

# **The National Asset Management Programme for district health boards**

## **Appendix 4**

Report 1: The current-state assessment

June 2020

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# Introduction

This appendix sets out key findings from the expert assessments of 30 DHB campuses and 166 buildings. It focuses on the infrastructure that provides services sitewide and within buildings. Once assets have an average condition score, they will have variable component scores that are likely to require plans for remediation and replacement.

This summary highlights the assets and components assessed as average to very poor, in the 2019 expert assessments. Assessors included Beca Group, Ministry of Health officials and the facilities managers at each DHB. Scores were reviewed with each DHB, and only adjusted where the evidence supported a change.

Consistent methods were established, including the identification of key asset components and measures for grading their condition. Table 1 shows these components.

**Table 1: Components for buildings and sitewide infrastructure**

<b>Buildings</b>
For buildings, information was collected on the condition, condition variability and estimated time to replacement for:
<ul style="list-style-type: none"><li>• building fabric (external and internal)</li><li>• mechanical, heating, ventilation, air-conditioning and plumbing</li><li>• electrical, power, lighting, extra-low voltage, lifts, fire systems.</li></ul>
<b>Sitewide electrical infrastructure</b>
<ul style="list-style-type: none"><li>• Substations</li><li>• Site distribution mains</li><li>• Main switchboards</li><li>• Site generators, backup power supply</li></ul>
<b>Sitewide mechanical infrastructure</b>
<ul style="list-style-type: none"><li>• Steam pipes</li><li>• Heating pipes</li><li>• Heating plant</li><li>• Cooling pipes</li><li>• Cooling plant</li><li>• Medical gases</li><li>• Storm water drains</li><li>• Cold water supply pipes</li><li>• Hot/cold water site pipes</li><li>• Hot water storage</li><li>• Sewer drains</li></ul>

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Table 2: shows the definitions for the condition scores used for assessments of buildings and sitewide infrastructure.

**Table 2: Condition score definitions for building and infrastructure**

Rating	Condition	Definition
1	Very good	Assets displaying no deterioration or only normal routine maintenance required. New or near-new condition or repaired as good as new.
2	Good	Assets displaying limited deterioration that does not affect their use or where limited restoration has been performed. Minor maintenance may be required.
3	Average	Assets that have deteriorated to a degree where maintenance is obviously due, but not to the extent that the function is significantly impaired.
4	Poor	Assets that need repair or renewal in the short term because their condition is severely impacting performance. Barely serviceable, and failure likely in the short term.
5	Very poor	Immediate repair or renewal required. Assets have failed or failure is imminent. May pose health and safety issues and requires urgent attention.

## Northland DHB

### Whangarei hospital

#### Buildings

**Theatre block** – This scored good to average. However, the central and local HVAC<sup>1</sup>, cooling distribution<sup>2</sup> and boiler building scored average to poor. The main electrical switch board is in poor condition.

**Surgical wing** – The cold-water storage tanks and the sub-main cabling scored poor, and the local HVAC plant, windows and doors, roofs and decks scored average to poor.

**Medical wing, Block A** – This block generally scored good to average, windows and doors scored poor. The building management system and electrical distribution boards scored average to poor. Despite housing inpatient and outpatient services, this block has no HVAC, except for the area refurbished in 2000.

**Central block east** – This contains medical imaging; emergency department, intensive care and the ambulance canopy. It is mostly scored very good to average, but the local HVAC plant, doors and windows scored poor.

<sup>1</sup> HVAC = heating ventilation and air conditioning

<sup>2</sup> Distribution = the local network of cables and pipes with associated plant and equipment

### Sitewide electrical infrastructure

Some sections of the electrical reticulation,<sup>3</sup> including the main switch-boards, are at end-of-life<sup>4</sup>, with condition scores of average to poor.

### Sitewide mechanical infrastructure

Overall, the site mechanical infrastructure is in good to average condition.

The energy centre and boiler house scored good to average. However, the windows and doors scored poor, and the main switch and local distribution boards scored average to poor.

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## Waitematā DHB

### Northshore Hospital

#### Buildings

Generally, buildings scored average, with some variability. There are deficiencies in some fabric components, particularly metal and membrane roofs. There are known asbestos issues on site. There are no sitewide fire storage tanks. The services tunnel network is not complete and requires an upgrade for the new buildings. Full information was not available regarding fire and building management systems, sprinklers and cold water storage tanks.

**Site services and generator building** – Generally, this is in good condition. However, the windows, doors, roof, decks and internal fabric scored average to poor.

**Pump house** – While the infrastructure is in good to average condition, the building fabric, windows, doors, walls, cladding and internal fabric scored poor. The roof and deck scored poor to very poor.

**Gas mains house** – The building fabric windows, doors, walls, cladding, internal fabric, roofs and decks scored average to poor.

**B15N tower block, main hospital building** – The central HVAC scored poor, and local HVAC scored very poor. The heating and cooling distribution and boiler scored average to poor. The medical gases, hot water plant and cold water storage scored average to poor. Building fabric, windows and doors, roof and decks scored average to poor.

**B06N geriatric block, stage 1** – The local HVAC scored poor to very poor. The central plant and local HVAC scored poor to very poor. The central plant, heating distribution and building management system scored poor. The medical gas, hot and cold water distribution, and cold water storage scored poor. Sprinklers, fire system and hot water plant scored average to poor. The building fabric roof and decks scored poor to very poor. Windows and doors scored poor.

<sup>3</sup> Reticulation = this encompasses the services sitewide with associated plant and equipment

<sup>4</sup> End-of-life = the end of the asset's engineered life, economic life or obsolete

### Sitewide electrical infrastructure

The site main switchboard was replaced within the last 10 years, and the main switchboard for building 6 in 2019.

The submains are in variable condition. Some were replaced, others are the old mineral insulated metal sheathed cables and junctioned to new switchboards. If these cables fault, there are limited parts and skilled technicians to rectify the issue. Phased replacement should be considered.

### Sitewide mechanical infrastructure

The mechanical services are in variable condition. The chiller system scored average, the boiler scored poor. The boiler system is a dual burner that cannot operate with diesel.

Sitewide the cold and fire water mains scored poor. DHB staff reported asbestos cement pipes and failing valves underground, the pipes scored average. The hot and cold water, and heating reticulation, heating plant, and fire water pipes, scored average to poor. The chilled water supply tanks and cooling pipe reticulation scored poor.

Some areas appear to lack ventilation and active cooling.

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## Waitakere Hospital

### Buildings

Generally, the buildings scored average. There are deficiencies in some of the fabric components, particularly the membrane roofing and the metal cladding. There are also known asbestos issues.

**Generator room** – The walls, cladding, roofing and decking scored average to poor.

**New boiler house** – The heating distribution and local distribution boards scored poor. The walls and cladding score average.

**Building 23, Waiatarau Mental Health Unit** – The local HVAC system scored poor, and the heating distribution, sprinklers and hot water plant scored average to poor.

**Building 18 Maternity Unit** – The local and central HVAC systems, and the heating and hot water distribution systems scored average. The roofs and decks scored poor to very poor.

**Building 2, Hughes, Old Waitakere Hospital** - The central HVAC and distribution system, along with medical gases distribution, cold water storage tanks, cold water distribution, submains cables, main switchboard, and fire system scored average to poor. The roofs and decks scored poor to very poor.

### Sitewide electrical infrastructure

The standby generator resilience should be investigated prior to any future redevelopment. Generator number 1 is at full capacity and will require replacement.

### Sitewide mechanical infrastructure

Services tunnels scored very poor. Heating and hot water pipes in the service tunnels scored very poor. Sitewide hot, cold and fire water pipes scored poor. There are no sitewide fire storage and water tanks, which should be investigated from a resilience standpoint.

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# Auckland DHB

## Point Chevalier (Buchanan rehabilitation) Mental Health Services

### **Buildings**

Some areas lack ventilation and active cooling. There are known asbestos issues on the site. There are no sitewide fire and water storage tanks.

### **Buchanan dwellings**

Hot and cold water distribution and the internal fabric scored average to poor. Roof maintenance will help prolong the remaining life of these assets.

### **Buchanan rehabilitation centre**

The heating distribution scored poor and the boiler scored average to poor. The hot water plant and cold water storage tanks scored average to poor, and the hot water distribution is scored poor. Windows, doors, walls and cladding scored average to poor. There are also known asbestos issues.

### **Sitewide electrical infrastructure**

Limited details are available, a future inspection is required.

### **Sitewide mechanical infrastructure**

Mechanical services are generally in average to poor condition, with original plant and equipment near end-of-life. The cold and hot water site reticulation scored poor. The storm and fire water pipes reticulation scored average to poor.

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## Auckland City Hospital

### Buildings

Generally, the buildings are in average condition, apart from the boiler house that scored poor. Generally, the internal fabric of the buildings is in better condition than the exterior. There are known asbestos issues.

**Te Whetu Tawera, acute mental health unit** – The main deficiencies included failing of the roof, particularly the waterproofing membranes and sheet cladding that scored average. In addition, the local HVAC scored poor.

**Starship, children's hospital** – Generally, this is in good to average condition. However, the central HVAC scored average to poor. The external building fabric, walls and cladding scored average and the roof and decks scored average to poor.

**Boiler house** – This has several building fabric and services issues. The building scored average, and the local HVAC scored poor. The main switchboard and local distribution boards scored average to poor. The internal fabric scored average to poor, and the windows and doors scored poor.

**Auckland City Hospital, support building** – The central HVAC scored poor. The heating and cooling distribution, and building management systems scored average to poor. The hot and cold water and medical gases distribution, along with the vertical transport (lifts) and building management system scored average to poor. The walls, cladding, roofs and decks scored average to poor. The building fabric, windows and doors scored poor.

### Sitewide electrical infrastructure

There have been extensive upgrades to the site electrical reticulation. However, some of the low-voltage main switchboards that service the site and significant buildings date from the 1960s and spare parts are no longer available.

### Sitewide mechanical infrastructure

The mechanical services are in variable condition. The chiller system scored good and the boilers scored poor. There are resilience issues with chilled water, as there is no site ring mains and the pipes are in a star formation. The heating plant and site services of storm water, sewer drains and steam pipe reticulation, scored average to poor.

Some areas lack ventilation and active cooling. Asbestos is present in many areas, for example the service tunnels and most of the boiler house. Sitewide fire and water tanks do not serve all the buildings.

## Greenlane Clinical Centre

### Buildings

Generally, the buildings are in average condition with the internal fabric of the clinical building being better than its exterior. There appear to be deficiencies with some fabric components, particularly roofs and windows.

**Building 4, west** – This has several HVAC issues with the central plant in poor to very poor condition. The cooling distribution and the building management systems scored average to poor. The windows and doors scored poor and the roof scored average to poor.

**Building 2, the boiler house** – This has several fabric issues. The windows, doors, walls, cladding, and internal roof fabric scored average to poor. The building management system scored average to poor.

### Sitewide electrical infrastructure

The electrical infrastructure is in variable condition. Generally, the high-voltage equipment is beyond end-of-life. Other infrastructure such as the site generator and low-voltage main switchboards have been replaced and scored good. Some major reticulation cables are from the original installation. Distribution switchboards serving sitewide infrastructure scored very poor. Some switchboards date from the 1950s boiler-house installation, and spares are no longer available.

### Sitewide mechanical infrastructure

Generally, mechanical services are in average to poor condition, with old equipment near end-of-life. There is a lack of ventilation to some areas and appears to be no fire storage tanks. Sewer pipes have ingrown tree roots.

The steam pipes and reticulation scored poor, and the hot, cold and waste water, along with the fire water pipes and reticulation scored average to poor.

## Counties Manukau DHB

### Manukau SuperClinic (Manukau Health Park)

#### Buildings

**Manukau SuperClinic and surgical** – Generally, the building is in good to average condition with some localised failure of cladding, roof flashings and parapets. Mechanical and electrical services are in good condition apart from the vertical transport (lifts) and central HVAC that both scored poor.

### Sitewide electrical infrastructure

The electrical infrastructure appears to be in good condition. The site generator and low-voltage main switchboard has been replaced and is in good condition. The low-voltage main switchboard and emergency generation are at capacity. Replacement or extension is required to increase capacity.

### Sitewide mechanical infrastructure

Overall, the mechanical infrastructure is in good condition. The chilled water plant is a mix of new and old, with limited resilience and redundancy.

Collocated plant poses risks. The chilled water pumps and site electrical main switchboard are collocated, that risks mixing water and power. The scope dryer compressed air plant is collocated with the vacuum and anaesthetic gas scavenging pumps, posing a potential contamination risk.

The HVAC scored average to poor. The site heating plant was not assessed, due to lack of access at the time of inspection.

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## Middlemore Hospital

### Buildings

**Medical, renal and dialysis building** – Generally, this is in good condition with the central HVAC and cooling distribution scored average to poor. The building fabric on walls and cladding scored average to poor.

**McIndoe, national burns building** – The central HVAC and building management systems scored average to poor. The building fabric and windows scored average to poor, the doors and internal fabric scored average.

**The Galbraith maternity and acute building** – The central and local HVAC systems scored average to poor, the building management system scored poor. The medical gas services and vertical transport (lifts) scored average to poor. The local distribution boards scored poor. The building fabric for windows, doors and cladding scored average to poor.

**CT radiology building** – Generally this is in very good condition, apart from the building fabric, roof and decks that scored poor.

**Colvin building, rehabilitation and wards** – Generally, this is in very good to average condition. However, the local HVAC, along with the building's wall, cladding and internal fabric, roof and decks, scored average to poor. There is no central cooling or ventilation and there is evidence of roof leaks.

**Scott building** – This has evidence of building leaks and mould in basement of the air handling unit plantroom.

### Sitewide electrical infrastructure

Generally, sitewide electrical infrastructure is in good condition. Some building management systems appear beyond end-of-life.

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### Sitewide mechanical infrastructure

Generally, sitewide mechanical infrastructure is in good condition, due to the newer plant and reticulation. The Infrastructure is mostly interconnected across the site providing resilience and redundancy.

The Galbraith building that houses sitewide mechanical plant, has seismic and asbestos risks. The sitewide infrastructure located in Galbraith is older and in poorer condition. Some parts of the site including the McIndoe and Kidz First buildings are reliant on reticulation and plant within Galbraith.

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## Otara Spinal Unit

### Buildings

Generally, the buildings are in average condition. There are deficiencies in both the external and internal fabric, particularly the sheet cladding, roofs and skylights. There are known asbestos issues on site, such as in the tunnel between the central plant and occupied buildings, which restricts maintenance.

**Tamaki Oranga** – The local HVAC and heating distribution scored average to poor. The hot water distribution scored poor. The submains cables, main switchboards and local distribution boards scored average to poor. The building fabric, roof, decks and internal fabric scored average to poor.

### Auckland spinal unit

The HVAC heating distribution scored average to poor. The hot and cold water distribution scored poor. Electrical services, including submain cables, main switchboards and distribution, scored average to poor. The building fabric around windows and doors, along with the internal fabric scored average to poor. The roof and decks scored average.

### Sitewide electrical infrastructure

The site electrical reticulation and generation is in very good to good condition.

### Sitewide mechanical infrastructure

Corrosion of pipes at the pipe-clamps is causing pipe failure and flooding, particularly with the heating pipes. This reticulation scored poor. Pipes are reticulated through the buildings via minimal roof cavity with no service access.

Thermostat control of ceiling radiator panels scored very poor, often overheating. There are no central cooling or ventilation systems.

Council sewer blocks cause issues on site.

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# Waikato DHB

## Hamilton Hospital

### Buildings

Generally, the buildings are in good condition, although the central laundry scored average. The services in older buildings are old and near end-of-life. Some infrastructure is original with monitoring recommended. The lack of cooling in the inpatient wards is not appropriate for clinical buildings.

**Wilson building** – The local HVAC scored poor. The main switchboard scored average to poor, with signs of deterioration.

**Menzies building, surgical and medical** – The medical gas and hot water distribution scored average to poor with signs of deterioration. The central HVAC scored average to poor and the building management system scored poor. The cold water distribution scored poor to very poor.

**Kemphorne block** – The HVAC, cooling distribution and building management system scored average to poor.

**Elizabeth Rothwell building, children's** – This building has several age-related infrastructure issues with the main switchboard, hot and cold water distribution in poor condition. The local distribution boards, fire system and HVAC cooling distribution scored average to poor.

**Central Laundry** – This has several issues including the main switchboard, distribution boards, local HVAC that scored average to poor. The windows and doors scored poor.

### Sitewide electrical infrastructure

Overall, the electrical infrastructure is in good condition, but has high-variability across the buildings surveyed. The standby generator plant scored good. Most of the electrical high-voltage cables and switchgear were replaced as part of the Meade building construction project.

### Sitewide mechanical infrastructure

The central boiler plant scored good, components have been refurbished and replaced. The storm water reticulation scored average to poor, with signs of deterioration. The sewer drains reticulation scored poor. The liquid oxygen plant electrical distribution board scored average to poor.

# Bay of Plenty DHB

## Tauranga Hospital

### Buildings

All buildings are in very good to average condition.

### Sitewide electrical infrastructure

The electrical infrastructure is in very good to good condition with minor exceptions. Three years ago, there was significant investment in the standby generators to improve their capacity and resilience. Some major high-voltage reticulation cables scored good, although they date from the original installation.

### Sitewide mechanical infrastructure

The mechanical infrastructure is generally in good to average condition, apart from the buildings that were not refurbished around 2007.

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# Lakes DHB

## Rotorua Hospital

### Buildings

**Ngati Whakaue building** – The HVAC has several issues. The central and local HVAC, along with the building management system scored average. The heating distribution scored poor. The services of hot and cold water distribution, submains cables, main switchboards and local distribution boards, scored average to poor.

**Geothermal exchange plant house** – This is generally in good condition. However, as reported above the building management system scored average to poor.

**Clinical services block** – This is in generally good condition. However, the cold-water storage tank scored average.

**Boiler house and computer room** – The main concern is the building fabric, walls, cladding and internal fabric all scored average to poor. The windows and doors scored average. Located inside the boiler room, the computer room scored average to poor.

**Acute psychiatric unit** – This has a complex roof with multiple junctions prone to leaks but is in generally average condition. The central and local HVAC systems and building management system scored average to poor.

### Sitewide electrical infrastructure

Major electrical infrastructure works including a new generator plant have been completed sitewide. However, some of the original electrical infrastructure may soon require replacement.

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### Sitewide mechanical infrastructure

A major refurbishment was completed around 2012, and mechanical assets are in good condition. Some backbone infrastructure is original and beyond end-of-life ie, the sewer drains reticulation scored average to poor.

The control systems for the geothermal steam plant are in visibly poor condition, yet they appear to operate well. Possible investigation is required and review of the planned preventative maintenance.

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## Taranaki DHB

### Taranaki Base Hospital

#### Buildings

Overall, it appears there are passive fire protection issues in the clinical services building, special services building and maternity block.

**Transformer room** – The external fabric is deteriorating. The windows, doors, roof and decks scored average, and the submains cables scored average to poor.

**Special services block** – The HVAC distribution scored average to poor and the building management system scored average to poor. Several services including medical gases, hot water distribution, vertical transport (lifts), submain cables, main switchboards and local distribution boards, scored average.

**The power building** – The internal fabric, submains cables and local distribution boards scored average.

**Maternity block** – This is in average condition overall, including the roof and decks. However, the submain cables and main switchboard scored average to poor, and the local distribution boards scored poor. There are known asbestos issues. There is no central cooling and limited local cooling ie, the building has natural ventilation only.

**Clinical services block** – The services are in average to very poor condition. The central HVAC scored poor and the heating and cooling distribution scored average. The hot water distribution scored poor to very poor. The services including vertical transport (lifts), submain cables, and local distribution boards scored poor. The main switchboard scored average to poor. The building fabric windows and doors scored average to poor.

**Boiler house and chimney** – The walls and cladding scored average and the submain cables scored poor.

#### Sitewide electrical infrastructure

The electrical reticulation (mains and submains) scored average to poor, it is near end-of-life.

#### Sitewide mechanical infrastructure

Steam and cooling pipes and reticulation scored poor. Fire detection was not observed in the boiler house, which appears to be served by manual call points only. This may be covered by a grandparent clause but should be checked for compliance.

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# Tarāwhiti DHB

## Gisborne Hospital

### Buildings

**Building Condition** – Generally, the buildings are in good to average condition. Where there are flat roofs, these tend to leak. The water treatment building has a super 6 asbestos roof. There is no cooling in inpatient ward areas.

**Ward block, central first, ward 7, coronary and intensive care** – The HVAC heating distribution and building management systems scored average to poor.

**Ward 11 mental health and addictions unit** – The central HVAC scored average to poor.

**Clinical services building, theatre and central sterile supply** – The HVAC cooling distribution scored poor, the central plant and local electrical distribution boards scored average to poor.

**Boiler house** – The windows, doors and roof scored average to poor. The local distribution boards and generators scored average to poor, with a risk of failure.

### Sitewide electrical infrastructure

Overall, the electrical infrastructure is in average condition. The high-voltage switchgear is original, and the local supply authority has attached safety notices to limit the amount of switching. This switchgear is scored average to poor and requires replacement.

Generally, the local distribution within the buildings are in average condition, with a scheduled replacement program underway.

### Sitewide mechanical infrastructure

Generally, the mechanical infrastructure is in average to poor condition, with infrastructure that supports services in immediate need of replacement. Issues include the steam pipe reticulation and the cooling plant that scored poor to very poor, and the cooling pipe reticulation that scored poor. The hot and cold water, and heating pipes scored average to poor.

# Hawke's Bay DHB

## Hawke's Bay Hospital

### Buildings

Most clinical services are in buildings of various ages that are joined at ground floor level. This joined construction creates complexities with passive fire-separation that appear to be managed reasonably well.

**Laboratory** – This is located on the first floor and straddles the emergency and radiology services. There are roof leaks due to the dissimilar footprints of the two storeys. The building cladding, roof and walls scored poor to very poor. The central HVAC scored poor. The vertical transport (lift) scored average to poor.

**Boiler house** – The main switchboard scored average to poor.

**AB Block** – The HVAC and building management system scored average to poor. The windows and doors show signs of deterioration and scored average to poor. The inpatient wards lack cooling.

### Sitewide electrical infrastructure

Generally, the electrical infrastructure is near or beyond end-of-life. The high-voltage supply to the site is in poor condition with regular failures. Some major switchgear is vulnerable to failure. The theatres are particularly vulnerable to this risk. The submains scored average to poor.

### Sitewide mechanical infrastructure

Generally, the mechanical infrastructure is average condition and near end-of-life. Pipes throughout the campus are original and a monitoring programme is recommended. Hot and cold water, steam and heating pipes, and the associated reticulation scored average to poor.

# MidCentral DHB

## Palmerston North Hospital

### Buildings

The DHB has recent detailed engineering reports for hot, cold and fire water, and medical gases. These found fire separation issues, and very poor fire systems, along with major structural issues in the water tower, which leaves this site without water storage.

There appears to be substantial organic growth on the walls and roof forms of taller buildings, that suggest a lack of routine maintenance. Anecdotal evidence suggests there are historical structural, fire separation and building fabric issues on several buildings.

**Water tower** – The submain cables and distribution boards are in poor condition. There are major structural issues with the water tower, which leaves this site without water storage.

**Medical gas storage** – Generally, the medical gas storage is in good condition. However, the external fabric is in average to poor condition.

**Boiler house** – Generally, this is good to average condition, apart from the local distribution boards that scored average to poor. The boiler chimney appears sound, but there is a risk that it would collapse onto other buildings in an earthquake.

**B block** – The building fabric associated with windows and doors scored poor, roofs and decks scored average to poor. Overall, the HVAC, heating distribution and building management systems scored poor, although the central HVAC system scored average to poor. Hot water distribution scored average, and the local distribution boards scored poor.

### Sitewide electrical infrastructure

In general, the electrical infrastructure is in good to average condition, but some parts scored average to poor. This includes the high-voltage reticulation and transformers that are 47 years old and near end-of-life. The low-voltage main switchboards require replacement. Overall, the backup generator plant is in good condition with variable condition for some components.

### Sitewide mechanical infrastructure

The mechanical sitewide infrastructure is in average to very poor condition. Suspected capacity issues exist for the medical gas and old assets nearing end-of-life. Failures of sitewide infrastructure are evident and increasing rates of failure can be expected.

The storm water, sewer drains, and hot and cold water reticulation scored poor. The steam pipes, cold water supply tanks and cooling plant scored average to poor.

# Wanganui DHB

## Wanganui Hospital

### Buildings

**Ward and administration building** – Overall, this scored average but has several poor components. The hot water distribution scored poor to very poor. Vertical transport (lifts), local electrical distribution boards, the local HVAC system, cooling distribution, and the building management system, scored average to poor. There is a lack of cooling with the old central plant in average to poor condition. Monitoring of pipework is recommended due to reported failures.

**Pump house** – The windows, doors, cladding and internal fabric are in average to poor condition. The building is scheduled for demolition but contains critical electrical infrastructure that will need to be relocated.

### Sitewide electrical infrastructure

The electrical reticulation is in good to average condition, but near end-of-life.

### Sitewide mechanical infrastructure

Most of the mechanical infrastructure is the original installation and in average condition.

The sewer drains and storm water are in poor condition. The hot and cold water reticulation, and cold-water holding tank are in average to poor condition. The internal fabric of the tunnel between the pump house and the theatre services is in average condition and deteriorating.

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# Capital & Coast DHB

## Ratonga Rua o Porirua Hospital

### Buildings

**Haumietiketike** – The local HVAC scored poor, and the building management system scored average.

**Central services utility building** – This is in generally average condition, but the cooling plant and distribution scored average to poor. There appears to be no sitewide fire storage tanks or separate fire ring main. Sitewide cold water storage tanks are available, but not connected to buildings. The boiler and chiller only service some buildings, leaving others with a lack of ventilation, and active cooling and heating.

### Sitewide electrical infrastructure

Generally, the electrical systems are in good condition.

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### Sitewide mechanical infrastructure

The mechanical elements are generally in good condition. However, some of the sitewide reticulation including storm water, sewer drains and cooling scored average to poor. The central cooling plant also scored average to poor.

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## Kenepuru Community Hospital, Porirua

### Buildings

**Ward block** – The central HVAC, heating and cooling distribution, and boiler scored average to poor. The building management system scored poor. The medical gas distribution, hot water plant and distribution, and cold water distribution scored average to poor. The main switchboard scored average to poor. The building fabric walls, cladding, roof and decks scored average to poor.

**New maternity building** – Generally, this is in good to average condition, although it was a relocated cafeteria building. The hot water distribution scored average to poor, and the roof and decks scored average.

**Kenepuru, clinical services building** – This is in variable condition. The HVAC, heating and cooling distribution, and building management system scored average to poor. The building's uninterruptable power supply scored poor. The building fabric, walls and cladding scored average to poor, and there have been weathertightness issues with roof leaks.

Some areas lack ventilation, active cooling and heating.

### Sitewide electrical infrastructure

Overall, the site electrical infrastructure is in very good to good condition. The site main switchboards scored good, they were replaced within the last 5 years. Old submains are jointed under the floor to the new switchboard.

The generator scored good, it was installed within the last 3 years, and has adequate capacity to supply a 100% site load.

### Sitewide mechanical infrastructure

Mechanical services vary from good to average condition, apart from the medical gases, hot and cold water pipes, heating plant, heating and fire water pipes that scored average to poor.

There appeared to be no sitewide fire storage tanks and separate fire ring main.

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## Wellington Regional Hospital

### Buildings

**Clinical services block** – The HVAC system, central plant, heating distribution, cooling distribution, hot water distribution, and the building management system are in poor condition. The vertical transport (lifts), roof and decks are in average condition.

### Sitewide electrical infrastructure

Elements of the energy centre envelope contain asbestos and are preventing roof access. Around the site, most of the high-voltage cables owned by the DHB appear to be beyond end-of-life and should be replaced. The site generators are in poor condition. The site main switchboard is at end-of-life and scored average to poor. Replacement is being investigated.

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### Sitewide mechanical infrastructure

The general mechanical infrastructure is in poor to average condition. The steam pipes and hot water storage are in poor to very poor condition. The hot and cold water pipe reticulation and the heating plant are in poor condition. The storm water drains, medical gases, heating pipes, fire water and cooling pipes are in average to poor condition.

In the total energy centre, the hot water plant and heating distribution are in very poor condition. The boiler house and hot water distribution are in poor condition. The local HVAC, building management system, windows and doors are in average to poor condition. The centre's domestic heating, hot water valves, pumps and storage tanks are in poor condition and require constant attention.

It appears that some key site services are not located on the site plans.

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## Hutt Valley DHB

### Hutt Hospital

#### Buildings

There is no cooling in the inpatient ward areas, which is not appropriate for clinical buildings. This is particularly evident in the maternity and Heretaunga building.

**Te Whare Ahuru building** – Generally, this is in good to average condition. The building fabric, walls and cladding scored average. The timber-frame construction is of residential quality, with monolithic sheet cladding that is cracking and likely to be letting moisture into the wall framing.

**Heretaunga block** – Generally, this is in very good to average condition. However, the building management system scored average to poor, and the internal building fabric scored average.

**Garages** – Generally, this is in good to average condition, apart from the building fabric, doors, and windows that scored average to poor.

**Care block** – Generally, this is in good to average condition. However, the central HVAC scored poor and the heating distribution scored average to poor. There is evidence of moisture entering through stair core-walls and five different cladding materials that may contribute to future maintenance issues.

#### Sitewide electrical infrastructure

Generally, the electrical infrastructure is in very good to good condition. Recently as part of the theatre upgrade, the generator was replaced, including new control systems. There is limited variability in condition and the distribution is in good condition.

#### Sitewide mechanical infrastructure

Generally, the mechanical infrastructure is in good to average condition, with minimal variability. Of concern is the hot, cold and fire water, as the condition of the 80-year-old buried pipes is unknown.

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# Wairarapa DHB

## Wairarapa Hospital

### Buildings

Wairarapa DHB buildings were not selected for professional assessment due to the recent construction of the main hospital building. Sitewide reticulated infrastructure was inspected by a Ministry of Health representative.

### Sitewide electrical infrastructure

The main reticulated infrastructure was upgraded around 10 years ago when the main hospital building was constructed. The older buildings are on older infrastructure that is not a current concern.

### Sitewide mechanical infrastructure

All storm water, sewer, and fire water pipe reticulation is in average to poor condition. The site is managing operational issues related to the design of waste and storm water reticulation to the new hospital building.

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# Nelson Marlborough DHB

## Nelson Hospital

### Buildings

The building fabric is old, though in reasonable condition; a large area of flat roof on the central block scored poor. Building services are in variable condition and near end-of-life.

**Theatres and recovery rooms** – The central HVAC scored average to poor, and the boiler scored poor. The hot and cold water distribution, and fire system scored average. The local distribution boards, building fabric, walls and cladding scored poor.

**Percy Brunette Block** – The HVAC heating distribution scored average to poor, and the building management system scored poor. The hot water plant and the fire systems scored poor, the hot water distribution, cold water storage tanks and local distribution boards scored average to poor. The cold water distribution scored average. The fabric, windows, walls and cladding scored average to poor.

**Boiler house and Bunkers facility** – The submains cables scored poor. The building fabric for windows, doors, roofs and decks scored average to poor.

### Sitewide electrical infrastructure

The electrical infrastructure is in variable condition with new and old assets. The high-voltage substations, mains and submains cables scored average to poor.

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### Sitewide mechanical infrastructure

The site cooling plant appears to be under capacity, and without any redundancy. Storm water, sewer drains, and heating plant scored average to poor. The boiler house and bunkers, building windows, doors and roof scored average to poor. The submains cables scored poor.

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## Wairau Hospital

### Buildings

Generally, the building fabric is in good to average condition. Internally the building fitouts are of mixed age with some recent work.

**Graham Smart Theatre Suite** – The central HVAC system is in poor condition. The vertical transport (lifts) is in average to poor condition and requires investigation. The walls and cladding are in poor condition.

**Boiler house and plant room** - The building management system is in poor condition. The windows, doors, roofs, decks and internal fabric is in average to poor condition and requires investigation.

**Arthur Wicks Building** – The central HVAC and building management systems are in poor condition. The hot water distribution is in average to poor condition.

### Sitewide electrical infrastructure

The electrical infrastructure is generally in good condition, as some main panels and generators have been replaced. The distribution mains in the buildings are mostly original and should be monitored.

### Sitewide mechanical infrastructure

The sitewide reticulation pipes for hot and cold water are in poor condition. All storm water, steam and fire water reticulation pipes are in average condition.

The central boiler plant is in average to poor condition. It is old and near end-of-life. There are new chilled water plant and mains. Distribution services in the buildings are mostly original and require monitoring.

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# West Coast DHB

## Grey Base Hospital

### Buildings

**Mental Health Unit** – The external building fabric is in average condition. However, the roof scored poor to very poor, and is near end-of-life with patched repairs. Cold water services are old and scored poor to very poor, exacerbated by the average to poor condition of the cold-water storage tank. The local distribution board scored poor. The HVAC has several issues, the central plant scored poor, the heating and cooling distribution scored average to poor, and the building management system scored poor to very poor. Internally, a large proportion of the unit's upper floor was recently refurbished, but the ground floor fitout is largely original.

### Sitewide electrical infrastructure

The electrical infrastructure is in good condition for its age, with new submains and recently replaced switchgear. The main site switchboard is located external to the buildings within a container. Although not an ideal location, it is in good condition.

### Sitewide mechanical infrastructure

A new boiler plant is being commissioned that could improve the condition of hot water services that are being decentralised. The fire water pipes and reticulation scored average to poor with signs of degradation.

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# Canterbury DHB

## Christchurch Hospital

### Buildings

**Riverside, west and east** – The central HVAC system has several issues, including the central plant and building management system that scored average to poor. The sprinklers, hot water plant, hot and cold water and medical gas distribution scored average to poor.

The building also has poor passive fire protection and known asbestos issues. The exterior fabric scored average and there may be seismic issues for some cladding panels.

**Parkside, including the emergency services extension** – The HVAC has several issues, as the heating distribution and building management systems scored poor, and the central plant scored average to poor. Several services including medical gases, hot water, main switchboard and local distribution boards scored average to poor.

The building interior is in average condition, with poor passive fire protection and known asbestos issues. The roof membrane scored average.

**Clinical services building** – This has several issues, including cold water reticulation in poor to very poor condition.

**Medical gases building** – This is in poor condition. The medical gas distribution and fire sprinklers scored average to poor. The HVAC system has several issues, the cooling distribution and building management system scored poor and the central plant scored average to poor.

The facility also has poor passive fire protection. Both the exterior and interior fabric scored average.

### Sitewide electrical infrastructure

Generally, the electrical infrastructure is beyond end-of-life. The Riverside high-voltage switchgear is collocated with the low-voltage main switchboard, which is not ideal. During a recent mains-fail test at Parkside, the main switchboard busbar tie-breakers did not operate. These breakers have been locked-out to prevent attempted operation.

The site submain cables scored average.

### Sitewide mechanical infrastructure

The mechanical distribution pipes are original and near end-of-life. The site's hot and cold water reticulation scored average to poor.

The central cooling plant has benefited from a programme of replacement. Further significant expenditure is required, most of the HVAC controls will be obsolete in 2 years including the central plantroom outstations and the field variable air volume controllers.

## Hillmorton Hospital

### Buildings

**1974 Tupuna Villas** – This building has cladding panels containing asbestos. The switchboards scored average to poor. They appear to be beyond end-of-life, with nuisance tripping of power circuits. The hot and cold water plumbing reticulation scored poor. The central HVAC and heating distribution scored poor.

**Te Awakura Stewart, adult acute unit** – The hot and cold water reticulation scored average to poor. The local HVAC scored average to poor and the heating distribution scored poor.

**Aroha Pai, Randolph – psychiatric service for adults with an intellectual disability** – The hot and cold water reticulation scored poor. The local HVAC, building management system and local electrical distribution boards scored average to poor. The heating distribution scored poor.

### Sitewide electrical infrastructure

Generally, the electrical infrastructure is beyond end-of-life. On three occasions, the generator has suffered failure of the dampener and scored poor. The high-voltage substation scored average to poor.

### Sitewide mechanical infrastructure

Generally, the mechanical services are in average to poor condition. The site heating pipes and reticulation scored very poor. The site storm water and sewer drain reticulation scored average to poor. There appears to be no provision for sitewide cooling or cold water storage.

# South Canterbury DHB

## Timaru Hospital

### Buildings

**Kensington Building** – The HVAC distribution system is in poor condition and the building management system is in average to poor condition. Services including hot and cold water distribution are in poor condition.

**Energy centre** – The local HVAC system is in poor to very poor condition and the building management system is in average to poor condition. For services, the main switchboard is in poor condition, and the local distribution boards along with the cold water distribution system are in average to poor condition.

**Main clinical services building** – Several services and assets are in average to very poor condition. The central HVAC and heating distribution are in poor to very poor condition. The cooling plant and distribution is in poor condition.

The local HVAC and building management systems are in average to poor condition. The hot water plant and hot water distribution are in poor to very poor condition. The cold water storage tanks are in average to poor condition.

**Clinical Services Building East** – The central HVAC and heating distribution systems are in poor to very poor condition, and the building management system is in average to poor condition. The hot water distribution scored poor to very poor and requires investment, while the cold water distribution scored average to poor. The local HVAC system for the theatre suite is in very poor condition. Generally, the localised distribution of hot and cold water and general plumbing to buildings scored poor to very poor condition.

The DHB is working through issues with passive fire protection in this building, primarily in relation to vertical fire stopping and tagging of fire doors. There are asbestos issues onsite mostly in the laundry building and issues with lagging in the service tunnels.

### Sitewide electrical infrastructure

The electrical infrastructure is in poor to very poor condition and beyond end-of-life. The submains distribution cables are in poor to very poor condition. The emergency department and lift submains cables are in poor to very poor condition with a high risk of failure.

The energy centre switchboards are in poor condition. They are original and beyond end-of-life.

### Sitewide mechanical infrastructure

Mechanical services are generally in poor condition with ad hoc replacements over the years. Equipment and infrastructure is near end-of-life. Heating plant and steam pipe reticulation is in poor to very poor condition.

The storm water, sewer, hot and cold water pipes and heating reticulation is in average to poor condition. The coal fired boilers will soon require replacement.

# Southern DHB

## Dunedin Hospital

This site was not assessed. Redevelopment plans are in progress.

## Wakari Hospital

### Buildings

**Wards 9A, 9B** – Plaster cladding on these acute mental health units is in poor condition and 28 years old. The cavity design does not appear to be appropriate, the ground-level is high in places, so it may not be draining. The curved roof apex appears to leak in numerous places. The HVAC, central and local systems scored poor. The hot water plant scored average.

**Helensburgh house** – The services are in average to poor condition, including the HVAC distribution, hot water plant and distribution, cold water distribution, sub-mains cabling and local distribution boards. The windows and doors are in poor condition, the roof and decks in average to poor condition.

**Boiler house** – The services are in average to poor condition, including heating and distribution, hot water plant, hot and cold water distribution. The windows and doors scored poor, the roof and decks scored average to poor.

### Sitewide electrical infrastructure

The electrical infrastructure is in average condition, and mostly beyond end-of-life. Most of the switchgear that supplies each block is housed in the basement of the boiler house. It is inaccessible due to the presence of asbestos in this building. Most of the switchgear supplying each block is in the basement but also not accessible due to the presence of asbestos.

### Sitewide mechanical infrastructure

The mechanical services are old. Over the next 5 years significant investment will be required for wards 9a and 9b. Ward 9c has recently been upgraded.

The boiler plant was replaced over the last 5–10 years, but remains in an asbestos contaminated building. The storm water and sewer drain reticulation is in poor condition. There appears to be limited cold water storage on site that requires investigation.

## Southland Hospital

### Buildings

**Inpatient mental health unit** – The services are mostly in good to average condition. An exception is the cold-water distribution that scored average. There are issues with cracking of block panels on the unit. Water is leaking into the enclosed walkway that links the mental health inpatient unit with community mental health.

**Boiler house and boiler house chimney** – The building fabric including windows, doors and internal fabric scored average. The local distribution boards scored average. The plastered brick boiler house chimney appears to be delaminating.

### Sitewide electrical infrastructure

Generally, the electrical infrastructure is in good condition.

### Sitewide mechanical infrastructure

Distribution services are in variable condition with issues around cold water distribution. Review of site water storage is recommended. Storm water and sewer drain reticulation scored poor. The steam, hot and cold water pipes along with the associated reticulation scored average.

