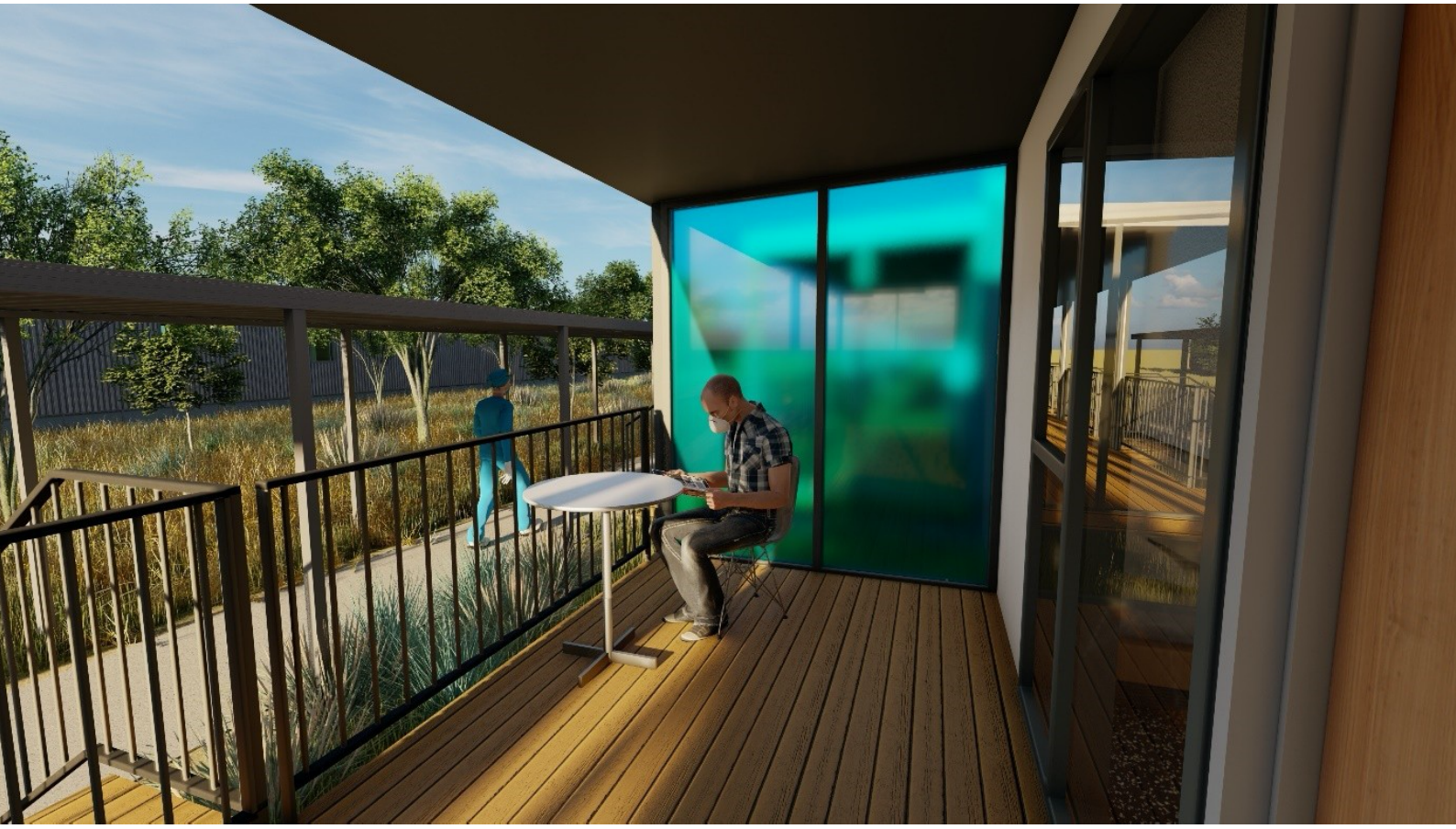
Alternative Quarantine Accommodation Hub

Project Summary | April 2021



VICTORIA
State Government

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Executive Summary

The COVID-19 Accommodation Program was established by the Victorian Government as a necessary and justified risk mitigation strategy to prevent spread in the transmission of COVID-19. An urgent decision was made to use hotels as the 'designated facility' for Victoria's quarantine program as there were no specific quarantine facilities in the State at the time of the decision of National Cabinet in March 2020 to require returning international travellers to spend 14 days in mandatory quarantine.

There are aspects of hotel facilities that have created challenges for infection prevention and control (IPC), including soft surfaces that are difficult to clean; the lack of open spaces that enable best practice physical distancing; lack of dedicated handwashing stations and clinical waste disposal facilities; and ventilation not specifically designed for IPC. Modifications have since been implemented in Quarantine Hotels to address many of these issues, and in spite of their physical limitations, the operating model has been largely successful at containing the risk of international travellers bringing COVID-19 into Australia and Victoria.

On 2 July 2020, an inquiry was announced, led by The Honourable Jennifer Coate AO ('the Coate Inquiry'), to investigate the cause of the breach within Victoria's Hotel Quarantine program that seeded in the community and led to a prolonged imposition of strict COVID-19 restrictions.

In late January 2021, residents in the PARKROYAL Melbourne Airport were found to have the UK variant of COVID-19, while 22 cases linked to the UK variant were also detected at the Holiday Inn, which resulted in a five-day circuit breaker lockdown and the suspension of incoming international flights in February 2021. These events led to the Government's commissioning of further reviews, including a Safer Care Victoria's review of Covid-19 Quarantine Victoria's operations, and an expert risk assessment into the use of Hotel Quarantine to contain the variants of concern led by the Deputy Chief Health Officer.

With COVID-19 quarantine requirements expected to continue in some form at least over the next two-to-three years, the Victorian Government has further committed to investigating alternative models of mandatory quarantine, including purpose-built Alternative Quarantine Accommodation outside of Melbourne's Central Business District. The Alternative Quarantine Accommodation options considered in the business case specifically aim to address the following problems:

- New Variants of Concern (VoC) are more infectious and readily transmissible, increasing the risk of future outbreaks;
- Challenges in optimising hotels for use as quarantine facilities increase the risk of outbreak;
- The location of the current quarantine program may increase the potential magnitude and consequences of outbreaks, especially given increasing activity in Melbourne's CBD; and
- The unknown duration of, and demand for, Victoria's quarantine program, as well as limitations in the supply of hotels, create uncertainty for government, business and individuals.

The options are assessed, amongst other factors, on their ability to deliver the following benefits:

- Improving overall public health in Victoria by mitigating the risk of COVID-19 re-seeding into the community;
- Avoiding economic damage and support for economic recovery by reducing the need for additional, strict public health measures;
- Greater business and the community certainty and continuity to support long-term economic growth; and
- More tailored response options for the Government that are commensurate to risk levels and help improve compliance.

An analysis was conducted for four options. The recommended option is for the Government to deliver permanent purpose-built Alternative Quarantine Accommodation, which may operate in conjunction with Hotel Quarantine. The proposed Alternative Quarantine Accommodation will have a capacity of up to 3,000 places (representing 1,100 returning international traveller arrivals per week) and if required Hotel Quarantine could support additional places.

Rooms in the Alternative Quarantine Accommodation will be turned around faster and provide flexibility across the quarantine program including allowing Government to implement a risk-based process for allocating travellers. For example, higher risk cohorts from countries with a slow vaccine roll out could be allocated to the Alternative Quarantine Accommodation to better manage risk while lower risk cohorts could continue to utilise Hotel Quarantine.

Specifications for the new Alternative Quarantine Accommodation will take into account the learnings from CQV current operations and other facilities, such as the Howard Springs Quarantine Facility in the Northern Territory.

Multiple sites have been considered and scored against a set of selection criteria, which included proximity to a public hospital, international airport, transport and other services that impact on operations, as well as land area and site-specific planning, environmental and infrastructure risks.

The final shortlist consists of two sites, with the preferred site being located on Donnybrook Road in Mickleham, on a vacant portion of the site occupied by the Post Entry Quarantine Facility operated by the Australian Government Department of Agriculture. The proposed site is owned by the Commonwealth of Australia and is located 29 kilometres from Melbourne CBD hotels and health services, and within 24 kilometres of Melbourne Airport in Tullamarine and 10 kilometres of Northern Hospital in Epping. The site has approximately 40 hectares of land potentially suitable for Alternative Quarantine Accommodation.

Should this site prove not to be suitable, for example due to unforeseen planning or environmental issues, or should the State not be able to secure an interest in the site on acceptable terms, an alternate site of approximately 100 hectares within the area leased from the Australian Department of Defence by Avalon Airport is also considered to be a potentially suitable location.

The new Alternative Quarantine Accommodation is proposed to be delivered over a 22-month period, utilising modular construction and applying a staged approach that will deliver the first 1,000 places, plus ancillary facilities such as catering and laundry, within 12 months of commencing the project. A further 1,000 places could be added within 17 months, with the full capacity of 3,000 places achieved within 22 months.

The business case was developed based on the assumption of the ongoing need to accommodate up to 2,100 arrivals per week, which was selected as the maximum weekly arrival cap that Victoria has ever considered. It is noted that this number does not reflect a Government decision to accept this number of arrivals, and that all decisions regarding passenger arrivals cap are subject to agreement between the Victorian and Australian Governments.

1 Problem definition

1.1 Background

In 2020-21, cases of COVID-19 transmission within Victorian Hotel Quarantine settings and similar programs around the country, along with the need to furlough COVID-19 Quarantine Victoria (CQV) staff, have impacted the current capacity of Victoria's COVID-19 Accommodation Program and have raised concerns regarding the ability of Infection Prevention and Control (IPC) measures to contain COVID-19 Variants of Concern (VoCs) in hotel settings. This is following similar situations in other jurisdictions and that Victoria has faced outbreaks despite having the most risk averse, resource intensive system in the country.

In response to the recent cases of transmission of new COVID-19 VoCs in Hotel Quarantine settings, the following reviews were commissioned:

- A rapid review of COVID-19 CQV operations to be conducted by Safer Care Victoria; and
- An expert risk assessment into the use of Hotel Quarantine to contain the more transmissible UK variant, to be led by Deputy Chief Health Officer Professor Allen Cheng.

Both reports inform the analysis in this business case.

1.1.1 Exploration of alternative quarantine options

The Victorian Government has committed to investigating alternative models of mandatory quarantine, including a purpose-built accommodation outside of Melbourne's Central Business District (CBD), to address the changing threat of new hyper-infectious, fast moving strains of coronavirus.

The Department of Premier and Cabinet (DPC) undertook an initial exploratory review of public health requirements, recommendations from the Coate Inquiry, and potential infrastructure options to support Alternative Quarantine Accommodation over the next two to three years, noting this is the expected timeframe for sufficient global vaccination coverage.

To continue operating Hotel Quarantine under current settings for a further three years (based on likely timeframes for global vaccination programs to reach developing countries), would cost approximately $3.5 billion, with no enduring asset for that expenditure after that period.

1.2 Definition and evidence of the problem

1.2.1 Victoria needs a robust quarantine system to mitigate against the risk of future outbreaks of COVID-19, especially given the ongoing emergence of new Variants of Concern, and given the likelihood of future pandemic events

Problem statement: New variants of concern are more infectious and readily transmissible, increasing the risk of future outbreaks

Viruses change constantly due to evolution and adaptative processes, and some changes can mean that the virus is more transmissible or better able to avoid hosts' immune responses.[1] Since emerging in January 2020, SARS-CoV-2 has undergone several transformations that have caused concern amongst health authorities for their potential impacts on the virus' transmissibility, and on COVID-19's clinical presentation and severity. The ongoing emergence of new variants, including Variants of Concern (VoCs), with as-yet-unknown implications

[1] European Centre for Disease Prevention and Control, Risk related to the spread of new SARS-CoV-2 variants of concern in the EU/EEA – first update (21 January 2021) Stockholm, 1.

for the speed of outbreaks and the efficacy of vaccines, indicate that the maintenance of a robust quarantine system in Victoria, capable of containing the virus moving forward, will be essential to public safety as long as COVID-19 continues to present a public health risk to Australians.

1.2.2 There is scope for change in Victoria's COVID-19 Accommodation Program as part of the continuous improvement of the Government's COVID-19 response

According to analysis included in Professor Cheng's review of Victoria's quarantine system's management of the VoCs, 17,032 people entered Victoria's Hotel Quarantine facilities between 7 December 2020 and 21 February 2021, with the weekly number of arrivals varying from 2,957 to 606.[2] During this time, 91 cases of COVID-19 were reported in Hotel Quarantine, or 0.53% of residents.

The Hon. Jennifer Coate stated in her interim report into Victoria's Hotel Quarantine program that 'any [quarantine] facility operating in the context of this highly infectious virus will always carry risks of infectious outbreaks'.[3] However, hotels were not designed for use as quarantine facilities, and this means that there are some drawbacks to the current system that could be addressed to improve its capacity to mitigate against the risk and scale of an outbreak in Victoria.

Problem statement: Challenges in optimising hotels for use as quarantine facilities increase the risk of outbreak

Epidemiological analysis of SARS-CoV-2 has found that the virus' principal mode of transmission is through respiratory droplets produced during exhalation (for example, breathing, speaking, coughing or sneezing).[4] While available data indicates that the virus mostly spreads through people coming into contact with infectious droplets at close range (i.e., directly speaking with or passing close by an infectious person), there is evidence that the virus can also be spread through 'airborne transmission'.[5] Airborne transmission in this context refers to infection from respiratory droplets that have remained suspended in the air over longer distances and/or longer periods of time.[6] Risk factors for airborne transmission include enclosed spaces and inadequate ventilation or air handling, allowing the build-up of suspended small respiratory droplets.[7]

The prominence of airborne transmission as a route of infection for SARS-CoV-2 remains the subject of debate in the scientific community,[8] but it is clear that ventilation, air circulation and air conditioning are relevant considerations in understanding the risk of transmission within quarantine facilities. Health advice prepared in collaboration with the World Health Organisation states that air conditioning and ventilation systems that are well-maintained and operated should not increase the risk of virus transmission, but that closed-circuit systems can, if inefficient filters are used, contribute to transmission by circulating contaminated air.[9]

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[2] Professor Allen Cheng et al, *Review of Management of Variants of Concern of COVID-19 in Hotel Quarantine Settings* (draft provided 15 March 2021), 7-8.
[3] The Hon. Jennifer Coate AO, COVID-19 Hotel Quarantine Inquiry – Interim Report and Recommendations (November 2020), 27, [3].
[4] United States Department of Health and Human Services, Centers for Disease Control and Prevention, 'Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission' (5 October 2020) < https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html>.
[5] United States Department of Health and Human Services, Centers for Disease Control and Prevention, 'Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission' (5 October 2020) < https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html>.
[6] United States Department of Health and Human Services, Centers for Disease Control and Prevention, 'Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission' (5 October 2020) < https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html>.
[7] United States Department of Health and Human Services, Centers for Disease Control and Prevention, 'Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission' (5 October 2020) < https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html>.
[8] See, e.g., C Raina MacIntyre and Michelle R Ananda-Rajah, 'Scientific evidence supports aerosol transmission of SARS-COV-2' (18 December 2020) *Antimicrobial Resistance & Infection Control* 9; Lidia Morawska and Junji Cao, 'Airborne transmission of SARS-COV-2: The world should face the reality' (10 April 2020) 139 *Environment International* 105730.
[9] Global Heat Health Information Network, 'Do air conditioning and ventilation systems increase the risk of virus transmission? If so, how can this be managed?' (22 May 2020) < https://ghhin.org/faq/do-air-conditioning-and-ventilation-systems-increase-the-risk-of-virus-transmission-if-so-how-can-this-be-managed/>; World Health Organisation, 'Coronavirus disease (COVID-19): Ventilation and air conditioning in public spaces and buildings' (29 July 2020) < https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-ventilation-and-air-conditioning-in-public-spaces-and-buildings>.

Building codes apply standards to hotels in Victoria regarding required airflow and ventilation but, as noted by Safer Care Victoria's interim report, these standards 'were not designed to meet the additional infection and prevention control requirements that arise from their use as quarantine facilities'.[10]

Hotels are not designed for quarantine purposes. As summarised in a review of Western Australia's Hotel Quarantine arrangements, 'Health facilities are built to engineering standards that include ventilation designed to prevent the spread of infectious diseases. Hotels are designed for amenity and although intake of 100% fresh air rather than recirculation appears to be common practice, other features such as rate of air change, relative room pressure and subsequent air flow may not be prioritised.'[11]

1.2.3 Uncertainties in the future nature and risk profile of COVID-19 – and other biohazards that may emerge – create the need for a future-proofed, durable and flexible quarantine system

Problem statement: The unknown duration of, and demand for, Victoria's quarantine program, as well as limitations in the supply of hotels, create uncertainty for government, business and individuals.

Over the 14 months since January 2020, SARS-CoV-2 has evolved considerably, developing at least three major known VoCs. The virus appears to be changing quickly – the B.1.1.7 variant, for example, was found to have acquired 17 mutations simultaneously when analysed, a much faster evolution than normally seen[12] – and ongoing research into this evolution indicates that some mutations may pose challenges to the success of efforts to eliminate the virus through vaccine programs. Recent outbreaks in Australia have involved VoCs, and it appears likely that an increasing proportion of positive cases arriving from overseas may also carry VoCs in future, given the way these variants have grown to take over 'original' strains of the virus in their originating locations.

1.3 Problem dependencies and interfaces

Reviews and continuous improvement by the Government

Risks and outcomes in the global management of the COVID-19 pandemic are evolving day-by-day, as new VoCs emerge and vaccination is rolled out. The Victorian Government's best practice in managing COVID-19's public health risks is expected to evolve along with these developments. To inform its continuous improvement, reviews of the existing COVID-19 Accommodation Program have been commissioned, and their recommendations are being implemented by the Government.

Increasingly, international arrivals to Victoria are testing positive with a variant of COVID-19. While the evidence base is still emerging on the behaviour of these VoCs, overseas evidence suggests that these variants are more infectious and therefore, are likely to spread more rapidly in an outbreak.

Within Australia, there have been several instances where the COVID-19 virus has been transferred to workers and to other travellers in Hotel Quarantine and triggered outbreak management arrangements, including a recent case in Victoria requiring a five-day state-wide lockdown in February 2021. Given this emerging risk, the Government commissioned the Review of Management of Variants of Concern of COVID-19 in Hotel Quarantine Settings, which was delivered in March 2021. Some of the recommendations included that:

[10] Safer Care Victoria, *Rapid review – transmission events in COVID-19 Quarantine Victoria: Interim Report* (February 2021), 18.
[11] Tarun Weeramanthri, *Review of Western Australia's Hotel Quarantine Arrangements – Interim Advice* (4 February 2021), 3.
[12] Andrew Rambaut et al for the COVID-19 Genomics Consortium UK, 'Preliminary genomic characterisation of an emergent SARS-CoV-2 lineage in the UK defined by a novel set of spike mutations' (9 December 2020) <https://virological.org/t/preliminary-genomic-characterisation-of-an-emergent-sars-cov-2-lineage-in-the-uk-defined-by-a-novel-set-of-spike-mutations/563>.

- the Victorian Government consider the three options for future quarantine arrangements: strengthen existing hotel model; have a hybrid model of hotel and other types of accommodation; and quarantine in purpose-built facilities or other identified fit-for-purpose facilities; and
- a permanent system be put in place to ensure that safe, effective quarantine can be provided into the future, even if the need to quarantine for COVID-19 ceases.

The business case has drawn on findings of this review to develop options that are suitable in managing the risks of new variants of concern.

Separate from the reviews by the Victorian Government, the Commonwealth Government had commissioned the National Review of Hotel Quarantine to examine the quarantine systems in other Australian jurisdictions. This review made six recommendations, which focused on implementing assurance mechanisms to support continuous improvement, providing more information to travellers to protect their human rights and limit the psychological impacts of quarantine, and considering any new models and approaches for quarantine at National Cabinet. Recommendations from this report in relation other jurisdictions and contexts provide an opportunity for the Victorian Government to consider their potential applicability to the options in this business case. However, it is important to carefully consider the applicability of any recommendations to the specific context in which they might be applied, which may differ from the context for which they were initially recommended.

1.4 Uncertainty around the problem

In consideration of an Alternative Quarantine Accommodation, the greatest uncertainty concerns how long mandatory quarantine will need to remain in place, and how demand for quarantine services might fluctuate over time with the rollout of vaccines, as well as emerging risks from VoCs. This uncertainty requires this business case to apply specific assumptions about number of arrivals requiring quarantining and the minimum capacity of an Alternative Quarantine Accommodation, until a long-term policy framework is developed to more accurate assess future needs.

How many people in the population that need to be vaccinated to reduce the spread of the virus is not easy to predict and it is best observed in real time. Further studies are required to determine the effectiveness of vaccines in preventing transmission (including against new VoCs) and when herd immunity is practically achieved in Australia. Until then, current public health measures, including mandatory quarantine, will likely need to stay in place.

2 Response option development

2.1 Method and criteria

The approach used to identify and assess Response Options is consistent with Department of Treasury and Finance guidelines and included the following steps:

- Identification of realistic strategic interventions for addressing the identified problems;
- Grouping strategic interventions into response options that could be implemented to address the service need;
- Evaluating response options and ranking according to their performance against the desired project benefits, their costs, time taken to complete the project, dis-benefits and their relative risks; and
- Recommending a preferred response option (highest ranking) for further consideration and scoping in the Project Options chapter. All project options developed for further analysis stem from the preferred response option.

2.2 The base case

The 'Do Nothing' option involves continuing to operate quarantine accommodation for all mandatory quarantine using the COVID Quarantine Victoria (CQV) operating model, which has implemented changes to physical infrastructure and the operating and workforce model as recommended by Safer Care Victoria and by Professor Cheng's review.[13] The accommodation program would continue to use commercial hotels located near to or in the Melbourne CBD as the facility type.

2.2.1 Operating model for Hotel Quarantine Program in Victoria

Victoria's COVID-19 Accommodation Program includes:

- Quarantine accommodation for travellers entering Victoria from overseas required to undergo 14 days' mandatory quarantine, consisting of 'Quarantine Hotels' and 'health' or 'complex care' hotels for positive cases or residents with more complex needs;
- Emergency accommodation for people that cannot safely isolate/quarantine in their accommodation, including COVID-19 Isolation and Recovery Facilities (CIRFS); and
- Frontline worker accommodation for eligible frontline workers who need support to quarantine or self-isolate safely or require accommodation on compassionate grounds**.**

Under the base case, Victoria's quarantine program would continue to solely use hotels to accommodate overseas arrivals required to undergo a period in quarantine.

The analysis in this business case relates to Victoria's quarantine program, and thus focuses solely on the quarantine accommodation for overseas travellers.

Overview of infrastructure

Hotels have been used to provide accommodation for overseas travellers required to undergo quarantine. The number of travellers housed at any one time has varied from 1,500 to 4,000.[14] Hotels provide protection

[13] Professor Allen Cheng et al, *Review of Management of Variants of Concern of COVID-19 in Hotel Quarantine Settings* (draft provided 15 March 2021), 7-8.
[14] The Hon. Jennifer Coate AO, *COVID-19 Hotel Quarantine Inquiry Final Report and Recommendations* (December 2020), 13.

against cross-contamination and the proliferation of infection by keeping returned travellers separated within specific hotel rooms with access to their own bathroom.[15]

Modifications have been made to the physical set up of hotels to reduce transmission risk:[16]

- Hotel lobbies were cordoned off to encourage swift movement through the spaces;
- Hotels were encouraged to remove or limit soft furnishings;
- Lifts were assigned to 'clean' and 'dirty' purposes to reduce cross-infection; and
- Staff on-site were separated into specific zones to prevent cross-infection.

In addition, to the above IPC measures, the hotels are split into three categories – 'Quarantine Hotels', 'Health Hotels' and 'Complex Care Hotels'. this split in facilities is to help isolate and manage positive cases within the quarantine program.

Overview of operating model

Victoria's Hotel Quarantine program is overseen by COVID-19 Quarantine Victoria (CQV) and is operated in partnership with a number of other Victorian and Commonwealth departments and agencies, health services and other service providers and staff at Melbourne Airport.

Specific COVID-19 related health services in the Health Hotels are operated by Alfred Health for health and Complex Care Hotels and Health Services Australia for Quarantine Hotels. These medical services are overseen by CQV. Other supporting services such as laundry, catering, portering transport and transfer services are provided by a wide range of providers including commercial hotels through their in-house facilities, and third-party providers in off-site facilities (i.e. external commercial laundry).

At present, travellers in Quarantine Hotels can depart the hotel through their own means after they have cleared all essential medical testing requirements, obtained medical clearance and received an End of Detention Notice by DHHS public health.

All decisions about where travellers should be sent within Victoria's quarantine program are managed by the Allocation Team. This team:

- Manages and plans capacity and occupancy across the CQV Accommodation Program;
- Receives, consolidate and validates incoming daily data in areas such as program capacity, flights, flight forecasts and passenger pre-arrival information and this data is used to manage capacity across program suites.
- Determines and coordinates intakes for the COVID-19 Accommodation Program;
- Consults the intake with operational teams and relevant external partners; and
- Coordinates and communicates this decision across the operational teams and external partners.

Hotel transfers

Allocations of travellers to Health Hotels and Complex Care Hotels depends on their circumstances. All travellers who are COVID positive and/or symptomatic upon entering Victoria are transferred directly to Health Hotels, and travellers who are determined to have complex care needs are transferred to Complex Care Hotels.

[15] The Hon. Jennifer Coate AO, *COVID-19 Hotel Quarantine Inquiry Final Report and Recommendations* (December 2020), 216.

[16] The Hon. Jennifer Coate AO, *COVID-19 Hotel Quarantine Inquiry Final Report and Recommendations* (December 2020), 218.

Transfers of residents from a Quarantine Hotel to a Health Hotel or Complex Care Hotel can occur at any time during the quarantine period under the following circumstances:

- The resident tests positive for COVID-19;
- The resident is in the same accommodation room as a confirmed COVID case and requires care from, or provides care to, the resident who has tested positive; or
- The resident requires additional clinical support that can be provided in a Complex Care Hotel.

Residents who become ill while in a Quarantine Hotel or test positive to COVID are transferred to a Health Hotel managed by Alfred Health, so as to better manage any medical care needs and isolation from other non-symptomatic residents in the Quarantine Hotel. CQV has advised that symptomatic residents who do not test positive generally remain in their original rooms.

Because the current operating model for Victoria's quarantine program continues to use hotels as the 'designated facility' for mandatory quarantine, this is used as base case for both the assessment of response options and more detailed project options.

2.3 Response options

Five response options were identified.

- **Option 1**: Do nothing and maintain operations as per base case description;
- **Option 2**: Manage demand for quarantine by limiting the number of people entering Victoria from overseas;
- **Option 3**: Repurpose an existing facility to provide Alternative Quarantine Accommodation on a single site;
- **Option 4**: House arrivals across both Hotel Quarantine and new, purpose-built Alternative Quarantine Accommodation; and
- **Option 5**: Create new purpose-built Alternative Quarantine Accommodation.

Table 1 illustrates the five response options identified and level of alignment with each of the strategic interventions.

Table 1: Response Options

Strategic Interventions	Response Options				
	Option 1 Do Nothing	Option 2 Manage/Limit demand	Option 3 Repurpose existing facility	Option 4 Hybrid model	Option 5 Build new purpose-built accommodation
Do nothing					
Limit or stop international travellers from arriving in Victoria lowering or removing the need for quarantine accommodation					
Repurpose existing facility/facilities for quarantine accommodation					

Strategic Interventions	Response Options				
	Option 1 Do Nothing	Option 2 Manage/Limit demand	Option 3 Repurpose existing facility	Option 4 Hybrid model	Option 5 Build new purpose-built accommodation
Establish new accommodation facility to meet quarantine needs					
Separate travellers across different facilities based on risk profile					
Reduce demand for quarantine accommodation by making home-based quarantine an option for lower risk individuals					
Adjust service and operating model to be align with infrastructure					
Change workforce model to reduce risk of program					
Develop new remote operating model, including use of technology					

2.4 Ranking of response options

The response options were assessed against the following criteria to determine which should inform the development of project options to address the problems identified:

- The extent to which each response contributes to achieving the benefits identified;
- Estimated cost;
- Time to deliver the benefits;
- Risks, uncertainties and disbenefits; and
- Acceptability to the community.

The evaluation below assumes that the maximum possible benefit will be realised for each response option as they will be implemented with the optimal combination of project phasing, cost, resourcing and governance arrangements.

Table 2: Evaluation of response options

		Response options				
		Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Benefits (core project)	Do nothing		Manage/Limit demand	Repurpose existing facilities	Hybrid model	Build new purpose-built accommodation
Percentage of full benefit to be delivered						
Benefit 1	Improved public health	-	80%	75%	75%	80%
Benefit 2	Avoided economic damage	-	80%	75%	75%	80%
Benefit 3	Increased business and community certainty and continuity	-	20%	50%	75%	80%
Benefit 4	Improved quarantine system enables more tailored response	-	0%	60%	75%	80%
Benefits (Value creation opportunities) *Percentage of full benefit to be delivered*						
Benefit 1	Changed attitudes towards Government's management of COVID-19 risks	-	20%	75%	75%	80%
Benefit 2	Building capacity for future pandemic response	-	0%	75%	75%	90%

			Response options			
	Option 1 *Do Nothing*		Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Benefit 3	Improve recruitment for government service delivery functions	-	0%	75%	75%	90%
Benefit 4	Creating new capacity in modular housing solution that may be repurpose for future uses	-	0%	20%	50%	100%
Risks (Criticality/Likelihood: high, medium or low (e.g. H/M = criticality high and likelihood low)						
Risk 1: VoCs will increase risks within the operating model: Ability of model to manage the risks associated with existing and new VoCs	While recommended changes to Hotel Quarantine are assumed under the base case, transmission risk associated with unalterable parts of the hotel layout persist. (H/M)		Limiting entrants will reduce opportunities for VoCs to be brought into, and potentially spread within, Victoria. (H/L)	A repurposed facility will allow for changes in infrastructure to better mitigate against VoC transmission. A repurposed facility will not be as effective as purpose-built infrastructure. (H/M)	Continued use of hotels retains risk of VoC transmission associated with these facilities; however, once higher risk travellers can be transitioned from hotels to the Alternative Quarantine Accommodation, the risk of transmission will significantly reduce. (H/L)	A purpose-built Alternative Quarantine Accommodation would be best able to mitigate against the risk of VoC transmission. That is because it will incorporate the most effective design and infrastructure to reduce transmission and would fully replace Hotel Quarantine once operational. (H/L)

	Response options				
	Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Risk 2: Public health: Ability to prevent a breach within the quarantine program leading to an outbreak of community transmission	Continued use of hotels maintains current risk levels of outbreak leading to community transmission. (H/M)	Fewer travellers requiring quarantine accommodation means fewer positive cases and transmission opportunities, therefore reducing the likelihood of an outbreak even if all other aspects of the program remain the same. (H/L)	A repurposed facility will allow for changes in infrastructure to better prevent a breach. However, a repurposed facility will not be as effective as purpose-built infrastructure and having to operate across multiple sites can create more opportunities for errors leading to breaches. (H/M)	Continued use of hotels may not lower the likelihood of a breach leading to an outbreak. However, once the purpose-built alternative accommodation is available, and higher risk travellers are able to stay within that Alternative Quarantine Accommodation, the ability to prevent a breach would improve significantly. (H/L)	A purpose-built Alternative Quarantine Accommodation can be designed to best prevent an outbreak leading to community transmission (H/L)
Risk 3: Economic recovery: Disruption to economic recovery resulting from an outbreak	Risk of outbreak, and additional public health measures including lockdown, remains unchanged,. (H/M)	Limiting entrants will reduce opportunities for outbreak, lowering risk of introduction of stricter public health measures, including lockdown, but restricting entrants would also impact on the economic boost otherwise provided by sectors like tourism, international education. (H/M)	Reducing risk of an outbreak by repurposing a facility lowers risk of outbreak and could reduce the need for stricter public health measures, including lockdown. (H/M)	Continued use of hotels retains the perceived and actual risk of outbreak from thar program. However, having access to purpose-built alternative accommodation that is best designed to reduce transmission risk, and being able to transfer higher risk cohorts to that location, could reduce the need for implementing strict public health measures, including lockdown. (H/L)	Significantly reducing risk of outbreak through purpose-building an Alternative Quarantine Accommodation could reduce the need to implement stricter public health measures including lockdown. (H/L)

	Response options				
	Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Risk 4: Supply of available facilities: Ability to meet current and future demand for quarantine	Current program depends on potentially insecure and limited supply of hotels. (H/H)	Lower demand for quarantine reduces need for and reliance on availability of hotels (L/L)	Re-purposing existing facilities would no longer require use of hotels once facilities are fully operational; however, there may be limitations in the availability of suitable facilities for repurposing. (M/M)	Adopting a hybrid model does not eliminate reliance on insecure supply of hotels - this risk can be offset by the built capacity of the alternative facility. However, there may be limitations in the availability of suitable sites for building the new accommodation. (M/M)	Building new alternative quarantine accommodation would no longer require use of hotels once the facility is fully operational; however, there may be limitations in the availability of suitable sites for building the new accommodation to replace the current and future capacity (and meet demand) of the hotel accommodation model. (L/L)
Risk 5: Demand forecast: Demand forecast for a quarantine program are not accurate leading to an oversupply of facilities	Current program can be scaled down if demand for quarantine is reduced. (L/L)	Current program can be scaled down if demand for quarantine is reduced. (L/L)	Size and capacity of new facilities may never be fully utilised. (M/L)	Use of hotels can be scaled down and replaced by capacity of new accommodation. However, the capacity of the new facility may never be fully utilised, but scalability in the design of this new facility mitigates this risk somewhat. (M/L)	Size and capacity of a new Alternative Quarantine Accommodation may never be fully utilised, but scalability in the design of this new facility mitigates this risk somewhat. (H/L)

	Response options				
	Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Risk 6: Service provision: Ability to access the necessary services and workforce required to manage the quarantine program	Current program has access to necessary services and workforce. (H/L)	Current program has access to necessary services and workforce. (H/L)	Depending on location of available facilities, there could be a gap in suitable services and workforce to manage the quarantine program. (H/M)	Depending on location of available sites, there could be a gap in suitable services and workforce to manage the quarantine program. (H/M)	Depending on location of the new Alternative Quarantine Accommodation , there could be a gap in suitable services and workforce to support the quarantine program. (H/M)
Risk 8: Availability of suitable land: Risk that suitable land is not available to build new accommodation	Current program does not require suitable land for new accommodation. (L/L)	This option does not require suitable land for new accommodation. (L/L)	This option does not require suitable land to build new accommodation but requires the availability of suitable facilities for repurposing. (H/M)	Depending on the required capacity of the alternative accommodation, there is a risk that suitable land may not be available. (H/M)	This option relies upon sourcing suitable land for new accommodation. (H/H)
Risk 9: Delivery risk: Is there sufficient capacity within industry to deliver new accommodation	Current program does not require new accommodation. (L/L)	This option does not require new accommodation. (L/L)	Expertise in retrofitting facilities to meet IPC standards and other requirements is needed for this option. (H/M)	Expertise in building accommodation to meet IPC standards and other requirements is needed for this option but continuing to use hotels to meet capacity reduces the criticality of this risk. (M/M)	Expertise in building accommodation to meet IPC standards and other requirements is needed for this option. (H/M)

	Response options				
	Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
Risk 10: Community support: Risk that the community does not support changing the current quarantine model	Current program has resulted in outbreaks and may not enjoy continuing community support. (H/H)	Some parts of the community may support this option due to the perceived risk posed by arrivals. Others may not due to concerns about repatriating Australians. (H/M)	Community support can be expected if the repurposed facility prevents future transmissions and outbreaks. (H/L)	Some parts of the community may question the continued use of hotels, especially if the additional cost of building new accommodation is also accrued to government. (H/L)	Some parts of the community will likely support this option given its ability to better prevent outbreaks, while others may question the expense and utility of this option given its likely timeframe for completion. (H/M)
Dis-benefits					
Dis-benefit 1	Limited availability of commercial hotels for tourism purposes				
Dis-benefit 2	Financial support for Victoria's hotel industry would decrease in the absence of low tourism levels				
Dis-benefit 3	Victoria could be taking on further responsibility for something that is otherwise the responsibility of the Commonwealth				
Uncertainties					
Uncertainty 1	Effectiveness of vaccination programs in Australia and globally may increase or reduce future demand for quarantine				
Uncertainty 2	If the Commonwealth starts to support the State and Territory quarantine programs, this could lead to reduced demand for State-run quarantine facilities				
Uncertainty 3	If there are border changes or an increase in repatriation flights, this could lead to an increase in demand for State-run quarantine facilities				
Cost (range)					
Capital total estimated investment (TEI)	N/A	Low	Medium	Medium-High	High
Net incremental output costs (annual)	N/A	Significant decrease	Low decrease	Low decrease	Moderate increase
Timeframe for delivery					

	Response options				
	Option 1 *Do Nothing*	Option 2 *Manage/Limit demand*	Option 3 *Repurpose existing facilities*	Option 4 *Hybrid model*	Option 5 *Create new purpose-built accommodation*
(Range)	N/A	N/A	2-3 years	2 years	2-3 years
Ranking					
1-5	3	5	4	1	2

2.5 Recommended response option

2.5.1 Response Option 4: Hybrid model (preferred option)

This response would change the current quarantine program accommodation model by establishing a hybrid model that includes new purpose-built Alternative Quarantine Accommodation.

This option:

- Adopts a hybrid model of hotels and purpose-built accommodation for travellers across all risk profiles;
- Accommodates travellers who test positive to COVID-19 and their close contacts during their quarantine period within the Alternative Quarantine Accommodation (only when safe to do so);
- Uses the CQV operating model, with adjustments to operating procedures as required to suit the change in infrastructure from a purely hotel-based accommodation program to a hybrid program using a new facility and hotels;
- Adopts a workforce model that reduces the risk of the overall program, such as better monitoring of workforce IPC compliance and one directional traffic flow.

This option would continue to support the return of Australians from overseas and people entering Australia for work. This option would help to reduce the numbers of families separated as a result of border and flight restrictions and would see greater economic benefit through increased travel into and around Victoria.

This model includes the provision of new, purpose-built quarantine accommodation with corresponding adjustments to the operating, service and workforce models. This option allows for travellers to be separated by risk profile – for example, the highest risk cohort of travellers, those who test positive to COVID-19 and their close contacts, could be accommodated within the purpose-built facility rather than in hotels.

However, because this option will continue to operate in tandem with Hotel Quarantine and therefore with some infrastructure that is not optimised for use as quarantine facilities, there remains a risk that:

- New VoCs, which are more infectious and readily transmissible, could spread more rapidly should an outbreak occur, as in the case of outbreaks at the PARKROYAL Melbourne Airport and Holiday Inn; and
- Use of hotels in the CBD increases the potential magnitude of outbreak and any relevant public health measures introduced as a consequence to manage the outbreak.

Option 4 addresses the problems and achieves the benefits identified in this business case. For example, it would lower the risk of SARS-CoV-2 being transmitted from international arrivals to members of the Victorian

community through improvements to the infrastructure of the quarantine accommodation with better ventilation and access to fresh air, and would potentially limit human error by minimising operational complexity. This would then reduce the likelihood of an outbreak and associated public health responses. Combined with service model and workforce changes, this option enables more effective management of the risk posed by travellers entering Victoria. This option also provides a permanent asset should the need arise in future to manage a health response through quarantine. However, the full extent of the economic benefits possible through a change in the quarantine model may not be realised because of the actual or perceived higher risk posed by continuing to use hotels as part of this model.

Finally, because this option will use both hotels and purpose-built accommodation to meet capacity, there will be changes to the location, infrastructure, operating model and/or commercial considerations. There may be limitations on the sites available for this type of accommodation; however, there should be more sites available for this option as compared to Response Option 5. A site identification process has been undertaken to determine whether a new build is feasible and whether the accommodation would be able to be constructed at one location or across multiple sites. This assessment has identified single sites that are available that can accommodate the capacity at one location.

In addition, Response Option 4 requires capital expenditure and will require time for construction. This means there will be a delay in operationalising this option as compared to Base Case and Response Option 1. Response Option 4 is less expensive than Response Option 5 but is still able to achieve the identified benefits to a significant degree. While it will have a greater capital cost than the Base Case, this option should realise operational efficiencies through the consolidation of quarantine locations.

Response Option 4 was ranked first of the five options considered. This is the preferred option because it addresses the problems and achieves the benefits to a significant extent within a shorter time frame and lower cost profile than Response Option 5.

3 Project options assessment

3.1 Project options considered

The recommended strategic response identified is to operate a hybrid quarantine model, with the core supply of quarantine accommodation located in a purpose-designed facility, and hotels used in a supplementary way to support the required capacity of the quarantine program.

This response could be implemented in several ways, depending on the type of structures used to create the new facility. In order to determine the best pathway to implement this option, three 'project options' are considered, and then assessed against the 'base case' – where the quarantine program continues to be entirely hotel-based.

Following detailed consideration of delivery timelines, market capacity and project feasibility, it was concluded that the Alternative Quarantine Accommodation would optimally provide up to 3,000 of the 5,600 total places, to be supplemented where feasible and necessary by hotel rooms.

The project options also assume that the new quarantine accommodation would 'go live' when a minimum of 1,000 places can be provided within the site, on the basis that this would coincide with the availability of permanent support facilities such as kitchen, laundry and logistical facilities. Hotels would continue to be used for Victoria's quarantine program throughout this time. As ramp-up continues, a 'decision gateway' would occur at the delivery of each 1,000 places across each option, allowing Government to review the ongoing need for, and required capacity of, the Alternative Quarantine Accommodation.

The project options differ according to the type of structures used to provide the 3,000 places:

- Option 1: Existing structures rented from the market, with minimal retrofitting for quarantine purposes (a temporary facility);
- Option 2: A mix of minimally retrofitted, existing structures and new, purpose-built structures; or
- Option 3: Only purpose-built structures.

The operating and service model employed by CQV would remain broadly similar across the base case and the project options, with some differences in operating procedures in line with the different accommodation types. The key difference from an operational perspective between the base case and the options is that, given the location of the Alternative Quarantine Accommodation outside the Melbourne CBD, additional transport will likely be required to transport discharged residents to a more central location for pick-up by family or on-travel via public transport. There are also resourcing considerations flowing from the relocation of the quarantine accommodation, including for CQV and Victoria Police.

Table 3 below summarises the key features of the base case and four project options.

Table 3: Summary of project options

Key features	Option 1	Option 2	Option 3
Accommodation type	Rented structures minimally retrofitted for quarantine purposes	1:2 split of rented, retrofitted structures and purchased, custom-built structures	Purchased, custom-built structures
Capacity of option	Approx. 3,000	Approx. 3,000 (1,000 rented, 2,000 purchased)	Approx. 3,000
Supporting facilities onsite (e.g. laundry, clinical, kitchen)	Minimal; most services provided by off-site third parties	Permanent facilities onsite as required to service permanent portion of site	All facilities onsite
Post-COVID-use	Dismantled after pandemic ends	~2,000 purpose-built structures retained for future quarantine program and/or could be repurposed or sold	3,000 purpose-built structures can be used for future quarantine program and/or could be repurposed or sold
Civil works and services infrastructure (e.g. sewerage, power, water)	Predominantly permanent, potentially supplemented by temporary (significant works required)	Permanent (significant works required)	Permanent (significant works required)
Timing	1,000 places in 6 months with full capacity at month 25 (considerable delays created by market constraints on supply >1,000)	2,000 places in 12 months (50/50) with full capacity at month 17	1,000 places in 10-12 months with full capacity at month 22
Commercial considerations	Considerable delays created by market constraints on supply of rented structures (considered to be capped at around 1000)	Considerable delays created by market constraints on supply of rented structures (considered to be capped at around 1000); however, this gap can be filled by purpose-built structures	Reduced risk of delays given greater certainty around procurement of purpose-built structures through modular construction market
Financial cost	Net cost: $3,682,253m Net cost incremental to the Base Case: $144.559m	Net cost: $3,701.800m Net cost incremental to the Base Case: $164.106m	Net cost: $3,787.378m Net cost incremental to the Base Case: $249.684m

3.2 Overview of key assumptions and design principles underpinning options development

Developing options for Alternative Quarantine Accommodation requires a range of decisions and assumptions to set parameters around appropriate options likely to achieve the project's goals and purposes. These parameters can be divided into three categories:

- Non-negotiable principles with which any potential option must align;
- Design principles to further refine options after basic considerations of feasibility and the option's ability to solve the problem; and
- Assumptions about the future state in which the program will operate, given the inherent uncertainties in the COVID-19 environment.

Capacity and Future Use

Design Principle

- Delivery of new accommodation will be staged, such that the site opens with a minimum capacity and then capacity is increased in a staged manner. Capacity will come online at the 1,000 bed mark.
- Capacity will be gradually increased as hotel quarantine use is decreased.
- The site may be used for other purposes in the future but these will not drive the design of the accommodation

Assumptions

- International travellers will continue to be required to do 14 days of mandatory quarantine, noting testing may continue post-release
- International travellers will largely return via commercial airlines and not through government repatriation flights
- The accommodation, once it has reached full capacity, will be able to accommodate a maximum of 1,100 people per week. This will be revisited at the 1,000 bed mark and each 1,000 beds thereafter.
- The site will be required to operate for approximately 2-3 years as quarantine accommodation.

(Note: the above two assumptions are required due to the fact that there is not yet a long-term policy framework shaping future needs for quarantine (e.g. who needs to quarantine, for how long)

Site

Design Principle

- Quarantine should be within a 60 minute drive from the site of most arrivals
- Quarantine must be within 30 minutes of a hospital or tertiary healthcare site
- Quarantine must be within reasonable proximity to existing utilities
- There is a preference for one primary site for the alternative quarantine accommodation
- Based on the demand assumptions made, the land area (held in contiguous ownership with a preference for government ownership) will be between 200,000 to 450,000 square metres
- A site will not be selected if it will require substantial changes to existing airline hubs or landing location

Operational

Non-Negotiable

- The alternative quarantine accommodation must be designed to operate in accordance with the IPC framework
- The alternative quarantine accommodation must be designed in consideration of the Charter of Human Rights and Responsibilities

Design Principle

- There will be facilities on-site for exclusive use of the workforce (for example, showers and change facilities); however, staff will not reside onsite
- It is preferred that most services to be delivered on-site and with minimal contact with the outside world as possible
- CQV's existing operating model will continue, except where it is appropriate to adapt it due to physical and operational differences inherent in standalone quarantine accommodation as opposed to hotel quarantine, and such adaptations are consistent with the IPC framework

Design

Non-Negotiable

- The alternative quarantine accommodation must meet minimum accessibility requirements
- The site choice will take into account the cultural rights of Aboriginal and Torres Strait Islanders as the traditional owners and custodians of the land

Design Principle

- Accommodation design will be guided by resident experience, including wellbeing, mental health and a reasonable level of amenity, as well as IPC risk and community safety
- There will be tailored accommodation for families, couples and single travellers, but with flexibility for blended use, dedicated isolation capacity (where required for COVID+ persons) and accommodation design will be guided by universal design principles
- A centralised location is preferable replacing current metropolitan sites
- We are designing for a latency rate of 15% to account for maintenance and cleaning requirements; unexpected scheduling or cohort issues; and other unexpected occurrences.
- Ability to flex up and down in response to demand for quarantine services
- Furniture, fittings, materials and finishes will be chosen based on maximising ease of cleaning and reducing the opportunity for transmissible surfaces

3.3 Description of Project Options

The base case forms the point of comparison for the project options in the assessment throughout this chapter. Under the base case, the current Hotel Quarantine program would continue, with the 2,100 new residents per week housed across sufficient hotel rooms to allow for a 15% latency buffer.

Reviews commissioned by Government have all made recommendations relating to the Hotel Quarantine program in late 2020 and early 2021. For the purposes of the business case, it is assumed that these recommendations would be actioned while the Hotel Quarantine program continues to be a part of the Victorian Government's COVID-19 response. This means that the base case option is the scenario in which Hotel Quarantine continues to be the only accommodation used for Victoria's quarantine program for the duration of the current pandemic response, but with the amendments listed above. This adjusted Hotel Quarantine is also assumed to be what supplements the new Alternative Quarantine Accommodation under the three project options.

3.3.1 Project option 1: retrofitted, rented structures

Structures and land

Under this project option, the site would comprise temporary and/or demountable structures, hired from the market for the duration of the quarantine program. Up to 750 accommodation modules would be hired, with each module comprising four en-suite rooms, designed to house a single person, to deliver up to 3,000 places in the site.

The structures would be minimally altered and positioned, as much as possible given the nature of the models and rental arrangement, to align with best practice building and site design for quarantine facilities. It is proposed that for example, modules would be spaced apart from each other, windows would be openable and ventilation systems would be upgraded to improve outside air circulation (although highest standards may not be able to be achieved). Changes to internal layout would not be possible.

The land for the site would be purchased or preferably leased, reflecting the temporary nature of the site.

Supporting facilities and spaces

Staff areas and other required spaces – such as on-site healthcare or catering facilities – would be temporary, designed to either be removed or deconstructed after cessation of the quarantine program. It would be expected that some services would need to be provided from off-site facilities, such as mass laundry. Foundational works, such as sewerage, power and road connections, are assumed to be predominantly permanent, potentially supplemented by temporary utilities.

Timing and ultimate capacity

From advice provided through a market sounding process, there are currently approximately 250 four-room accommodation modules that would be available for rental from 8 April 2021 (the assumed date of decision to proceed with the project). These could be transported and retrofitted at a rate of 300 places per month from month 2 post-decision, reaching a capacity of 1,000 fully installed accommodation places by month 6. This initial capacity of 1,000 places would support the arrival of approximately 367 returned travellers per week. Following this, the source rental company or companies would need to acquire or build further structures to meet additional demand, introducing both uncertainty and delays to building-up to the desired 3,000 place capacity. It is estimated on the basis of market advice that additional places could be installed at a rate of approximately 100 per month, meaning that 2,000 places would be attained at month 15 (to support an additional approximate 367 returned travellers for a total of 733 returned travellers per week)

and 3,000 places would be attained at month 25 post-decision (supporting the full cohort of 1,100 returned travellers per week).

Post-COVID-use

The Alternative Quarantine Accommodation would be dismantled after the COVID quarantine response concludes, with the structures returned to their lessors.

3.3.2 Project option 2: mix of retrofitted and custom-built structures

Structures and land

Under this project option, the accommodation would be comprised of a mix of hired, retrofitted, single-person structures and custom-built structures at a ratio of 1:2 (i.e., eventual capacity of approximately 2,000 places in custom-built rooms and 1,000 in retrofitted structures).

The land for the site would preferably be acquired (rather than leased), given the permanent nature of parts of the accommodation.

Supporting facilities and spaces

Staff areas, healthcare facilities and other supporting spaces sufficient to support the custom-built proportion of the site would be housed in permanent structures, supporting the site's ongoing use after the COVID-19 response has concluded.

Civil works and services infrastructure would be predominantly permanent, as a minimum to the extent required to support the permanent part of the site, potentially supplemented by temporary infrastructure for the temporary structures.

Timing and ultimate capacity

Under this option, the acquisition of the rented and custom-built structures occurs in parallel. However, because of the extra time needed to undertake the civil works and construction of the permanent supporting facilities, the rented structures would not be installed and operational until month 12 after the decision to proceed with the project. From month 8, both rented and custom-built structures could be acquired at a rate of 300 places per month, and these modules will be installed onsite as civil and structural site works are completed. This means that 1,000 rented and 1,000 custom-built structures would be onsite and ready to be used by month 12 post-decision, creating a total capacity of 2,000 one year after project commencement. This initial capacity of 2,000 places would support the arrival of approximately 733 returned travellers per week.

Acquisition of further rented structures would cease at this time, while custom-built structures would continue to be commissioned and installed at a rate of 300 per month. This means that under option 2, ultimate capacity of 3,000 places would be achieved and fully operational by month 17.

Post-COVID-use

The rented structures would be removed from the site once no longer required for the COVID-19 quarantine program, while the custom-built structures would be retained, alongside the supporting infrastructure. This means that the capacity of the accommodation would drop to 2,000 places after the COVID-19 quarantine program ceases.

The custom-built structures could, depending on future government needs, continue to be used for quarantine purposes or provide accommodation in other circumstances, such as housing following a natural disaster.

3.3.3 Project option 3: custom-built structures

Structures and land

Under this project option, the site would be comprised entirely of purpose-built structures designed to remain permanently on the site.

The land for the site would preferably be acquired, given the permanent nature of the accommodation and potential for ongoing future use, although a long-term lease would also be an option.

Supporting facilities and spaces

Under this option, cleaning, laundry, catering, clinical and laboratory services would all be provided on-site, with facilities to house these functions located in permanent structures designed to remain onsite (alongside the accommodation).

Foundational civil works and services infrastructure would also be permanent.

Timing and ultimate capacity

Under this option, site acquisition and planning, as well as foundational civil works and preparation of central facilities, would take an estimated 12 months from the time the decision to proceed with the project is made. On-site installation of the accommodation structures would begin at month 8 post-decision, with installation occurring at a rate of 300 per month. The first 1,000 places would be ready for the site to begin operating at month 12. This initial capacity of 1,000 places would support the arrival of approximately 367 returned travellers per week. Following that time, structures would continue to be installed at a rate of 300 per month, meaning that capacity of 2,000 places would be reached at month 17 (to support an additional approximate 367 returned travellers for a total of 733 returned travellers per week) and full 3,000 place capacity at month 22 (supporting the full cohort of 1,100 returned travellers per week).

Post-COVID-use

The accommodation could, depending on future government needs, continue to be used for quarantine purposes or provide accommodation in other circumstances, such as housing following a natural disaster.

3.4 Financial analysis

This business case proposes a change to Victoria's quarantine program that involves creation of a new quarantine accommodation and the acquisition of custom-built structures. Given the need to acquire land and the specialised engineering, architectural and other design features of the new structures, this proposal is estimated to come at a significant cost to government.

Table 4: Presenting the results of the options analysis

	Base case	Option 1	Option 2	Option 3
Analysis period (years)	3	3	3	3
Capital costs ($m)	0.000	432.152	488.036	520.087
Capital costs contingency ($m)	0.000	106.772	120.743	128.756
Site Acquisition ($m)	0.000	0.000	42.705	42.705
Site Lease ($m)	0.000	15.467	0.000	0.000

	Base case	Option 1	Option 2	Option 3
Site maintenance ($m)	0.000	12.555	13.302	10.127
Module lease ($m)	0.000	53.897	19.589	0.000
Total costs($m)	0.000	620.843	684.375	701.675
Other important considerations				
Social, environmental and economic costs/benefits (e.g. small, medium, large)	See analysis in **sections 4.3, 4.4** and **4.6**	See analysis in **sections 4.3, 4.4** and **4.6**	See analysis in **sections 4.3, 4.4** and **4.6**	See analysis in **sections 4.3, 4.4** and **4.6**
Preferred option	**4**	**2**	**3**	**1**

3.5 Multi-criteria analysis

A multi-criteria analysis (MCA) has been undertaken to support this analysis and capture the long-term benefits of an improved and more effective quarantine program for returning travellers and other individuals to protect Australians and Victorians from the ongoing serious public health risks of COVID-19. This is in line with DTF's Economic Evaluation – Technical Guide.17

The MCA assesses the relative merits of Options 1, 2 and 3 against the base case, using the benefits identified as the assessment criteria. The Base Case option itself is not scored. The results of the MCA are then weighed up against the financial costs of the project options in an overall Integrated Analysis later in this chapter.

Table 5: Scoring key

Very much better than the base case	4	Very much worse than the base case	-4
Much better than the base case	3	Much worse than the base case	-3
Moderately better than the base case	2	Moderately worse than the base case	-2
A little better than the base case	1	A little worse than the base case	-1
Same as the base case	0		

Table 6 provides a summary of the multi criteria analysis.

[17] Economic Evaluation for Business Cases Technical guidelines. August 2013

Table 6: Multi criteria analysis

Assessment criteria	Weighting	Base Case	Option 1	Option 2	Option 3	Scoring rationale
Lower risk of community outbreak and transmission	20%	0	2	2.5	3	Each of the project options will help to reduce transmission within the quarantine program and a breach leading to community transmission. This is because the project options have: • No enclosed corridors and walkways; • HVAC systems that are less centralised and specifically designed to avoid cross-contamination; • Regular access to fresh air through mechanical ventilation and windows that can be opened and external balconies for each room; • Standardised operating procedures (due to consolidation of operations on a single site) that helps to reduce the impact of human error; and • Modular accommodation that can be more spaced out and separated. This analysis is founded on the assumption that any accommodation that improves HVAC systems will be better able to combat transmission than the current Hotel Quarantine system. For example, having openable windows, a less centralised ventilation system and no enclosed corridors is more effective at preventing transmission than the design of hotel rooms. However, whereas purpose-built structures can be designed to minimise the risk of transmission, there are limitations to the changes that can be retrofitted to existing, rented structures to improve their performance in relation to infection prevention and control. Therefore, there are limitations to changes that can be made to retrofitted, rented structures that do not exist in purpose-built structures, meaning that options using a greater

Assessment criteria	Weighting	Base Case	Option 1	Option 2	Option 3	Scoring rationale
						proportion of purpose-built structures score higher against this criterion. Finally, options that require operations across multiple distinct sites and accommodation types score lower due to the added risk of human error arising from multiple operating protocols.
Increased confidence in preventing economic damage (e.g. through increased restrictions and lock downs)	20%	0	2	2.5	3	The risk of economic damage directly flows from the risk of a transmission event and consequential outbreak and public health responses. Accordingly, the options receive the same scores against this criterion as against the first (see above rationale for score).
Increase business, consumer and community confidence	15%	0	2	2.5	3	Economic risk arises from the type of, and extent to which, public health measures are used in responding to outbreak, as well as impacts on consumer and business confidence arising from the spread of the virus itself. In addition, consumer & business confidence is linked to certainty around government decision-making. All project options create the opportunity to move a certain number of residents out of Hotel Quarantine, and these decisions may be made based on a returning cohort's risk profile. For example, people travelling from a lower risk country of origin, or people who are vaccinated, may remain in Hotel Quarantine, with the higher risk residents (including those requiring complex care or isolation due to being COVID-positive) and the Health Hotel function being moved into Alternative Quarantine Accommodation. Targeted use of different quarantine settings based on risk profile may lower the magnitude and speed of an outbreak.

Assessment criteria	Weighting	Base Case	Option 1	Option 2	Option 3	Scoring rationale
						Business confidence is reliant on the community at large having confidence in the ability of the quarantine program to prevent future outbreaks and enable inbound international travel. Given the prevalence of commentary regarding the perceived risk of housing quarantine residents in the city, and publicised concerns about the optimisation of hotels for quarantine accommodation, all options score higher than the base case as they all assume relocation out of the city into purpose-designed or retrofitted accommodation and hence can be expected to increase confidence in the quarantine program. However, the poor amenity and aged nature of the rental modules may, when portrayed in media commentary, influence perceptions of their effectiveness in preventing transmission, with flow-on effects for business and community confidence. Accordingly, Option 1 and Option 2 score lower than Option 3. Additionally, Option 1 is unlikely to be able to support the desired capacity of up to 3,000 places, meaning that more residents may need to be housed in hotels.
User experience of residents	15%	0	-1	1	3	Purpose-built accommodation allows for the needs of family groups, and the needs of people with disabilities, to a greater extent than Hotel Quarantine or existing (rented) structures, through the provision of facilities designed specifically for these cohorts. Both purpose-built and existing (rented) structures provide for greater access to fresh air and a sense of proximity and connection to the natural environment than Hotel Quarantine. These features are expected to be beneficial for resident wellbeing. Additionally, these features may assist in providing residents with a sense of control over their environment.

Assessment criteria	Weighting	Base Case	Option 1	Option 2	Option 3	Scoring rationale
						The rented structures will likely be perceived to have poorer amenity than new purpose-built structures, and potentially Hotel Quarantine, due to the lack of purpose-built accommodation for families and general wear and tear due to the buildings' age and previous uses. Accordingly, Option 3 scores highest against this criterion, followed by Option 2 and Option 1.
Future uses	10%	0	0	0.5	1	Project options with permanent accommodation could be used in future, or the accommodation structures could be sold off as cost recovery. Future uses in situ are considered to be limited, although potential future uses for the buildings themselves (which are transportable) have been identified. Accordingly, Option 1 scores the lowest because it is comprised entirely of rented structures. Options 2 and 3 could be used to provide quarantine accommodation in the event of future pandemics or in other circumstances where mass accommodation is required, but it is difficult to determine whether the proposed accommodation specifications would be appropriate or optimal in other circumstances. Therefore, Options 2 and 3 score a little higher than base case and Option 1.
Time and ability to deliver desired capacity of Alternative Quarantine Accommodation	10%	0	1	3	2	Option 1 reaches 1,000 places in the shortest time, but market constraints may significantly delay ramp-up after that point, potentially delaying ultimate capacity of 3,000 indefinitely. Therefore, Option 1 is unlikely to provide sufficient future capacity certainty and scores lowest. Option 2 is the fastest option to reach 3,000 capacity, so has the highest score.

Assessment criteria	Weighting	Base Case	Option 1	Option 2	Option 3	Scoring rationale
						Option 3 will take the longest to reach 3,000 capacity because it relies entirely on purpose-built accommodation and services.
Operational complexity during delivery	10%	0	1	- 2	2	Option 2 splits quarantine accommodation across three accommodation types and multiple sites, adding operational complexity during delivery, even though the fast delivery time may mean that some hotel sites are able to taken offline sooner. Option 1 and 2 house residents across 2 accommodation types. Although Option 1 allows for the earlier decommissioning of hotel sites, reducing operational duplication, its likely lower capacity (due to constraints on availability of rented accommodation) means that more hotels could remain operational than under Option 3.
Score		0	7	10	17	
Weighted Score		0	1.15	1.675	2.6	

3.6 Integrated analysis and options ranking

The options analysis brings together the financial and the socio-economic criteria in one assessment. The financial criteria are weighted at 50% of the overall assessment and the socio-economic criteria are weighted at 50%.

The preferred option was determined based on the following key categories:

1. A financial analysis that captures the net financial impacts to the state encompassing whole-of-life costs and benefits; and
2. A qualitative socioeconomic analysis of the non-financial socioeconomic impacts.

The integrated analysis outlined in **Table 7** below presents the ranking of each option and identifies the preferred Option. This is based on an evaluation of the financial, and social and economic benefits.

Table 7: Integrated analysis weighting

Analysis of Options	Base Case		Option 1		Option 2		Option 3	
	R	W	R	W	R	W	R	W
Financial analysis (50%)	-	-	-0.17	-0.08	-0.19	-0.10	-.028	-0.14
Socioeconomic analysis (50%)	-	-	1.15	0.58	1.68	0.84	2.60	1.30
Total score	-	-	**0.98**	**0.49**	**1.48**	**0.74**	**2.32**	**1.16**
Ranking of Options	-		3		2		1	

R denotes raw score; W denotes weighted score

Option 3 is the recommended option based on ability of the option to deliver on critical benefits, support the diverse needs of residents, deliver some future use benefits and meet the desired overall capacity of alternative quarantine that can begin operating with a 1,000 place capacity within 12 months.

3.6.1 Economic evaluation of project solution

The preferred option, Option 3, will generate economic benefits including:

- Assisting the prevention of future outbreaks and the introduction of strict public health measures which avoids widespread economic impacts: Option 3 offers the greatest chance of reducing the likelihood of a transmission event within or outside of Alternative Quarantine Accommodation. Given the link between transmission events and adverse economic impacts, because Option 3 introduces the best risk mitigation features from an IPC perspective, it is best able to provide the protections required to prevent significant adverse economic impacts.
- Supporting continued economic recovery in Victoria: Option 3 is best able to support Victoria's continue recovery because the momentum and effectiveness of the recovery will be impacted by any future outbreaks and restrictions, given the relationships between outbreaks, restrictions, consumer confidence and business activity. Accordingly, reducing the risk of transmission events from the quarantine program can be expected to reduce the chance of setbacks to the State's economic recovery, and the need for extended or boosted recovery stimulus from government.
- Allowing for greater entry into Victoria: Option 3 creates a more consistent and secure supply of quarantine places, which supports correspondingly consistent numbers of entrants to Victoria, restoring traveller confidence and financial benefits travellers provide to various sectors across the economy.

4 Project solution

4.1.1 Site Selection

In order to arrive at a recommendation for a preferred site, and an alternate site in the event the preferred site proves not to be feasible, a robust site selection approach was undertaken, underpinned by the methodology described below.

4.1.1.1 Identification of Longlist

The Coate Inquiry recommended the following to guide the selection of locations for quarantine facilities:

- Sufficient proximity to an international airport;
- Sufficient proximity to a hospital;
- Being within commuting distance for adequate numbers of appropriately skilled personnel for the accommodation;
- Allowing for the physical separation of people;
- Ability to properly implement all necessary IPC requirements, as far as practicable;
- Capacity to make necessary modifications and additions to minimise the risk of transmission, as far as practicable;
- Ability to provide safe access to outside areas for fresh air and exercise breaks; and
- Ability to provide for specific needs such as mobility issues or the need to cater for infants.

Based on the Coate Inquiry's recommendations to locate quarantine facilities in reasonable proximity to airports and large hospitals, Land Use Victoria (LUV) was asked to conduct several searches of Commonwealth and State-owned land located within 50 kilometres of either Melbourne (Tullamarine) or Avalon Airports. These searches identified over 13,000 properties.

In addition, the following means were used to identify other potentially suitable sites:

- A public market sounding, issued on 22 February 2022, invited responses which provided information relevant to possible locations suitable for new purpose-built quarantine accommodation;
- Ernst and Young undertook a separate review of existing government landholdings to identify any further sites that potentially met the above criteria; and
- A scan of current 'on market' opportunities was undertaken.

4.1.1.2 Initial Shortlist

To narrow these properties down to a suitable number of options for preliminary investigation, the following key criteria were applied:

- Land area (held in contiguous ownership) greater than 200,000 square metres (based on an assumed maximum density of 100 people per hectare, in line with the single-level quarantine facility at Howard Springs, Northern Territory);
- Site immediately available with minimum tenure of 3-5 years (but ideally up to 50 years and beyond);

- Proximity to an international airport (Melbourne (Tullamarine)/Avalon) (up to 25kms or 30min drive); and
- Proximity to existing public hospital (up to 25kms or 30min drive).
- Other factors considered included:
- Proximity to public transport and workforce accessibility;
- Adjacent land uses including proximity to existing residential areas;
- Planning and regulatory overlays; and
- Site infrastructure and characteristics.

The full criteria and weightings used in the preliminary assessment are set out in **Table 8** below.

Table 8 Site selection criteria and weightings

Criteria Assessment			Type	Weighting
1.0	**Location**			**40.0%**
	1.1	Proximity to CBD	Rank	5.0%
	1.2	Proximity to nearest transport	Rank	10.0%
	1.3	Proximity to public hospital	Rank	15.0%
	1.4	Proximity to airport	Rank	35.0%
	1.5	Proximity to sensitive uses (residential)	Boolean (Yes/No)	15.0%
	1.6	Proximity to workforce	Boolean (Yes/No)	15.0%
	1.7	Road connectivity	Boolean (Strong/Poor)	5.0%
	Location Subtotal (weighted)			100.0%
2.0	**Site**			**30.0%**
	2.1	Land area	Rank	40.0%
	2.2	Access and services	Rank	20.0%
	2.3	Cleared of vegetation	Rank	5.0%
	2.4	Generally level in contour	Rank	10.0%
	2.5	Contamination risk	Rank	25.0%
	Site Subtotal (weighted)			100.0%
3.0	**Approval Risk**			**20.0%**
	3.1	Planning risk	Rank	30.0%
	3.2	Ecological risk	Rank	40.0%
	3.3	Bushfire prone area	Boolean (Yes/No)	10.0%
	3.4	Cultural heritage	Rank	20.0%
	Approval Risk Subtotal (weighted)			100.0%
4.0	**Transaction Risk**			**10.0%**
	4.1	Government ownership	Boolean (Yes/No)	50.0%
	4.2	Counterparty risk	Boolean (High/Low)	50.0%
	Transaction Risk Subtotal (weighted)			100.0%

Overall Site Suitability Assessment (Vacant Sites)			
1.0	Location		40.0%
2.0	Site		30.0%
3.0	Approval Risk		20.0%
4.0	Transaction Risk		10.0%
	Overall Site Suitability		100.0%

An Initial Shortlist was compiled having regard to the above selection criteria, through consolidation of the LUV search of State and Commonwealth owned surplus land holdings, market sounding proposals (pertaining to site identification), and a market scan for 'live' opportunities.

4.1.1.3 Penultimate Shortlist

Preliminary desktop due diligence was undertaken on each site in the Initial Shortlist.

Each site on the Initial Shortlist was ranked based on its individual suitability and alignment with the site selection criteria using a weighted scoring matrix. Through this methodology a Penultimate Shortlist of 10 sites was identified.

The Penultimate Shortlist comprised the following ten sites:

Site Ref	Size (ha)	Address	Description	Ownership
1	100	77-99 Annandale Road, Melbourne Airport	Several titles and possible locations within Melbourne Airport Commercial Precinct	Commonwealth (Department of Finance – lease to Melbourne Airport)
2	105	2 Kiuna Road, Keilor North	Large site adjacent to Melbourne Airport Precinct.	Private (On Market)
3	68.3	Part 135 Donnybrook Road, Mickleham	Vacant part of Post Entry Animal Quarantine Facility site.	Commonwealth (Department of Finance – site utilised by Department of Agriculture)
4	46.7	325d Cooper Street, Epping	Adjacent to Melbourne Wholesale Food Market; industrial to north with residential to south.	State (Department of Jobs, Precincts and Regions)
5	60.0	Wests Road, Little River	Lands adjacent to Cherry Creek Youth Justice Centre (under construction) and former quarry.	State (Melbourne Water)
6	46.6	209-247 Plumpton Road, Diggers Rest	On market sale	Private (On Market)
7	65.6	450 Mickleham Road, Attwood	On market sale; adjoins Attwood residential to the south	Private (On Market)
8	100	250 Beach Road, Avalon Airport	Part of Avalon Airport precinct (to east of main airport infrastructure).	Commonwealth (Department of Defence - lease to Avalon Airport)
9	31.5	70 Chisholm Road, Lara	On market sale; located near existing HM Prison Barwon and opposite Chisholm Road maximum security prison (under construction)	Private (On Market)
10	91.0	180 Farr Parkway, Keilor North	Large site adjacent to Melbourne Airport precinct and on Calder Freeway; part of Sydenham Park Masterplan for future recreation area and commercial use.	State (Brimbank City Council)

4.1.1.4 Final Shortlist

Further detailed desktop due diligence was undertaken on each site in the Preliminary Shortlist, comprising planning, ecology, contamination and utilities investigations. Limited site walks were also undertaken to validate general site characteristics and desktop ecology and contamination findings.

Following the completion of this further diligence, each site on the Penultimate Shortlist was re-assessed in light of the additional information obtained on each site, and sites were ranked from most to least suitable.

While the same site assessment criteria and weightings were used, the further desktop and on-site investigation identified several issues that were considered to be insurmountable, due to the unacceptable risk they presented to project delivery and/or timelines. Where such issues were identified, sites were deemed to be unsuitable.

Appropriate thresholds for some criteria were also refined in response to further development of project and design parameters as follows:

- Land area: while an initial criteria of a minimum area of 200,000 square metres was used to identify the Initial and Penultimate Shortlists, as a result of further development of design requirements and the confirmation of the desired capacity as being 3,000 places, a minimum land area of 400,000 metres squared was used for the identification of the Final Shortlist;
- Counterparty risk (in relation to tenure): while a minimum tenure of 3-5 years was initially deemed to be acceptable for the purposes of identifying potentially suitable sites, with confirmation that the preferred option involved the construction of permanent, purpose-built accommodation, this was revised to 50 years.

The Final Shortlist comprises the following two sites, in order of preference:

1. Part 135 Donnybrook Road, Mickleham as shown in **Figure 1** and **Table 9;**
2. 250 Beach Road, Avalon, as shown in **Figure 2** and **Table 10**.

Further detail on these two sites is provided below. All other sites were deemed to be unsuitable for the project due to insurmountable planning and/or environmental issues.

Figure 1 Preferred Site 1 – Part 135 Donnybrook Road, Mickleham

Table 9 Property details for Part 135 Donnybrook Road, Mickleham

Property Details	
Location	Located on the southern side of Donnybrook Road, approximately 500 metres from its intersection with Hume Freeway, within Mickleham. Mickleham is a suburb of Melbourne located approximately 29 kilometres north of the Melbourne CBD.
Nearest Airport	Tullamarine (approx. 24 kilometres)
Nearest Hospital	Northern Hospital Epping (approx.18 kilometres)

Property Details	
Nearest Health Hotel	Holiday Inn Flinders Lane (approx. 42 kilometres) Novotel South Wharf (approx. 40 kilometres)
Nearest Residence	Adjoins Rural Living Zone land to the south
Nearest School	1.5 kilometres to the south (Hume Anglican Grammar)
Cadastre	2016\PP2518
Tenure	Freehold
Owner	The Commonwealth of Australia
Site Area (Total)	709,800 square metres
Usable Site Area for Alternative Quarantine Accommodation	400,000 square metres
Planning and Environment	
Zoning	CA
Planning Controls	BMO
Environmental	• Ecology- Potential areas of native grassland. • Heritage- No Aboriginal heritage registered sites, cultural heritage sensitivity, registered historical heritage or natural heritage values present within lot boundaries; Archaeology identified - voluntary CHMP could be considered. • Contamination- Evidence of agricultural and/or farming use- potential risk of land contamination resulting from chemical use (pesticides / herbicides). Evidence of ground disturbance. • Utilities (Power & Comms)- Available. • Utilities (Hydraulics Water / Gas)- No gas in vicinity.

Figure 2 Preferred Site 2 – 250 Beach Road, Avalon

Source: Nearmap, 2021

Source: OpenStreetMap, 2021

Table 10 Property details for 250 Beach Road, Avalon

Property Details	
Location	• Located on the southern side of Beach Road, approximately 500 metres from its intersection with Princess Freeway, within Avalon. • Avalon is a suburb of Melbourne located approximately 60 kilometres south-west of the Melbourne CBD.
Nearest Airport	Avalon (approx. 250 metres)
Nearest Hospital	Barwon Health – University Hospital Geelong(approx. 22 kilometres)

Property Details	
Nearest Health Hotel	Novotel South Wharf (approx. 53 kilometres) Holiday Inn Flinders Lane (approx. 51 kilometres)
Nearest Residence	4.0km north-east Rural Living Zone land in Lara 4.0km north farm Zone land in Little River
Nearest School	7.0km to the west (Lara Secondary College)
Cadastre	9/TP842691
Tenure	Freehold
Owner	The Commonwealth of Australia
Site Area (Total)	2,020,000 square metres
Usable Site Area for Alternative Quarantine Accommodation	Up to 1,450,000 square metres
Planning and Environment	
Zoning	SUZ12
Planning Controls	ESO4, LSIO, Cultural Heritage, Bushfire Prone Area
Environmental	a. Ecology- appears to have been heavily cropped for much of the past 10 years- potentially reducing ecological/approvals risk b. Heritage- No registered indigenous heritage, registered historical heritage or natural heritage values present within lot boundaries; one area of cultural heritage sensitivity associated with a declared Ramsar wetland; a mandatory CHMP is required. c. Contamination- Active airport adjacent that may have historical contamination including PFAS; potential risk of land contamination from agricultural chemical use. d. Utilities (Power & Comms)- No Powercor HV Network infrastructure or Optus Telecoms infrastructure network in Pousties Rd; existing NBN Telecoms Infrastructure in Pousties Rd. e. Utilities (Hydraulics Water)- Conflicting data for water connection.

4.1.2 Design and facilities specification

The new Alternative Quarantine Accommodation will cater for a total of up to 1,100 arrivals per week, with a total of up to 3,000 places. In addition, the preferred project option will deliver supporting onsite facilities (both centralised and dispersed) required to support operations, such as staff and administration spaces, catering, laundry and logistical facilities, dedicated spaces for the storage, donning and doffing of PPE, and dedicated facilities for Victoria Police. The supporting facilities and infrastructure, along with the site layout, consistent with the DJCS IPC Framework. The built form will also be designed to support effective and IPC compliant service delivery.

Specifications for the new Alternative Quarantine Accommodation will take into account the learnings from CQV current operations and other facilities, such as the Howard Springs Quarantine Facility in the Northern Territory.

4.1.2.1 Master Plan

An indicative master plan has been developed without reference to a specific site. The master planning process incorporated a primary intent to create a safe, cost effective, easily constructed, and attractive solution that provides a high level of amenity and IPC for residents and staff. Infrastructure will be designed to cater to the maximum site occupancy numbers but will be flexible and expandable to scale up as the site expands to the overall site masterplan.

The proposed design allows for a staged approach to the development with accommodation and site circulation grouped into 'suburbs' of 1,000 places. The first phase of construction is anticipated to cater to up to 1,000 places, to support the arrival of approximately 367 returned travellers per week. At the completion of all phases, the proposed Alternative Quarantine Accommodation will accommodate a maximum of 3,000 places across a mix of accommodation types. Accommodation for a maximum of 3,000 places allows for maximum arrivals of approximately 1,100 returned travellers per week, with an allowance of 2 days for room cleaning turnaround and additional latency to allow for rooms being unavailable for the purposes of maintenance, deep COVID cleaning, relocation of residents due to becoming COVID-positive or for other reasons, etc.

Upon completion of the site selection process the 'site agnostic' masterplan will be translated to suit the particular site, addressing any site- specific opportunities and constraints. Some general principles included in the master plan include:

- Staged masterplan to allow for quick start up and scalable use for uncertain future requirements.
- Secure 'quarantine blocks' of 250 places, aggregated into 'suburbs' of 1,000 places, to enable the quarantine accommodation to accommodate a large number of separately quarantined cohorts and allow multiple concurrent arrivals.
- Dedicated staff and administration facilities for a range of operational purposes, including centralised facilities servicing the entire site, and smaller dispersed facilities servicing a particular block or suburb;
- Dedicated 'red zone' bus drop off and 'green zone' bus departure locations for staging of guest arrivals and departures at each quarantine block.
- Separate staff entry and exit points from the 'red zone' quarantine block and dedicated staff parking areas within their work area.
- Separate secure access points for heavy vehicles to make deliveries. Consideration of emergency access and egress routes throughout the accommodation for emergency services.
- Minimise capital and operation costs, where possible, whilst maintaining high standards of IPC and amenity.
- Create a welcoming environment. Provide attractive outlooks from rooms
- Incorporate local architectural and indigenous cultural elements into the design and acknowledge the site context (i.e. work with the environment).
- Consider ecologically sensitive design (ESD) methods such as minimising the ecological footprint, water sensitive urban design, optimising building orientation, maximising energy efficiency and providing on site generation to supplement grid sourced power.

- Design accommodation buildings into ‘clusters’ of 10-16 units housing around 50-60 guests to create a higher level of privacy and outlook. Accommodation buildings are to be single storey to maintain a low-profile on the site.
- Give each quarantine block its own identity, using colour etc. to assist with wayfinding.
- Manage vehicular movements and hazards in accordance with an accommodation traffic plan and separate accommodation traffic from central facilities traffic where possible.

Figure 3 Indicative masterplan for the proposed Alternative Quarantine Accommodation (full capacity – 3,000 places)

The proposed Alternative Quarantine Accommodation will be constructed in multiple stages, supported by a ‘decision gateway’ for Government at the delivery of every 1,000 places. Figure 27 below shows an indicative masterplan for the first 1,000 places.

Figure 4 Indicative masterplan for the proposed Alternative Quarantine Accommodation (first 1,000 places)

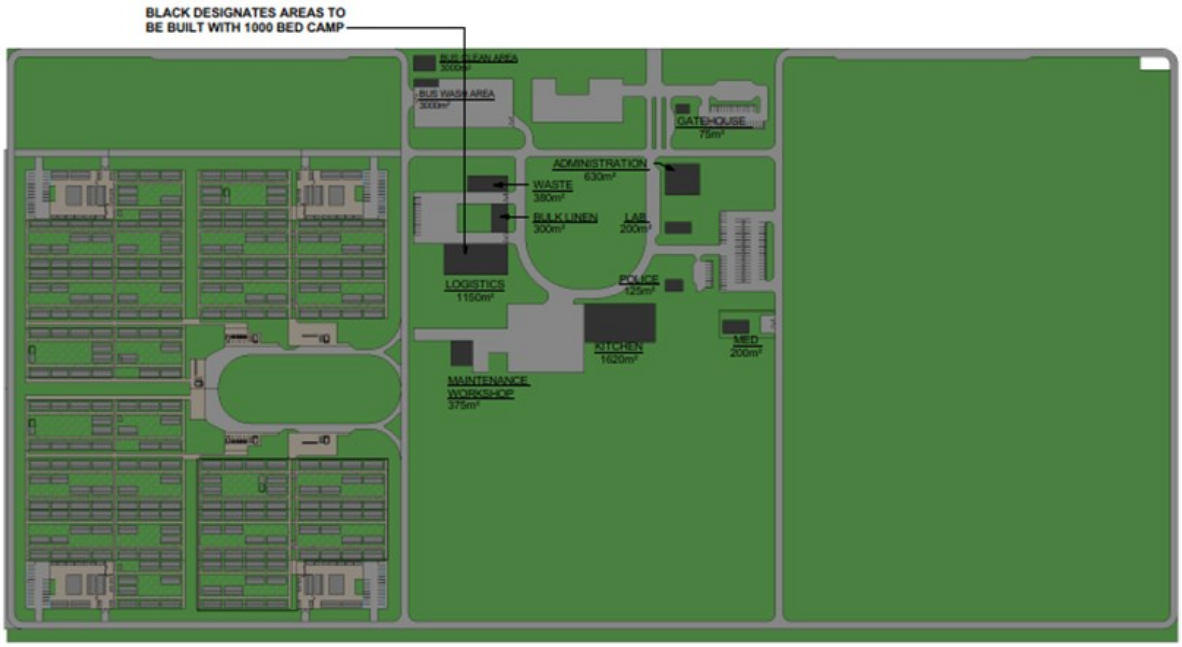
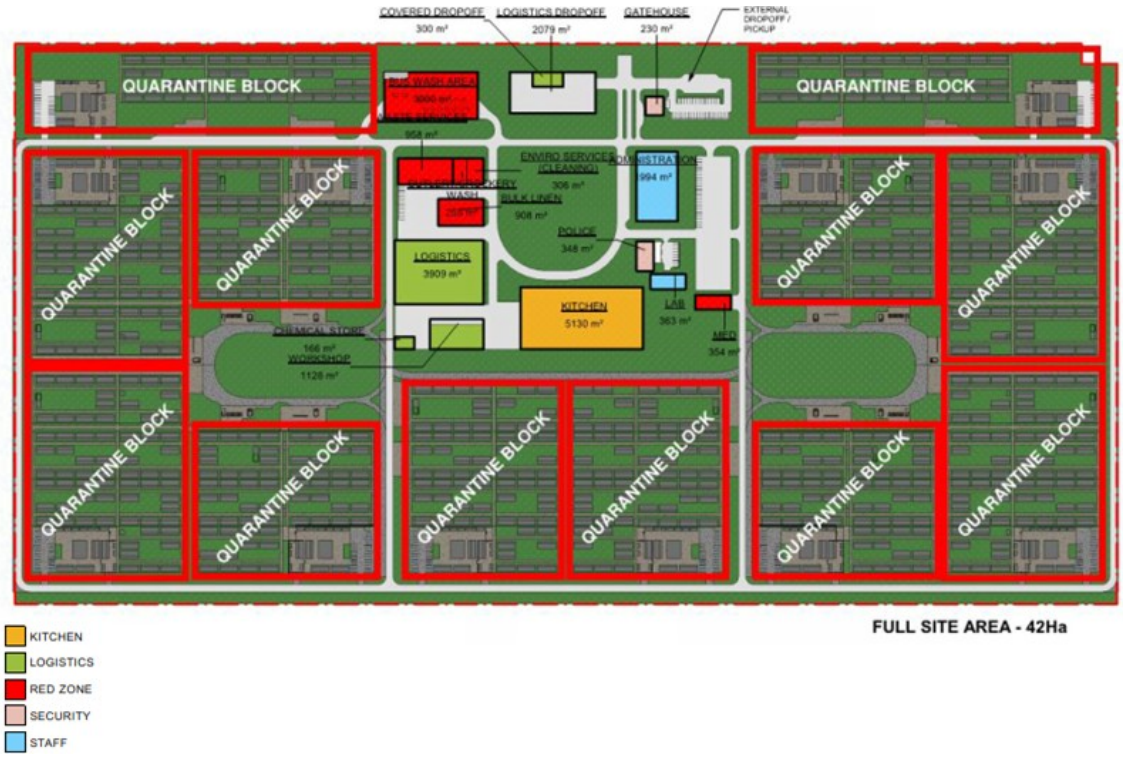


Figure 5 Indicative masterplan the proposed Alternative Quarantine Accommodation (3000 places)

Each 'suburb' of 1,000 will be broken down into 'quarantine blocks' of approximately 250 places that are effectively self-contained from a residential and staffing perspective, to enable effective segregation of residents and staff.

Figure 6 Indicative masterplan showing 'quarantine blocks' of approximately 250 places



4.1.2.2 Functional Design Brief

The Functional Design Brief outlines specific requirements that are necessary for the functional flows of the proposed Alternative Quarantine Accommodation and how the operational requirements of the service model will be implemented. It includes overarching principles and objectives to be applied to the design of

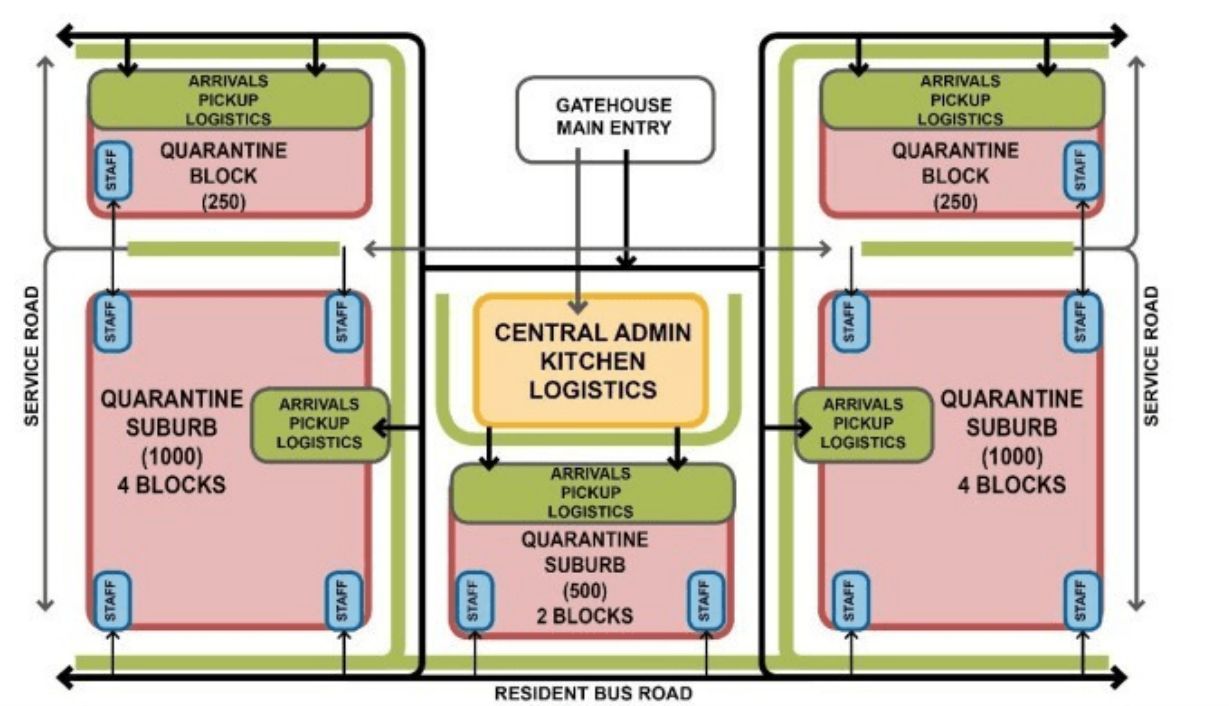
the proposed Alternative Quarantine Accommodation, with the various sections providing a more detailed response to specific guidelines and the principles. The Functional Design Brief incorporated stakeholder feedback through the development of the Business Case. At completion, the document will reflect the functional requirements for the proposed Alternative Quarantine Accommodation and will be used as part of the design and technical specifications for the project.

The proposed Alternative Quarantine Accommodation incorporates the following objectives:

- IPC design principles to mitigate the spread of COVID-19 either within then accommodation between residents, or from residents to staff and out into the community;
- Healthcare facilities suitable to provide treatment to residents for minor medical conditions and first aid;
- High quality resident amenity and experience - to be provided within the IPC and healthcare framework with an aim to house people in a quarantine environment whilst maintaining a high level of resident well-being. Happy residents reduce the IPC risk of patient and staff interaction;
- A safe environment for all residents and staff using the accommodation;
- Purpose-built accommodation that is designed so that it can be constructed in an expeditious manner, is scalable and can be completed in a staged manner;
- A long-term view to future usage of the accommodation in the post-COVID environment;
- A design that allows for functional, operational, and logistical requirements to be achieved within all the requirements of the operational framework that has been developed;
- Aspirational environmental sustainability objectives; and
- Universally accessible design.

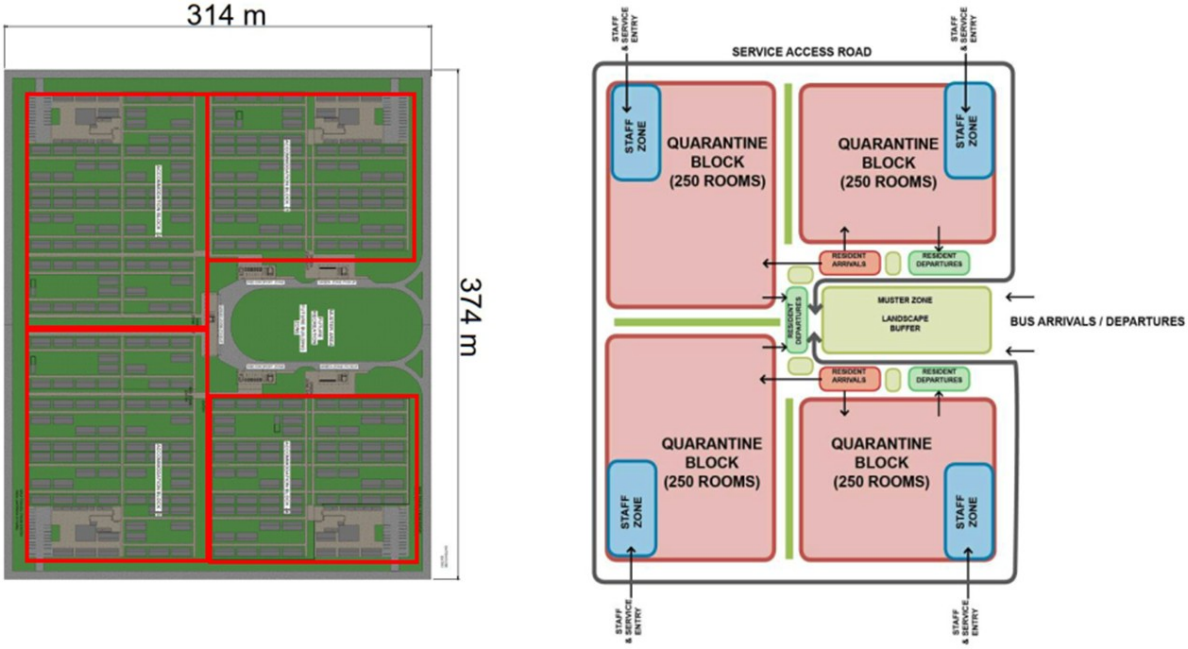
Functional relationship diagrams for the proposed Alternative Quarantine Accommodation are provided in **Figure 7**, **Figure 8**, **Figure 9** and **Figure 10** below. These have been created to articulate the proposed relationship and flow between different facilities across the site and how the different areas are segregated for quarantine purposes.

Figure 7: Functional relationships – whole site



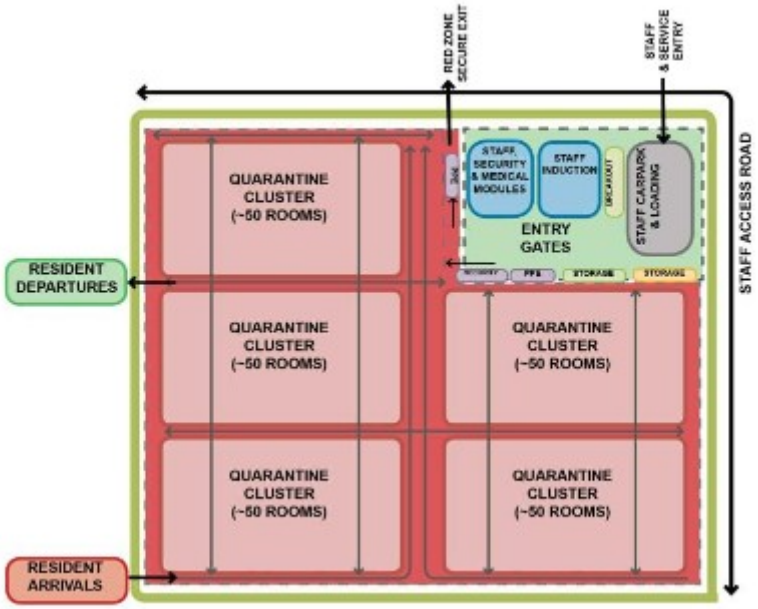
The figure below illustrates a 'suburb' of approximately 1000 places consisting of four 'quarantine blocks'. This arrangement enables effective segregation and separation of residents, and staff while balancing the sharing of some admin facilities, entry and exit to a suburb.

Figure 8: Functional relationships – suburb of approximately 1000 places



The figure below illustrates an accommodation block of approx. 250 places and dedicated service facilities to be used by staff and workforce to support residents.

Figure 9: Functional relationships –quarantine block of approximately 250 places



IPC design responses and specification are central to the design of the proposed Alternative Quarantine Accommodation. **Figure 10** demonstrates the effective segregation of 'red' and 'green' zone and separation to enable one directional flow of movement.

Figure 10: red and green zones – quarantine block of approximately 250 places

Quarantine Block
This refer to smaller block of approximately 250 places that will enable effective segregation and separation.

1. Red zone entry (and exit for COVID positive residents)
2. Red zone quarantine area for residents
3. Green zone staff area. Dedicated staffing for 250 quarantine block
4. Red zone staff area for removal of contaminated goods and waste
5. Green zone exit for residents upon completion of stay

In addition to the diagrams above, the Functional Design Brief provides detailed descriptions of functional flow for the following activities:

- Resident arrival;
- Resident stay;
- Resident departure;
- Quarantine block staffing;
- Food services;
- Logistics – Linen and delivery of goods;
- Waste;
- Medical facilities;
- Site administration; and
- Facilities management.

4.1.2.3 Accommodation typologies

The preferred option in the business case has been developed with consideration to the IPC, health and wellbeing concerns raised in the commissioned reports into Victorian Hotel Quarantine. The proposed Alternative Quarantine Accommodation will have four purpose design accommodation modules, including:

Single modules with four single bedrooms

Family units that split into:

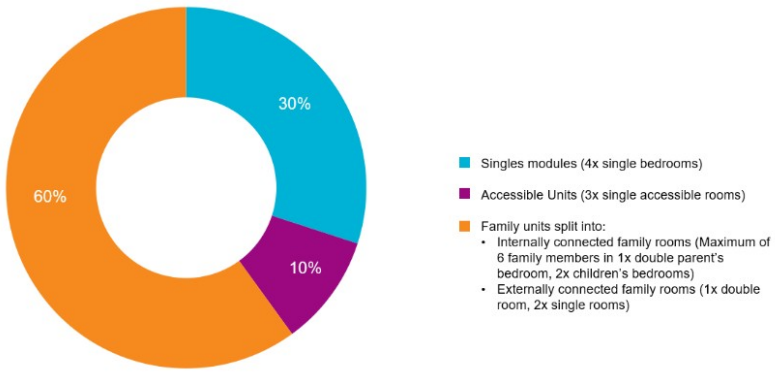
1.1. Module with one double and two single bedrooms that are connected externally and can be used to accommodate a family of up to 6 people, or a couple and two individual travellers

1.2. Module with one double and two single bedrooms that has internal interconnecting doors, for a family of up to 6 people.

Accessible module with three single accessible bedrooms designed for disability access.

The proposed accommodation mix is nominated as per **Figure 11**. The precise mix of different accommodation types may be subject to change based on further demographic analysis. All accommodation units are designed with a degree of flexibility, with lockable screens (only operable by staff) located externally on the verandas, to enable adjacent veranda spaces to be connected or separated at the discretion of staff so that units can either be used for singles, couples or families. This will allow some flexibility in the mix of overseas arrivals that can be housed as this mix is expected to evolve over time. The current proposed mix has been informed by assessment of the current return travellers' statistics provided by CQV.

Figure 11: Proposed accommodation mix



4.2 Scalability of the project solution

The preferred project option already includes staging options, as the final capacity of the proposed Alternative Quarantine Accommodation can be scaled according to evolving demand for quarantine. Due to the constantly changing nature of the pandemic, and the resulting uncertainty of demand for quarantine, the project plan has built in decision gateways for Government, aligned with the delivery of each 1,000 places. At these points, decisions will be made around whether additional capacity, and, therefore, additional construction works and expenditure, is required.