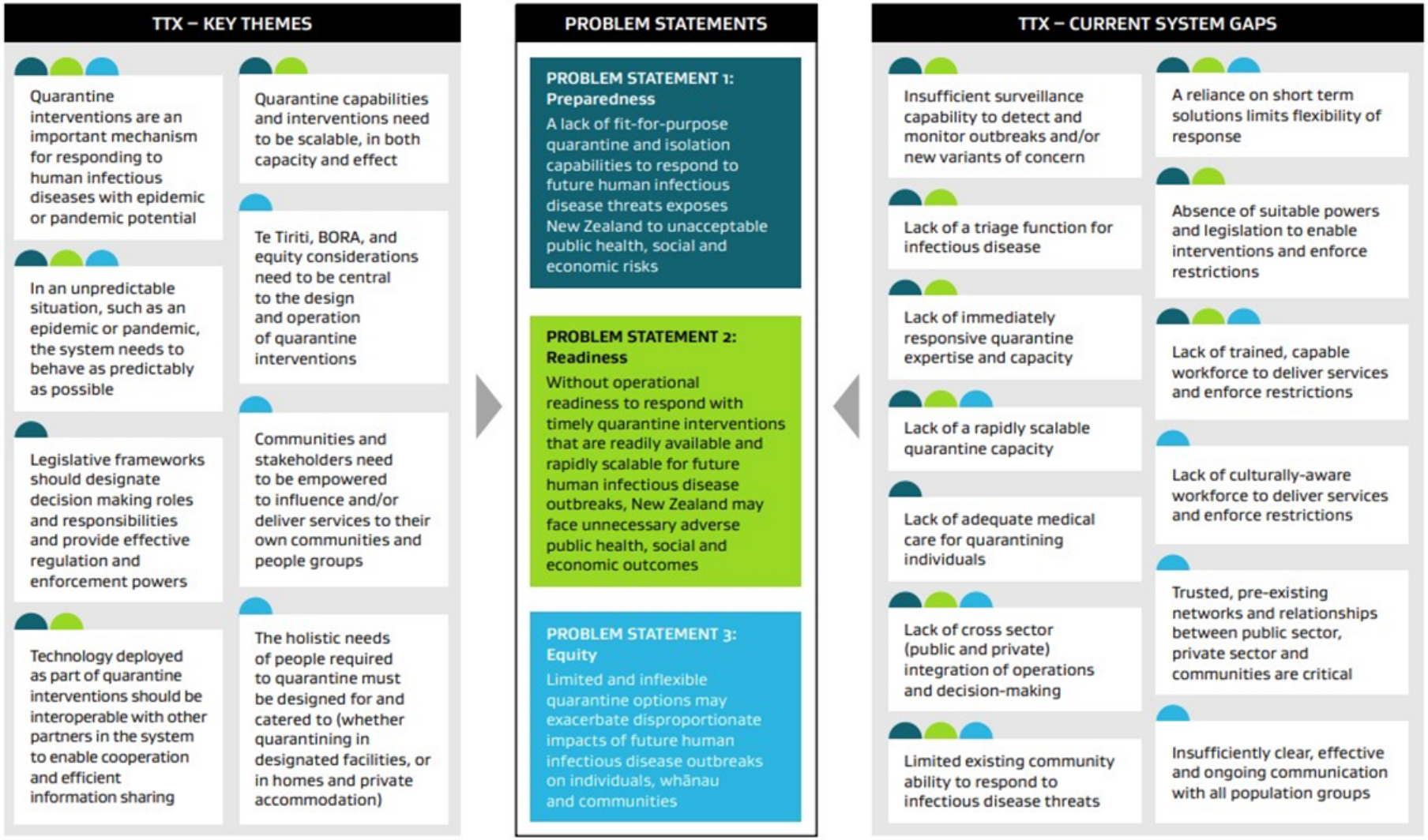
- Short-notice changes create unnecessary stress across the system: the time from decision being made to public announcement to commercial implementation during COVID-19 was not always sufficient and relied on the staff working extensive overtime to implement changes.
- Short term solutions do not typically allow for sufficient flexibility: agencies can get locked into the initial solution and lack the ability to identify or develop alternative, less time-bound approaches. Given how long a health emergency may last, nothing should be short term or quick fix. Solutions also need to be responsive and flexible.

Critical statements

- Any quarantine or isolation response cannot be standalone and must fit within a wider systemic response.
- Mental health support for front line workers, health responders, civil servants in high workload departments, vulnerable communities, the elderly and/or lonely, border staff, commercial sector staff trying to pivot quickly to implement rules.
- A clear articulation of the priority at all times – is it preservation of life or stamping out the disease? Or is it something else?
- How do companies and agencies retain their intellectual property on infectious prevention and control protocols, contacts, relationships with staff movements? Will this get worse in the future?
- Information sharing between agencies, with private sector, with community leaders, with other countries can always be improved. There is a need to keep classifications low and information sharable. Fit-for-purpose MoUs on information sharing should be in place ahead of time. This also required a decision on the priority of privacy vs safety for front line responders.
- New Zealand needs to stop thinking of the Pacific as being a barrier and start thinking about how we can be a filter/barrier for Pacific Island countries instead.
- The earlier the watch group process is stood up the better, with clear articulation of agency roles and responsibilities.
- Clear definitions are key to support operational rollouts across communities.

- Communications need to be clear and authentic, leveraging existing relationships.
- Services are typically designed for people who are digitally connected – how do you ensure people without phones, computers, digital access or confidence to use digital tools are not left behind?
- Digital solutions also raise 'big brother' fears and disinformation challenges.
- Need to protect any minority community from online abuse if there is a perception their community has started or is perpetuating a health issue.
- New Zealand is very dependent on migrant workers, including Recognised Seasonal Employer (RSE) and Working Holiday Scheme (WHS) workers. When these people leave at short notice and/or cannot enter the country, critical worker issues emerge quickly – how do you protect the economy and key industries from these shortages?
- The perception of fairness in how New Zealand responds both domestically and internationally needs to be considered.
- Responses and system design must be culturally appropriate and should make use of culturally aware workforces.
- A quarantine response should be used as a last resort and must be both necessary and proportionate: quarantine without border has no real precedent.
- Quarantine can buy New Zealand time to respond – is this still true if the health emergency is domestic rather than international?
- There will always be a tension between the needs of New Zealanders (here and offshore) and the needs of the rest of the world.
- Rapid repurposing of existing facilities such as parts of hospitals or airport terminals for a quarantine facility rather than physical investment should be considered.

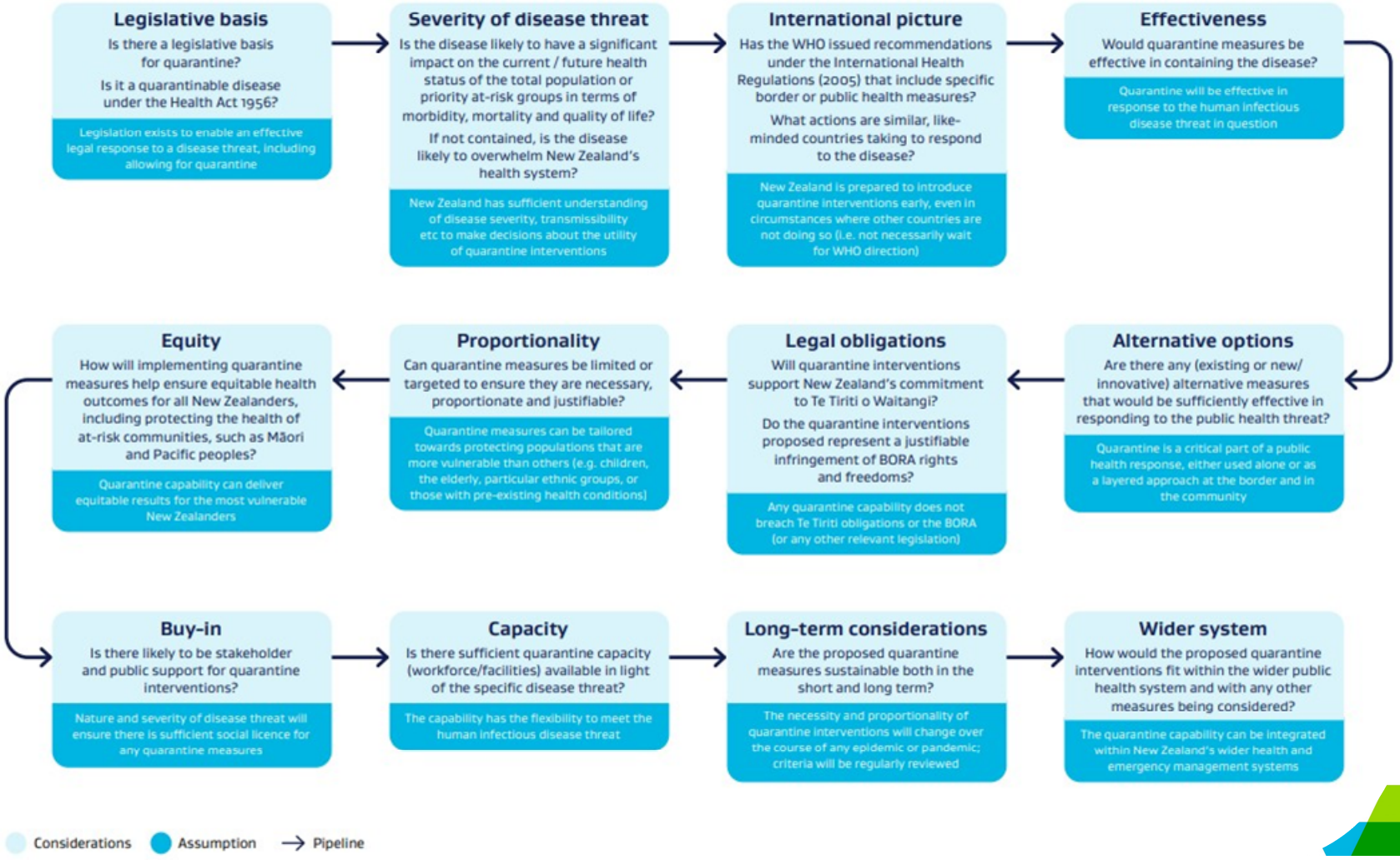
APPENDIX 5: ALIGNMENT OF TTX WORKSHOP OUTPUTS TO PROBLEM STATEMENTS



APPENDIX 6: LESSONS IDENTIFIED

Theme	Key lessons
Fit for purpose, standardised and simple systems and processes	• Establish fit-for-purpose agency agnostic technology systems that are aligned to the customer journey • Establish fit-for-purpose, centralised data systems • Standardise workforce provisions: wellbeing, training, vaccination and testing expectations • Standardise SOPs to enable services, training and audit processes to align • Standardise communication and complaints process • Make fees as simple as possible. Automate and standardise fees and financial services • Appropriate fit for purpose legislation for quarantine and isolation requirements • Design an allocation system that is more equitable for applicants
Clearly defined roles and responsibilities	• Establish clear inter-agency service and information sharing agreements • Clearly establish delegations, authorities, staff and PCBU roles and responsibilities
Appropriate quarantine and isolation capabilities and operating procedures	• Recognise and consider the needs of specific communities and users early (for example, refugees and extended family groups) • Implement cohorting from the start of any resumption of MIQ • Prioritise wellbeing services to staff and MIQ users, incorporating Te Ao Māori lens • Align facility provisions to IPC and OPCAT standards • appropriate compliance and enforcement strategy to incentive appropriate behaviour of MIQ users
Establish partnerships and relationships early	• Establish engagement strategy with the Ombudsman early • Establish Iwi engagement and partnership early

APPENDIX 7: KEY CONSIDERATIONS FOR USING QUARANTINE INTERVENTIONS



APPENDIX 8: LONGLIST OPTIONS

				Quarantine in private accommodation		Quarantine in a designated facility		
Options framework dimension	**Description**		**Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)**	**Option 2: Self-quarantine**	**Option 3: Community support**	**Option 4: Repurpose existing government assets**	**Option 5: Rent accommodation (e.g., student, hotels, motels, etc)**	**Option 6: Build or buy dedicated facilities**
Service delivery	**Who** can deliver the services?	Deliver quarantine and isolation services	Quarantine and Isolation Capability Readiness Plan	Agency(s) and/or private sector	Agency(s) and/or private sector in partnership with Iwi and community groups	Agency(s) and/or private sector with Iwi engagement for consideration of land where applicable		
		Coordinate preparation (plans, contracts, relationships, etc)	Cross government collaborative function Quarantine and Isolation Capability Readiness Plan	Cross government collaborative function Provides guidance to providers, monitors infectious disease outbreaks, maintains pandemic preparedness skillset				
Service solution	**How** can services be provided?		Quarantine and Isolation Capability Readiness Plan	Remote quarantine and isolation services (conduct phone health checks, or use wearable technologies to track health and location compliance, etc)	Community provided quarantine and isolation services (accommodation, food, and health monitoring/support)	Managed quarantine and isolation services (health monitoring /support, transport, accommodation, food, security, etc)		
Scope and location	In relation to the proposal, **what** levels of coverage are possible?		Quarantine and Isolation Capability Readiness Plan	Self-determined	Community care setting (i.e., existing community centres, marae etc)	Existing government owned assets	Accommodation in key centres / regional areas	Buy or build new facilities in key centres / regional areas
Implementation	**When** can services be delivered?		Immediate - 1 year	Immediate - 1 year	Immediate - 1 year	Immediate - 3 years	Immediate - 1 year	Within 3 - 5 years

APPENDIX 9: LONGLIST SCORING AND JUSTIFICATION

The following tables summarise the outputs of economic case workshops in which stakeholders scored longlist options and provided further feedback on them. The options are considered as discrete capabilities.

Longlist option scoring

		Longlist options					
		Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)	Option 2: Self-quarantine	Option 3: Community support	Option 4: Repurpose existing government assets	Option 5: Rent accommodation	Option 6: Build or buy dedicated facilities
Investment Objectives							
1	Capabilities that can provide **proportionate** interventions to deliver against different levels of compliance needed in different risk environments (voluntary, assisted, directed, and enforced).	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
2	Quarantine capabilities and interventions that **enhance the wider response system** for human infectious disease outbreaks	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
3	Quarantine capabilities that can respond to **concurrent risks or events**.	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
4	Quarantine capabilities and interventions that are **fit for purpose**.	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
5	Quarantine interventions that can **scale**	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets

		Longlist options					
6	Quarantine capabilities that can **evolve over time** to ensure continuous improvement of operating models	Meets	Partially meets	Meets	Meets	Meets	Partially meets
7	Quarantine interventions that can be utilised in a **timely manner** to respond to human infectious disease threats	Partially meets	Meets	Partially meets	Partially meets	Partially meets	Meets
8	Quarantine capabilities and interventions that embed **wellbeing, manaakitanga** (care for people), **and kaitiakitanga** (care for place).	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Meets
Critical Success Factors							
Strategic fit and business needs		Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
Flexibility		Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
Potential value for money		Meets	Meets	Partially meets	Partially meets	Partially meets	Partially meets
Potential achievability		Meets	Meets	Partially meets	Partially meets	Partially meets	Partially meets
Recommendation		**Proceed**	**Proceed**	**Proceed**	**Proceed**	**Proceed**	**Proceed**

Longlist option scoring justification

	Investment Objectives	Longlist options					
		Option 1: Quarantine and Isolation Capability Readiness Plan	Option 2: Self-quarantine	Option 3: Community support	Option 4: Repurpose existing government assets	Option 5: Rent accommodation	Option 6: Build or buy dedicated facilities
1	Capabilities that can provide **proportionate** interventions to deliver against different levels of compliance needed in different risk environments (voluntary, assisted, directed, and enforced).	This has been scored as partially meets as there are some limitations on rights for international arrivals, and includes compliance arrangements	This has been scored partially meets as while being the least restrictive on rights, self-quarantine is hard to monitor and enforce so may not work if a disease is high risk/threat	This has been scored partially meets as while having some restrictions on rights, community providers may find it difficult to monitor and enforce compliance	This has been scored as partially meets as while compliance will be improved, there are greater limitations on rights through managed facilities	This was scored partially meets as the ability to enforce compliance depends on the type of accommodation	This was scored as partially meets as while enforcing compliance is improved, there are greater limitations on rights through managed facilities
2	Quarantine capabilities and interventions that **enhance the wider response system** for human infectious disease outbreaks	This has been scored partially meets as arrangements have been established to integrate with broader public health responses	This has been scored partially meets as self-quarantine is hard to enforce and non-compliance could distract efforts away from the wider response system	This has been scored partially meets as it depends on community capability and capacity which varies by region	Depending on what government assets are repurposed, it may impair the wider system response so this has been scored partially meets	This was scored partially meets as it depends on the type, availability and capacity of accommodation	This was scored meets as a dedicated quarantine facility would enhance the wider response system
3	Quarantine capabilities that can respond to **concurrent risks or events**.	This has been scored partially meets as arrangements have been established as separate to emergency response system to reduce reliance on the same workforce, however, there is the potential for duplicate reliance on public service workforce	This has been scored partially meets as it depends on the size and scale of the other event	This has been scored partially meets as it depends on the size and scale of the other event	Depending on what government assets are repurposed, it may impair government's ability to respond to other events so this has been scored partially meets	This has been scored partially meets as it depends on the size and scale of the other event	This was scored as partially meets as it depends on the size and scale of the other event

		Longlist options					
4	Quarantine capabilities and interventions that are **fit for purpose**.	This has been scored partially meets as utilises hotels for border arrivals only	Not everyone can safely isolate at home, so this has been scored partially meets.	This has been scored partially meets as it depends on community capability and capacity which varies by region	Government assets will likely require significant upgrades to make them fit for purpose, so this has been scored partially meets	This was scored partially meets as it depends on the type of accommodation	This was scored as partially meets as like for self-quarantine, a dedicated facilities will not be suitable for all users
5	Quarantine interventions that can **scale**	QIC includes surge plans to increase capacity to up to 6,000 rooms, so this has been scored partially meets	This has been scored partially meets as self-quarantine option, but this would be constrained by monitoring capacity and other wrap around support	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as it depends on how the availability and capacity of government assets	This was scored partially meets as it depends on the capacity of private accommodation and owners agreeing to become quarantine facilities	This was scored as partially meets as it depends on the capacity of the dedicated facilities
6	Quarantine capabilities that can **evolve over time** to ensure continuous improvement of operating models	Continuous refinements and improvements to embed learnings from COVID-19 are being included within the operating model for QIC so this has been scored meets	Wrap around services (for example, technology) could evolve over time but it is hard to dictate or control people's behaviour in private accommodation, so this has been scored partially meets	This has been scored as meets as the operating model could continuously improve over time	This has been scored as meets as the operating model could continuously improve over time	This has been scored as meets as the operating model could continuously improve over time	This was scored as meets as the operating model could improve over time
7	Quarantine interventions that can be utilised in a **timely manner** to respond to human infectious disease threats	Provides 250-300 rooms for one-off emergency evacuation within one week, however remaining facilities will require lead-in time of up to 4 weeks to mobilise in the event of an outbreak, so this has been scored partially meets	This has been scored meets as it is quick and easy to tell people to quarantine at home	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as some lead time will be required if the government assets are being utilised for another purpose prior to an outbreak	This was scored partially meets as the accommodation may already be in use at the time of an outbreak	This was scored as partially meets as some lead-in time will be required to mobilise a dedicated facility, particularly relating to the workforce to operationalise

				Longlist options			
8	Quarantine capabilities and interventions that embed **wellbeing, manaakitanga** (care for people), and **kaitiakitanga** (care for place)	Includes COVID-19 Care in the Community and a Self-Quarantine Framework so this has been scored partially meets	This has been scored partially meets as it recognises that in most cases, people are better able to provide for their wellbeing at home	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as it depends on the wrap around services provided	This was scored partially meets as it depends on the wrap around services provided	This was scored as partially meets as the dedicated facility would be designed to embed wellbeing
Critical Success Factors							
Strategic fit and business needs		This has been scored partially meets as the scope of QIC is border arrivals	This has been scored partially meets as while not everyone can safely isolate at home and it is hard to enforce, it is the least restrictive and will likely form part of any response in most scenarios	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as it depends if appropriate government assets exist	This was scored partially meets as it depends on the type of accommodation	This was scored as partially meets as while it would be designed to be fit for purpose, it does restrict rights
Flexibility		This has been scored partially meets to be consistent with the compliance, timely manner and scale ratings above	This has been scored partially meets as it can be implemented in a timely manner but is hard to enforce	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as it depends if appropriate government assets exist	This was scored partially meets as the accommodation may already be in at the time of an outbreak and depends on private accommodation owners agreeing to become quarantine facilities	This was scored as partially meets as it depends on the capacity and operating model of the dedicated facilities
Potential value for money		Compared to the economic costs of another lockdown, retaining the ability to scale up facilities again in the event of a future outbreak would be good value for	This has been scored meets as it is the cheapest option and would be good to utilise if the disease is low risk/threat	This has been scored partially meets as it depends on community capability and capacity which varies by region	This has been scored partially meets as upgrading the existing infrastructure might be expensive	This was scored partially meets as it depends on the type of accommodation	This was scored as partially meets as it is likely to be the most expensive option to establish, but compared to the cost of another lockdown it

	Longlist options					
	money, so this has been scored meets					would likely still be value for money
Potential achievability	This has been scored meets as the history of MIQ shows it is achievable	This has been scored meets as it has been implemented with success in response to COVID-19	This has been scored partially meets - depends on community capability and capacity which varies by region	This has been scored partially meets as it depends if appropriate government assets exist	This was scored partially meets as it depends on private accommodation owners agreeing to become quarantine facilities	This was scored as meets as MIQ are already aware of potential sites that exist
Recommendation	**Proceed**	**Proceed**	**Proceed**	**Proceed**	**Proceed**	**Proceed**

APPENDIX 10: LONGLIST OPTION STRENGTHS AND WEAKNESSES SUMMARY

Options	Strengths	Weaknesses
Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)	Proven effective at preventing the spread of COVID-19 Relationships already established Ability to use existing personnel and build on COVID-19 lessons Allows for a fast start in the event of something being required Can be deployed quickly Designed to be disease agnostic overtime	Scope of QIC focused on border arrivals only One size fits all approach does not support different community profiles Private sector may not voluntarily participate in the response due to damage to their brand and facilities unless border restrictions are implemented or is made statutory
Option 2: Self-quarantine	Allows for a large-scale response and reduces demand issues Low cost Could use technology to support monitoring and compliance	High trust model – may not be appropriate for high risk/threat scenarios as hard to monitor and enforce Equity implications - not everyone has access to accommodation appropriate to self-quarantine - for example, overcrowded or substandard housing, domestic violence, etc
Option 3: Community support	If appropriately funded and supported would work in a way of trusted faces in trusted places Iwi understand the community capability and needs Community groups understand the needs of their communities Keeping people close to their home base comes with advantages	Relies on already stretched resource availability Offloading responsibility to communities could create inequality and disparate service provision due to regional differences in quality or availability of care Conditional on a lower risk pathogen (low mortality and or infection rate) as grouping people might increase the spread
Option 4: Repurpose existing government assets	Likely cheaper than a purpose-built option Assets already in government control Options could include repurposing decommissioned hospital facilities, which could be used for health purposes when not in use for MIQ Good short-term options whilst other options are set up	Facilities might not be located near airports, health services and transport Most repurposed accommodation wouldn't meet IPC requirements without significant upgrades Repurposing assets may undermine their primary purpose Cost of making facilities fit for purpose when buildings have been decommissioned May not be able to access at short notice, depending on alternate use
Option 5: Rent accommodation	Can be located in multiple geographic locations Variety of options to meet a range of accommodation needs (for example, single person to large groups) Facilities already exist	Relies on accommodation being available at short notice which could be difficult with borders open – may result in displacement of existing tenants Not fit for purpose - facilities likely to require upgrades/minimum standards and upgrading accommodation may be more expensive than building/buying new May be challenging to enforce agreements over a long period of time for example, if ownership changes
Option 6: Build or buy dedicated facilities	Can ensure critical IPC requirements are built in Can be repurposed/ used for other disasters for example, flooding, emergency housing	High capex and opex and uncertain if/when it will be required Finite capacity/low scalability

Options	Strengths	Weaknesses
	Long term option with strongest ability to meet core function	Need to consider how to keep workforce engaged, skilled and experienced when quarantine services are not required

APPENDIX 11: PROGRESSION FROM LONGLIST TO SHORTLIST OPTIONS

Longlist Option	Shortlist Option	Commentary
Option 1: Quarantine and Isolation Capability Readiness Plan (Status quo)	Option 1: QIC	The Quarantine and Isolation Capability Readiness Plan remains the same as the base case must always be carried forward into the shortlist option assessment stage.
Option 2: Self-quarantine	Integrated into all NQC Options	The following feedback was obtained from Workshop 1 stakeholders regarding self-quarantine and community support options: • self-quarantine as a discrete option is unable to support people who can't safely isolate themselves at home. It would also be challenging to enforce compliance in a high risk/threat scenario • community providers would struggle to service the entire population in the event of a future infectious disease outbreak due to resource constraints, and capability would likely vary by region. • self-quarantine and community support options should not be treated as discrete options but be embedded into each of the remaining options (apart from the Status Quo option). When packaged with the other options, community support is available for people who can't safely isolate at home and adds valuable surge capacity. Packaging community support into the other options ensures that quarantine services can cater to different communities and is more likely to match the capacity of potential suppliers. This approach also recognises that existing public health and regional and local government capabilities exist to support communities in responding to human infectious disease outbreaks, and these should continue to be used in the future.
Option 3: Community support	Integrated into all NQC Options	
Option 4: Repurpose existing government assets	Option 3: NQC Enhanced	Options relating to assets in Government ownership are included in the Option 3 shortlist option, recognising the benefits associated with control of access for activities such as improvements, training and rapid mobilisation of quarantine capacity.
Option 5: Rent accommodation	Option 2: NQC Ready Option 3: NQC Enhanced	The 'Rent Accommodation' longlist option can be defined as access to quarantine capacity not owned by the Government that is in addition to facilities in place through the QIC Readiness Plan. This features in Options 2 and 3 within the evolving portfolio of infrastructure and services.
Option 6: Build or buy dedicated facilities	Option 3: NQC Enhanced	The 'Build or buy dedicated facilities' longlist option effectively remains the same in the shortlist, with a new title which is consistent with the naming approach of other shortlist options.

APPENDIX 12: MULTI-CRITERIA ANALYSIS DETAIL

MCA Weighting Rationale

The following rationale for the MCA weighted criteria was identified and agreed by the programme team:

- The MCA weightings applied to each of the main criteria have been derived from the weightings of the problems, investment objectives and benefits developed following the TTX Workshops.
- A number of subcategories were identified by the programme team. The sub-categories are associated with the NQC problem statements and investment objectives but are more granular and refined.
- Achievability and value for money were added as additional MCA criteria as they were captured by the CSFs and are essential to the successful delivery of the investment.
- The criteria within each category have been equally weighted (excluding wider public value as this was considered as a sub-criterion to value for money).

MCA Scoring

The programme team held an internal workshop on 3 June 2022 to score the shortlisted options against the MCA criteria. Following feedback, and to reflect advancements made and to reflect advancements in the wider system over the course of developing the PBC, a validation exercise was held on 8 August 2022 to retest the MCA scores. The results of the MCA scoring of the shortlist options are outlined below.

The shortlisted options were assessed against the eight investment objectives and four Critical Success Factors on a seven-point scale of -3 to +3, where 0 represents an average score (see following table).

Scoring table for MCA option assessment

Score	Definition
3	Excellent
2	Good
1	Above average
0	Average
-1	Below Average
-2	Poor
-3	Very Poor / unacceptable

MCA Weightings

Category	Weighting	Definition (for Investment Objectives and CSFs)	Sub-weighting
Mitigates the threat posed to New Zealand by a future human infectious disease outbreak	24%	Enhances the wider system response to a future human infectious disease outbreak, allowing time for other measures to be implemented and reducing the load on domestic public health responses.	8%
		Prevents community transmission or the spread of serious human infectious diseases (for example, ability to adhere to IPC standards).	8%
		Can deliver against different levels of compliance in different risk environments (voluntary, assisted, directed, and enforced quarantine).	8%
Flexibility to changing demand pressures	21%	Can be deployed early, quickly, repeatedly and effectively.	7%
		In an event, the capacity can surge to respond to demand pressures. Associated operating model and workforce able to match demand requirements.	7%
		Has the potential to access a larger volume of managed quarantine rooms over a reasonable time period	7%
Treats people well, fairly, and equitably	20%	• Balances the rights of individual New Zealanders with collective rights of the people of New Zealand.	5%
		Recognises the Crown's obligations under Te Tiriti.	5%
		Quarantine capabilities and interventions that embed wellbeing, manaakitanga (care for people), and kaitiakitanga (care for place) and deliver pastoral care and culturally appropriate support.	5%
		Supports people who cannot safely isolate at home.	5%
Achievability and sustainability of service provision	15%	The capability and capacity of the potential workforce and suppliers to deliver the option	5%
		Can evolve over time with continuous improvement built into arrangements (for example, operating models, adoption of new technologies, adapting to new diseases)	5%
		Can respond to concurrent risks or events (for example, more than one disease outbreak, other demands on resource)	5%
Potential value for money	20%	Optimises value for money (i.e., the optimal mix of potential benefits, costs, and risks)	12%
		Wider public value (for example, alternate usability of infrastructure)	8%
Total	**100%**		**100%**

Multi-Criteria Analysis Scoring

Category	Total weight	Criteria	Sub-weight	Relevant Benefits	1. QIC (Status quo)		2. NQC Ready		3. NQC Enhanced (Do maximum)	
					Raw Score	Weighted Score	Raw Score	Weighted Score	Raw Score	Weighted Score
Mitigates the threat posed to New Zealand by a future human infectious disease outbreak	24%	Enhances the wider system response to a future human infectious disease outbreak, allowing time for other measures to be implemented and reducing the load on domestic public health responses.	8%	More effective quarantine capabilities to address future human infectious disease risks and contribute to minimising health, economic and social impacts of future outbreaks	1	0.08	2	0.16	2	0.16
		Prevents community transmission or the spread of serious human infectious diseases (for example, ability to adhere to IPC standards).	8%		1	0.08	2	0.16	3	0.24
		Can deliver against different levels of compliance in different risk environments (voluntary, assisted, directed, and enforced quarantine).	8%		1	0.08	2	0.16	2	0.16
Flexibility to changing demand pressures	21%	Can be deployed early, quickly, repeatedly and effectively.	7%	Faster deployment of quarantine interventions to reduce infection spread, and allow time and scope for other responses	1	0.07	2	0.14	2	0.14
		In an event, the capacity can surge to respond to demand pressures. Associated operating model and workforce able to match demand requirements.	7%		1	0.07	3	0.21	2	0.14
		Has the potential to increase access to a larger portfolio of infrastructure and/or services over a reasonable time period	7%		1	0.07	2	0.14	2	0.14
Treats people well, fairly, and equitably	20%	Balances the rights of individual New Zealanders with collective rights of the people of New Zealand.	5%	More quarantine options to meet differing needs	1	0.05	1	0.05	1	0.05

		Recognises the Crown's obligations under Te Tiriti.	5%	and enable equitable outcomes	1	0.05	2	0.10	2	0.10
		Quarantine capabilities and interventions that embed wellbeing, manaakitanga (care for people), and kaitiakitanga (care for place) and deliver pastoral care and culturally appropriate support.	5%		1	0.05	2	0.10	2	0.10
		Supports people who cannot safely isolate at home.	5%		1	0.05	2	0.10	2	0.10
Achievability and sustainability of service provision	15%	The capability and capacity of the potential workforce and suppliers to deliver the option	5%	Greater trust and confidence in future epidemic and pandemic responses	1	0.05	-1	-0.05	-2	-0.10
		Can evolve over time with continuous improvement built into arrangements (for example, operating models, adoption of new technologies, adapting to new diseases)	5%		1	0.05	2	0.10	3	0.15
		Can respond to concurrent risks or events (for example, more than one disease outbreak, other demands on resource)	5%		1	0.05	2	0.10	2	0.10
Potential value for money	20%	Optimises value for money (for example, the optimal mix of potential benefits, costs, and risks)	12%		1	0.12	1	0.12	0	0.00
		Wider public value	8%		0	0.00	1	0.08	2	0.16
Total	100%		100%		14	0.92	25	1.67	25	1.64

Multi-Criteria Analysis Scoring Justification

Category	Total weight	Criteria	Sub-weight	Scoring commentary
Mitigates the threat posed to New Zealand by a future human infectious disease outbreak	24%	Enhances the wider system response to a future human infectious disease outbreak, allowing time for other measures to be implemented and reducing the load on domestic public health responses.	8%	Options 2 and 3 scored higher than option 1 because of the NQC Strategy and NQC Activation Plan.
		Prevents community transmission or the spread of serious human infectious diseases (for example, ability to adhere to IPC standards).	8%	Option 3 is scored highest because purpose-designed facilities have the highest potential to meet IPC standards. Option 2 is scored above Option 1 because of the NQC Core Functionality.
		Can deliver against different levels of compliance in different risk environments (voluntary, assisted, directed, and enforced quarantine).	8%	Option 1 is scored lower than Options 2 and 3 due to its narrower scope of border arrivals. Options 2 and 3 are scored higher because of the evolving portfolio which expands the range of possible facilities and services utilised, with potential for the scope to also include those in the community.
Flexibility to changing demand pressures	21%	Can be deployed early, quickly, repeatedly and effectively.	7%	Option 1 is scored lower with respect to the effectiveness element of this criteria as it is limited to border arrivals. Options 2 and 3 have been scored equally due to the similarities in deployment times and the repeatability of approaches.
		In an event, the capacity can surge to respond to demand pressures. Associated operating model and workforce able to match demand requirements.	7%	All options have the ability to surge up and down. However, the greatest flexibility is provided through the evolving portfolio. Therefore, option 2 is scored the highest. Option 3, while including the evolving portfolio, is scored lower due to the perceived inability of purpose-built facilities with a fixed capacity to scale down in the same way.
		Has the potential to increase access to a larger portfolio of infrastructure and/or services over a reasonable time period	7%	Options 2 and 3 are scored highest because the evolving portfolio provides flexibility to access a larger volume of rooms.
Treats people well, fairly, and equitably	20%	Balances the rights of individual New Zealanders with collective rights of the people of New Zealand.	5%	All options will involve some limitation of rights. Therefore, are rated equally.

		Recognises the Crown's obligations under Te Tiriti**.**	5%	Options 2 and 3 are scored higher because of the evolving portfolio and purpose-built facilities enabling partnership with Iwi in the design and provision of managed facilities and services.
		Quarantine capabilities and interventions that embed wellbeing, manaakitanga (care for people), and kaitiakitanga (care for place) and deliver pastoral care and culturally appropriate support.	5%	Options 2 and 3 are scored higher because they include community support plans as well as the evolving portfolio and purpose-built facilities which include infrastructure and services that support community quarantine and embed wellbeing, etc., in their activities.
		Supports people who cannot safely isolate at home.	5%	While option 1 includes COVID-19 Care in the Community, its main focus is on border arrivals. Therefore, Options 2 and 3 are scored higher because of the evolving portfolio and community support plans which offer broader options nationally for accommodation away from home.
Achievability and sustainability of service provision	15%	The capability and capacity of the potential workforce and suppliers to deliver the option	5%	Option 1 is scored the highest as delivery has been proven through MIQ. Options 2 and 3 are scored lower due to potential challenges in finding construction workers to upgrade or build new infrastructure. Option 3 is scored the lowest due to perceived challenges in securing the workforce for purpose-built facilities during an activation event.
		Can evolve over time with continuous improvement built into arrangements (for example, operating models, adoption of new technologies, adapting to new diseases)	5%	Option 3 is scored the highest because of the evolving portfolio and the purpose-designed facility which offers the ability to be used for workforce training workforce, testing processes and equipment, and piloting developments in IPC protocols, services and technology. The NQC Core Functionality also increases the embedded improvements over time.
		Can respond to concurrent risks or events (for example, more than one disease outbreak, other demands on resource)	5%	Option 1 includes workforce and surge plans and has also been developed specifically not to draw on or conflict with emergency management resourcing requirements. Options 2 and 3 have been scored higher because of the evolving portfolio.
Potential value for money	20%	Optimises value for money (i.e., the optimal mix of potential benefits, costs, and risks)	12%	Option 3 is likely to cost significantly more than option 2 while only adding a relatively small number of additional rooms. Options 1 and 2 have been scored equally as while option 1 costs less, its scope is currently on border arrivals, while option 2, at a higher cost, enables expanding the portfolio of facilities and services for greater utility.

		Wider public value	8%	Option 3 was scored the highest because Crown-owned facilities have the highest potential to provide wider public value (for example, provide emergency accommodation in the event of a disaster or to facilitate compatible uses by other agencies). Options 1 scored lower as facilities would operate as hotels when not being used for quarantine. Option 2 could potentially provide more public value through the evolving portfolio, but this would depend on the type of facility or require approval from the private accommodation owners.
Total	100%		100%	

APPENDIX 13: SHORTLIST OPTION RISK ASSESSMENT

	Option specific risks	Mitigations	Overall risk
Option 1: MIQ Ready (Status quo)	Retention arrangements with MIQ facilities and services ● Plans to surge workforce (in particular, security and health staff) may not be able to be implemented in timeframes envisaged Care in the Community ● The capacity and capability or community providers varies by region so may not get the same quality of care Self-quarantine Framework ● Compliance and assurance (for example, monitoring technology and legislative changes may be required) ● Monitoring technology may become obsolete over time.	Clear and on-going engagement with third party providers of personnel (for example, AvSec, First Security) and business continuity planning. Invest in community training and building regional capability	Low/Medium
Option 2: NQC Ready	*In addition to the risks of the previous option:* Evolving portfolio ● Private accommodation owners might not agree to IPC upgrades ● Medium construction risk to upgrade facilities (for example, skill shortages, supply chain disruptions, decanting risk, etc)	Incorporate infrastructure upgrades into contractual arrangements	Medium
Option 3: NQC Enhanced (Do maximum)	*In addition to the risks of the previous option:* Purpose designed facilities ● High construction risk for building new ● Risk purpose-designed facility not fit for purpose for future disease outbreak and hard to retrofit improvements ● Alternate use risk (may not be achievable and multi-use may impact fit for purpose) ● Permanent retention of workforce for purpose-designed facilities may be hard to maintain ● There may be high costs associated with maintaining facilities		High

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