Setting the direction for future investment that secures the best health gain for the people living in our Northern Region.
11 FEB 2019

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Dear Ailsa

**Northern Region Long Term Investment Plan**

This letter is to advise you I have accepted and approved your Northern Region Long Term Investment Plan (NRLTIP) and the accompanying Addendum as your 2018/19 Regional Service Plan (RSP).

My acceptance and approval of your NRLTIP and the accompanying Addendum as your RSP does not constitute acceptance of proposals for service changes that have not undergone review and agreement by the Ministry of Health. Please ensure that you advise the Ministry as early as possible of any proposals for service change that may require Ministerial approval. Acceptance and approval of the Plan also does not constitute approval of any capital business cases that have not been approved through the normal process.

I would like to thank you and your staff for your valuable contribution and continued commitment to delivering quality health care to your population, and wish you every success with the implementation of the NRLTIP.

Please ensure that a copy of this letter is attached to the copy of your NRLTIP held by each DHB Board and to all copies that are made available to the public.

Yours sincerely,

[Signature]

Hon Dr David Clark  
Minister of Health

cc: Northern Region DHB Chairs and Chief Executives
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Executive Summary

The Northern Region is committed to the New Zealand Triple Aim. We are focussed on ensuring that the capacity and capability of our regional health delivery system is ready to meet demand. We will do this in a manner that maximises value from available resources; working to improve the health and equity of our populations and the quality, safety and experience of care delivered to individuals.

The Northern Region Long Term Investment Plan (NRLTIP) has been developed to articulate the strategic direction for the Northern Region and to identify the investments necessary to ensure the ongoing delivery of high quality healthcare. This plan takes a 10 to 15 year view within the context of a 25 year planning horizon.

This NRLTIP is the first developed by our Region. It has been developed with a high level of engagement across our DHBs and with other key stakeholders from our regional health system. This plan is particularly focused on pressing capacity and remediation issues affecting our major hospital sites. It considers whether an additional hospital site is required in the Northern Region. Future NRLTIP’s will focus on other aspects of longer term service delivery and areas where we have already identified that further work initiatives need to be completed.

This NRLTIP is designed to provide:

- A regionally agreed view of the expected long term demand profile
- An agreed high level service delivery operating model around which clinical service planning will be aligned
- Profiling of regional capacity requirements based on anticipated demand under a range of scenarios
- Options, and future model of care assumptions, for the most effective and efficient future capacity configuration
- Regional agreement on key investment requirements and the investment logic map
- An action plan to deliver improvements to the NRLTIP process in subsequent periods of work
- An outline of investment priorities within three ‘portfolios’ of investment requirement:
  - Physical infrastructure
  - Clinical equipment
  - Information and Communication Technology.

We are New Zealand’s largest and fastest growing Region. The scale of demand change that we can expect raises particular challenges for both DHB and non-DHB service delivery systems. To continue to deliver on the Triple Aim, we must make a step change in how we think about, and provide, healthcare in the Northern Region.

One thing is very clear from the Regional work we have undertaken; we can no longer think, and operate, within the confines of DHB boundaries. We must integrate and share resources, assets and services in order to provide the very best services to the people living in our Region.

Northern Region Environment

We are New Zealand’s largest and fastest growing Region

We anticipate that the demand for healthcare associated with our growing, ageing and changing population will quickly outstrip our ability to deliver health services under our current models of care. Medium growth forecasts predict an additional 562,000 people will live in the Northern Region in the next 20 years. If the highest growth forecasts are correct, then the population will exceed 2.6 million by 2036/37. This equates to an extra 781,000 people in our Region.

We anticipate demographic shifts as our population grows. By 2036/37:

- 19% of our total population will be over 65 (increasing from 230,000 to 446,000) and the population over 75 is expected to more than double from 94,000 to 225,000
• Older people aged over 65 will occupy 79% and those over 75 will occupy 64% of our additional bed demand
• 32% of our population will be Asian (currently 24%).

This shift in demographics will place increasing strains on healthcare services and require us to do even more to tailor services to the specific needs of each patient in order to support them towards health gain and independence.

Rapid population growth in the Region presents challenges for both our patients and workforce. People in the Auckland area are increasingly facing housing and transport challenges which impede their ability to both access and provide health services. Housing affordability presents health challenges with many people, particularly those in areas of high socio economic deprivation, living in overcrowded housing or poor quality accommodation. This increases the risk of spreading infectious diseases, with young people particularly vulnerable.

Health outcomes differ across our Region, with significant variation across our DHBs in life expectancy and health outcomes

Health outcomes for people in the Northern Region are generally better than the New Zealand average. Life expectancy has increased over the last 10 years by 1.9 years to 82.4 years\(^1\). Mortality rates from cardiovascular disease and cancer are declining.

Despite these improvements there is variation across our Region and we still see significant links between ethnicity, geography and deprivation, and ill health. Some of the provision of care issues that our Region faces include:

• 20% of all deaths in the Region are potentially amenable through healthcare intervention
• Life expectancy is 8 years lower for Māori and 6.8 years lower for Pacific than it is for our non-Māori, non-Pacific populations
• Higher rates of mental health issues for Māori, Pacific and deprived youth
• Smoking rates are high for our Māori and Pacific populations, indicating more action is required to achieve the Smokefree Aotearoa target by 2025
• One in three adults in our Region are obese, a further third are overweight.

Evidence suggests that people do not get the health and disability services they need due to barriers such as cost, time required, or lack of appropriate services. These issues suggest that increased intervention and tailored services could improve health outcomes for a number of people across our Region.

In 2016/17 we received $5.3 billion of revenue to deliver health services

We receive over one third of the nation’s public healthcare funding and spend it to provide and fund services across a range of settings for both the regional and national populations. Over the last 10 years DHB revenue has grown faster than GDP growth. Treasury has signalled that this level of growth is unlikely to continue in the future. This means we will need to invest carefully, ensuring that every dollar is spent in a way that optimises health gain for people in our Region.

Demand for our services has consistently grown and in many areas demand for services has outstripped population growth

In the past five years the Northern Region population has grown by 9.4%. Over that same period demand for both community and hospital services has increased, with all areas of service delivery nearing capacity. Our Region has undertaken various initiatives and work over recent years to better integrate hospital and primary care services. This work has resulted in some moderation of demand on hospital services but has not reduced the overall pressure facing our specialist services.

\(^1\) Data from 2014-16, calculated using population estimates from Statistics NZ and mortality data from the Ministry of Health Mortality Collection
Our major acute hospital facilities are already at capacity

The acute hospital demand growth over the past five years is reflected in the following impacts on hospital services:

- Inpatient discharges grew by 15.5% to 374,000 per annum
- Emergency Department attendances grew by 18.8% to 381,000 per annum
- Hospital bed days increased by 4.7% to 1.1 million per annum
- Average length of stay reduced by 4.7%, from 5.1 days to 4.9 days for overnight discharges (~ -0.9% per annum). This offset some of the impact on total bed days that arose from increases in the number of inpatients
- Operating procedure episodes grew by 8.2% to 155,000 per annum.

Our modelling identifies there is already a shortage in our major hospitals of beds for adult medical, surgical and Assessment, Treatment and Rehabilitation (AT&R) Service; which are under the greatest demand. While our modelling shows we currently have a small surplus of beds across our main facilities, the spare capacity is commonly found in services such as obstetrics, paediatrics and mental health. These specialties cannot accommodate an overflow of patients from those of our services most pressed to meet demand. Our projections indicate that demand for adult medical, adult surgical services, and AT&R will continue to grow; leading to a bed deficit approaching 400 beds in the Region within the next five years. This bed deficit will be felt across all our major hospital sites.

Recent analysis indicates that hospitals in Metro Auckland are not only at capacity for inpatient beds, but also operating theatres, endoscopy suites and radiology services. If we do not invest in additional capacity within the next two to three years, many other services will reach full capacity. We expect this to negatively impact on our patients, and their health outcomes, as patients will face longer wait times for services.

Ambulatory and community based services are also at capacity

Community and primary care services are delivered by a range of providers in the Region including general practice, pharmacy, NGOs, DHB provider arms and aged care services. Consistent with the demand on our hospital based services, growth in community services has exceeded population growth in the last five years:

- Outpatient contacts grew by 12.1% to 2.0 million per annum
- GP consultations grew by 10.5% to 5.1 million per annum
- Aged care spending grew by 14.4% to $388 million per annum.

Our 1,400 GPs are seeing each person in the Region on average three times a year. The highest demand for their services comes from our youngest (0-5 years) and oldest (65 and over years) populations at, 4.1 and 5.6 consults per annum respectively. Pacific people have the highest consult rate of all ethnicities with a total GP consult rate, at 3.7 per annum.

Aged Care services are delivered from a number of sites across the Region with approximately $300 million spent annually on aged residential care services and a further $81 million on home based services. We have access to 10,900 aged care beds, which are currently used at a rate of 90%. While 10% un-utilised suggests a surplus of 1,100 beds across the Region, 100% utilisation will not provide optimal care for our older patients as this limits flexibility, resident choice and timely access. Specialised beds, such as those dedicated to dementia and psychogeriatric care, are in high demand across the Region.

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2 Occupational Rights Agreement, Young Person Disabled and a small number of ‘other’ beds have been excluded from our count as these beds are not available to the DHBs for aged care purposes.
Many of our assets are dated, with significant deferred and delayed maintenance

We have $3.8 billion (reinstatement value) of building facilities and physical infrastructure. However, 18.5% of our facilities are categorised as in ‘poor’ or ‘very poor’ condition. We also estimate that over one fifth of our clinical services are operating from buildings which are not fit for purpose.

Assets currently identified as being near or beyond their expected life or not fit for purpose to deliver quality health services, include:

- Northland DHB: Whangarei Hospital; and Bay of Islands Hospital
- Waitemata DHB: North Shore Hospital medical tower block; the Mason Clinic; and some Waitakere Hospital facilities (e.g. Snelgar and Healthwest buildings)
- Auckland DHB: Infrastructure and facilities on the Grafton and Greenlane sites (e.g. Auckland City Hospital Central Plant, Support and Starship buildings, and ex National Women’s block on the Greenlane site)
- Counties Manukau Health: Middlemore Hospital facilities, particularly the Adult Rehabilitation and Health of Older People and Galbraith facilities; Papakura Maternity; Franklin Memorial Hospital; and the Bairds Road facilities.

In addition to issues with the functional condition of our buildings, each DHB has identified critical site infrastructure challenges that require remediation to ensure service continuity. These challenges include:

- Disruptions to hospital water mains supply
- Ageing and vulnerable power supply infrastructure
- Issues relating to asbestos and building water tightness across all our sites
- Seismic, Health and Safety, and Public Health compliance challenges.

We also face issues regarding deferred equipment maintenance, with much of our clinical equipment nearing or exceeding its expected life. Our clinical equipment assets are valued at more than $210 million with approximately $35 million spent annually on baseline clinical equipment maintenance and renewals. Some of the asset maintenance issues may be mitigated through improvement of our asset tracking and measurement of asset utilisation; which currently presents challenges when developing management and replacement plans.

As a Region our IS/IT capability is not as high as it needs to be. The IS investment budget over the last three years has averaged approximately $65 million per annum for infrastructure and clinical and business applications. However, this is insufficient to address the deferred maintenance issues that pose a risk to the on-going viability of our IS/IT systems.

The Regional Information Systems Strategic Plan (ISSP) identifies that our IS/IT infrastructure is tired and complex. There is a lack of common standards across the Region, with each DHB possessing its own unique strengths and initiatives.

The increase in demand for health services, requiring support by IS enablers, puts pressure on current information systems that exceeds current capacity. Making changes is slow, expensive and high risk given the tightly connected and highly inter-dependent nature of the current clinical and operational systems. Extraction of data supporting new processes and complying with Ministry of Health changes is complicated and expensive.

The Northern Region healthcare system employs over 80,000 people who are integral to the delivery of care

Collectively, the Northern Region DHBs are the largest employer in the Region with over 26,000 workers. In 2016/17, 70.1% of DHB provider arm expenditure was spent on workforce ($2.4 billion).

- Over the past five years our workforce has grown by 12%
- Our workforce is ageing with 18% of Northland DHB’s and 13% of the Metro DHBs’ workforce over the age of 60 years
- Recruiting and retaining our workforce in Auckland is becoming problematic as the city becomes less affordable as a place to live and work.

The DHBs are important training organisations for New Zealand’s health workforce. It is estimated that in 2016 we supported 5,000 tertiary students into clinical placements across nursing and allied health, and
524 pre-vocational medical students. Despite our involvement in the training of the health workforce, many clinical groups are not considered ‘work ready’ on graduation. This highlights a need to work more closely with our tertiary education partners.

In addition to our DHB employed staff, Statistics New Zealand states there is an employee count of up to 59,000 working across a broad definition of healthcare services for the Region. This will include people directly involved in delivering health services and people supporting the delivery of health services (for example pharmaceutical wholesalers, health advocacy groups etc.) as well as GPs, community pharmacists, aged residential care providers, among others.

There is also a large non-paid workforce, including hospital and community based volunteers, as well as the whānau and friends of our patients, who are engaged in delivering services and supporting patients throughout our Region.

A key issue for our Region is the future shortage of GPs. This is compounded by the ageing GP workforce particularly in rural areas. Within the next decade 44% of our GPs are planning to retire. We do not have enough full-time or mid-career GPs to replace them.

**Case for Change**

**Our Region has identified three ‘problem statements’ and conducted research as to how we can best address them**

The demand for healthcare associated with our growing, ageing and changing population will quickly outstrip our ability to deliver health services under current models of care. To deliver on the ‘New Zealand Triple Aim’ in the future, the Region must make a step change in how we think about and provide healthcare in the Northern Region. We have identified three ‘problem statements’ that summarise the key issues faced across the Region. These are:

1. Health status is variable and there are significant inequities for some population groups and geographic areas as well as a large burden of ill health across the Region
2. Health services are not sufficiently centred around the patient and their whānau, and in certain areas the quality, safety and outcomes of care are not optimal
3. The needs of a rapidly growing, ageing and changing population cannot be met in a clinically or financially sustainable way with our current capacity and models of care.

To understand how we could address these problem statements we looked at the evidence available to support specific initiatives or changes in the way we work. This included:

- Identification of previous/current successful initiatives and projects across the Region
- A literature review to examine the international evidence for change
- Review of existing regional planning documents, including the Northern Region Health Plan and the Draft Information Systems Strategic Plan (ISSP)
- ‘Deep Dive’ studies into four key focus areas (cancer, radiology, electives and frail elderly) to better understand the current challenges and to explore possible future models of care
- Research, commissioned from the Nuffield Trust, to:
  - Explore the international evidence to support potential reductions in demand for hospital care
  - Identify how international trends in models of care might impact our Region.

The Nuffield Trust report detailed a number of possible interventions and case studies, as well as providing recommendations on how to shape the Northern Region of the future.

Each problem statement, and the evidence as to how we can address it, is summarised below.
**Problem statement one:** Health status is variable and there are significant inequities for some population groups and geographic areas as well as a large burden of ill health across the Region

Optimising health outcomes and the quality of care in our Region will mean addressing these inequities to ensure everyone has equitable access to care and equitable health outcomes, regardless of background or where they live in the Region.

To address this issue the evidence suggests we:

- **Focus on population health interventions, particularly those which address known modifiable risk factors, including smoking, obesity and hazardous use of alcohol, which have a disproportionate impact on the health of Māori and Pacific populations.** By co-designing our population health interventions with those groups most affected, we will be able to ensure that our solutions are culturally responsive and delivered in a way that meets the needs and expectations of our patients.

- **Empower our patients and whānau with the knowledge, skills and confidence to manage their own health and healthcare.** Evidence shows that empowered people, patients, whānau and communities are better at staying healthy, seeking help when they need it and following guidance from their care teams. Supporting vulnerable people and communities and empowering them to drive their own health outcomes will help reduce inequities in a health system which has historically underserved these populations. We will also want to consider how technology can be used to empower our Region’s residents and patients.

- **The Nuffield Trust also suggests a shift towards ‘proactive care’, supported by extensive use of digital technology including predictive analytics.** This would help us understand the needs of our vulnerable populations, and, by working with them, develop evidence based interventions to help them before they develop illness or require acute care. This will require us to understand both the physical and mental health of our population, to predict when they may face health challenges, and to intervene early.

- **Work with intersectoral partners to address social determinants of health, both at the level of whānau/families (e.g. social work and whānau ora service referrals; addressing unconscious bias in service provision), and at the system level (e.g. influencing social and economic policies).**

**Problem statement two:** Health services are not sufficiently centred around the patient and their whānau, and in certain areas the quality, safety and outcomes of care are not optimal

Historically, structural challenges have presented obstacles to how DHBs provide care for their patients and also to the integration of service delivery across care settings. Our DHB boundaries create artificial barriers which lead to inefficiencies as services and funding mechanisms are duplicated across the Region. Despite funding primary and community care, our DHBs have only achieved limited integration with community services to create a single health system. This can impede the patient journey through the healthcare system.

The experience, quality and safety of care in our Region is variable. There is room to improve both what we measure and how we measure it. To address these issues the evidence suggests we:

- **Co-design services with those groups most affected to ensure changes in care provision meet their unique health and cultural needs.** The Nuffield Trust evidence stated that where interventions are co-designed with the population of interest there is generally increased ‘reach’ and acceptability of the intervention and therefore likelihood of success.

- **Increase communication, collaboration and coordination across the health system to ensure all players within our healthcare system connect with each other, working across boundaries and borders to deliver optimal outcomes that patients want, and working to improve access, equity and outcomes of healthcare.**

- **Standardise care pathways to reduce the variability of care.** This was identified by both the Cancer and Electives Deep Dive as a means of ensuring quality standards and adherence to best practice across the Region. There is evidence internationally, particularly in the delivery of cancer care, that outcomes are improved where standards are set for the full pathway of services and where providers are accredited against these standards.

- **Develop an integrated care system that focuses on proactively preventing and managing the impact of long term conditions.** Work is already underway on this across the Region, with specific programmes such as the Neighbourhood Healthcare Homes initiative in Northland DHB, the At
Risk Individuals programme in Counties Manukau DHB and other integrated care initiatives at Auckland and Waitemata DHBs. Like international models, these initiatives see health teams, led by primary care clinicians, providing comprehensive and continuous health and social care to their patients with the goal of improving health outcomes and increasing equity.

**Problem statement three:** The needs of a rapidly growing, ageing and changing population cannot be met in a clinically or financially sustainable way with our current capacity and models of care

Our current hospital facilities are already at capacity. This issue will be compounded as our population grows and ages and as the demographic mix continue to evolve. Assuming current levels of activity and our existing rate of change, the Region will require significant investment to develop the necessary additional capacity to meet the expected population growth over the next 20 years. Anticipated capacity requirements by 2036/37 are an additional:

<table>
<thead>
<tr>
<th>Growth area</th>
<th>Anticipated increase in demand by 2036/37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital beds (all services)</td>
<td>+2,055 beds</td>
</tr>
<tr>
<td>Theatres</td>
<td>+41 theatres</td>
</tr>
<tr>
<td>Outpatient attendances</td>
<td>+1.1 million attendances</td>
</tr>
<tr>
<td>GP consults</td>
<td>+2.2 million consults</td>
</tr>
</tbody>
</table>

This growth will be felt differently by different services. Of the projected 2,055 additional modelled beds required by 2036/37:

- 67% will be for acute presentations
- 79% will be required by patients over 65 years
- 72% of the additional beds will be for five core specialties

The projected additional 2,055 beds required represents the increase in modelled beds from 2016/17 to 2036/37 across all bed categories and all sites. The modelled total additional number for all main acute sites is 1,900 beds. For the main acute sites this equates to a deficit of 1,800 physical beds when compared with current physical beds.
Our ability to serve our regional population through our current facilities will decrease over the next 20 years as illustrated in the maps below. It is expected that in 20 years, the existing medical, surgical, AT&R bed capacity in Northland will only be able to meet 54% of the expected bed demand. In Metro Auckland, our existing capacity will only be able to meet 57% of the expected inpatient bed demand.

Catchment analysis of Northland 2016/17, 2026/27 and 2036/37

Catchment analysis of Metro Auckland 2016/17, 2026/27 and 2036/37

To meet growing demand and to serve our future population we will need to invest in additional acute capacity across the Region. While we can expand our existing sites, solely growing these sites will not best meet the needs of our population. We will need to invest in at least one new acute site within the next 10 to 15 years.
To address this issue, the evidence suggests we:

- Balance care across all settings by investing in: cost-effective public health interventions; primary and community based services; different types of hospital based services; and increased productivity across the whole system. Hospitals will continue to play a crucial role in the delivery of highly specialised and urgent care, however, we can increase the range of services provided outside of our acute hospitals to mitigate the demand placed on acute facilities. This will help us to improve how we manage: long term chronic conditions and people who are frail; improve equity of access across the Region; and enhance the patient experience.

- Increase our investment in intermediate care settings particularly for our older patients for whom an extended hospital stay can do as much harm as good. To successfully increase community care and reduce length of stay, we need to provide options for enhanced care in a community setting that includes access to specialised health expertise. Supporting community and home-based care requires us to equip our health practitioners with the skills and technology they need to be mobile and connected with specialist expertise when that’s necessary.

- Extend service delivery across all settings, locations and times which will allow us to maximise outcomes, access to care and make better use of expensive clinical equipment.

- Invest in digital technologies that offer significant opportunities to improve the quality and efficiency of all health services. Electronic health records, data sharing, telehealth and improved data collection all offer us the chance to enhance the patient experience, support population health improvement efforts and proactive intervention while simultaneously improving efficiency and productivity of all services.

- Develop a more agile and flexible workforce, with the capability and diversity to deliver on our population health strategy; to help it meet the demands for more integrated healthcare, prevention, self-care and to deliver care closer to the patient’s home.

Through population health initiatives, we are planning to bend our demand curve to result in a need for only 1,600 additional beds by 2036/37

We have completed modelling to identify how our bed growth might change depending on the success of our interventions. While there is little evidence to support the direct modelling of these interventions on bed demand, a pragmatic evaluation of their potential to impact demand has been made by developing a set of scenarios that provide us with five potential growth patterns. These range from a bed requirement of 1,200 beds to 2,055 beds.

Based on advice from the Nuffield Trust and consultation with key regional stakeholders, this NRLTIP is planning for the mid-point of 1,600 beds, assuming that our interventions have a ‘moderate’ impact on the future demand on hospital beds.

To meet anticipated demand and build flexibility into the healthcare system, it will be necessary for us to plan and develop capacity at least two years ahead of our demand curve. This will provide us with breathing space to determine the best way to meet demand if the highest growth scenario becomes a reality.

Our Investment Direction

Our Region will shift to a more integrated, collaborative health system centred around the patient, their whānau and population health

Our integrated care system will see traditional boundaries between care settings become increasingly blurred with care teams supported to provide care in the setting most appropriate to the individual patient. Working more closely together will allow us to implement initiatives in a collaborative and organised manner, leverage our strengths to optimise health outcomes for our population and to better engage our population in their health and wellbeing.

Our future health system will be centred on the needs of each individual patient. Patients will increasingly be equipped with the skills, knowledge and technology to enable them to plan and monitor their daily health, as well as to communicate with their care teams. We will support people who are able to take more responsibility for their own health outcomes to access our services as they wish. We will support
those who need help to navigate the health system to make choices that improve their outcomes. This will help reduce inequities in our health delivery system.

A vision that puts population health and patients at the centre of our wider healthcare system

As we progress the integration of our Region, we will further identify what services can be consolidated and what can be localised to improve the quality and safety of care, as well as improve equity and health outcomes across our Region.

**Funding is limited and we will need to prioritise investments to ensure maximum health gain for our population**

Our investments will be divided into three categories: **Accelerate**, ‘Fix’, and ‘Future proof’, each of which will be prioritised differently in the short, medium and long term to ensure investment meets the needs and expectations of our population.

In the short term we will focus on fixing facilities that are critical to on-going service delivery, postponing less critical programmes of work, to ensure we have funding to begin accelerate and future proof initiatives. In the medium and long term we will invest proportionately more in future-proofing our health system capacity and accelerating model of care changes.

We understand that model of care changes are unlikely to completely mitigate anticipated demand and we will therefore invest in growing additional system capacity throughout the term of this LTIP. However, we will emphasise the accelerate initiatives as these will improve the health and wellbeing of our population and will reduce the need for additional capacity development.
Accelerating model of care changes in the Region will improve health outcomes, reduce inequities and mitigate demand for healthcare services for our whole population

We will accelerate the pace at which we introduce new models of care across the Region. Model of care changes will include:

- **Investing in population health and targeted prevention efforts** to improve health outcomes and reduce inequities. To do this we will: work with our high need communities; target known major causes of health loss in the Region such as obesity; screen and intervene early to prevent sickness; and empower people and patients to take ownership of their health by improving their health literacy.

- **Investing in community care** to improve patient experience, health outcomes, equity, and to enable the balance of care across all settings. This will see us invest in expanding community capacity and capabilities to provide a greater range of ambulatory, diagnostic, elective and intermediate care outside of hospital settings. Supporting this will be IS/IT investments that enable greater access for our hard to reach populations and that support all care settings to provide seamless care throughout all phases of the patient journey.

- **Investing in the acceleration** of IS/IT to support both our integrated regional healthcare network and our population health approach. The Region’s IS/IT direction is set out in the ISSP, which contains a number of initiatives to solidify our foundations and provides the detail on the step-change required to accelerate our IS/IT capabilities. Successful delivery of the ISSP will enable the Region to be innovative and adaptable, and ensures we are able to provide the best quality service to people in our Region whenever and wherever they require care.

- **Strengthening our workforce** with the capacity and skills required to deliver on our population health strategy and provide care to our rapidly growing and changing population. To do this we will develop and expand our clinical and non-clinical workforce as well as the necessary capabilities to make them flexible, mobile and capable of working at the top of their scope.

- **Investing in hospital delivery** to support the shift towards a DHB supported integrated care network. We will identify what services should be centralised and what services can be localised to improve the quality, safety and outcomes of care. We will also shift certain services out of hospitals to alleviate short term demand pressures. Improving the flow of older patients through acute care is important, as this provides significant opportunity to improve outcomes while also alleviating pressure on our hospitals.

- **Implementing** the recommendations of each of our Deep Dives. The recommendations of each Deep Dive give the Region guidance as to how we can more optimally configure services or maintain our assets to meet future demand.

Fixing, remediating and redesigning our current facilities is necessary to ensure they are fit for their future purpose in our regional healthcare system

We will retain all of our current sites, and in many cases expand both their capacity and the services they offer. This requires us to address the significant maintenance burden associated with our ageing and not fit for purpose assets. Given the size of this burden it is unlikely that all ‘Fix’ investments will be able to be accommodated alongside the requirement to ‘Future Proof’ our capacity and ‘Accelerate’ model of care change. We will therefore prioritise investments by first focusing on those which are crucial to future service delivery based on their known role in our future healthcare network. This will mean we extend the life of some assets where appropriate.

Future proofing capacity to meet future demand will require us to expand our current facilities as well as build at least one new acute site

As mentioned, accelerating models of care will not eliminate the need for hospital care in the future and it will take some time for this to have a noticeable impact on demand for hospital services. We will therefore invest in growing capacity on our current sites and at least one new site over the duration of this NRLTIP.

To meet short term demand and alleviate current capacity pressures on our major sites, we will focus our efforts on quick, tangible capacity expansion; extending working hours; utilising all physical beds; exploring outsourcing arrangements; investigating temporary facility options; and investing in community based services. A key investment in the short to medium term will be the expansion of Waitakere Hospital alongside other Metro Auckland sites, which will help meet growing demand coming from north and west of the city.
Longer term we will assess where we can expand our current sites to align with their projected service demands. We will build a new acute hospital south of Auckland City in the next 8 to 15 years and buy land north of the city to meet demand in the longer term. The new southern site would predominantly serve the southern Counties Manukau population and may also be accessed by some of the Midland and Waikato populations for whom the site will likely be closer than Waikato Hospital.

Future proofing will need to take into account our responsibility as public sector agents to drive down greenhouse gas emissions and do our bit to contribute to the UN sustainable development goals. The growing demand for more responsible and sustainable use of hospital resources will require us to reduce emissions, drive down energy use and reduce waste. This is likely to have a big impact on how we will upgrade our facilities and add to the cost of new builds.

Choosing Our Investment Path

Three options were assessed before determining our preferred investment path

In determining the preferred investment path to achieve the Region’s future vision we considered three investment options based on how we could bend the demand curve. Consideration of these options informs our decision about how we will need to invest to develop hospital capacity and to accelerate model of care change.

<table>
<thead>
<tr>
<th>Investment Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. Maintain our current pace of change and meet the current activity growth forecast (2,055 beds by 2036/37) | • Investment in years 1-5 is predominantly in current sites  
• An additional acute site in the south commissioned and fully operational by year 10. Initially 250-400 beds commissioned, but the site will accommodate up to 600 beds  
• A second additional acute site in the north is commissioned with 350-400 beds operational by year 20 |
| 2. Moderately increase pace of change to meet medium moderated growth forecast (1,600 beds by 2036/37) | • Investment in years 1-5 is predominantly in current sites  
• Significant growth at Waitakere Hospital  
• An additional acute site in the south commissioned within 8-15 years and fully operational by year 20  
• Purchasing land in the north in anticipation of 20 to 50 year demand growth |
| 3. Rapidly accelerate the pace of change to meet the most moderated growth forecast (1,200 beds by 2036/37) | • Additional capacity is met on our current sites  
• No additional acute hospital locations proposed within the next 20 years but we will purchase land in both the north and south to prepare for 20-50 year growth  
• Significant investment in acceleration of model of care changes including population health interventions, primary and community services, and hospital efficiency and productivity  
• Additional capacity requirements managed through competitive commercial outsourcing arrangements |

Using aspects of the Prioritisation Framework we identified Option 2, ‘moderate pace of change and moderate growth projection’ as the preferred investment path.

Under Option 2, investments will be made concurrently in: remediating our current infrastructure; future proofing to our medium growth (1,600 beds) scenario and investing in new sites; whilst also investing to support model of care changes. We will:

- Ensure the resilience of our current facilities, develop new acute capacity while also ensuring sufficient capital remains to invest in our necessary population health initiatives, community and primary care, workforce sustainability and IS/IT
- Remediate, reconfigure and expand our current sites, particularly in the short term, to meet anticipated demand
- Rapidly grow Waitakere Hospital to meet the needs of people living in West Auckland and to decongest both North Shore and Auckland City Hospitals
• Build a new 350-400 bed acute site south of Metro Auckland within the next 15 years
• Land bank north of Metro Auckland to ensure the sustainable delivery of healthcare in the Region beyond the duration of the LTIP.

By only investing in our current sites and one additional new acute site, rather than developing capacity to meet the current activity growth forecast, we will avoid both some capital expenditure and some operational expenditure, particularly in our hospital settings. Avoiding this cost is critical if we are to invest in accelerating model of care changes to improve the health of people in our region.

The model of care investment requirements associated with this path will include:

• Public health interventions, patient activation and proactive care
• Developing our primary and community care settings to enable patients to be supported outside of hospital settings
• Strengthening of our workforce, ensuring they have the capacity and capability required to deliver on our population health strategy
• Modernising our IS/IT systems to enable interoperability and communication across all sectors of the health system.

Based on our need to grow new acute demand capacity, we have staged how and where developments will take place over the next 20 years

Our current sequencing proposal is focused on how we will grow our hospital sites to meet acute demand in the next 10 to 15 years. Growth of our community sites will occur in parallel to this, but further work is required to identify where these investments should be made. The projected sequence of investments is summarised below.

Financial Implications

The NRLTIP direction of travel is expected to result in two distinct financial changes for our Region over the next twenty years

The most material financial impacts relating to the regional investment plan will be that:

• The overall scale of expenditure will grow. Operating costs will rise over the 20 year period of our plan from $5bn to about $12.8bn (excluding financing costs). This growth equates to a compound
annual cost growth of 4.8% per annum and comprises both volume and cost inflation components. This is greater than the population growth over the same period and reflects the reality that as people get older their need for health services and supports increases.

• The current expenditure distribution will change. We expect to see an increased proportion of operating expenditure spent on services delivered outside of the acute hospital setting.

Planning for an additional 1,600 beds, rather than 2,055 beds, by year 20 of the plan will avoid annual operating cost of approximately $800m in year 20. These annual savings are highly likely to be absorbed in the development of new models of care, and in funding alternative non-hospital based service delivery. These cost savings should not be considered a fully avoided requirement for Northern Region health service overall operational expenditure in future. The availability of the avoided cost as a funding stream for other investment will be dependent upon the future relationship between revenue, opex and capital financing cost trajectories.

The NRLTIP target capacity development plan, together with infrastructure remediation plans, drives our capital investment sequencing

One of the first priorities in the investment sequence is to rapidly expand our current sites to meet immediate demand. This ‘Short Term Response to Immediate Pressures’ plan will result in approximately 402 new available hospital beds plus other much needed hospital capacity. Further capacity development priorities are detailed in the NRLTIP Regional Capacity Development Plan. These in turn drive our forecast capital investment profile.
Alignment between DHB Capacity Development Plans and the NRLTIP target capacity

The NRLTIP work process has involved iterative planning with DHB capital planners to align DHB capacity investment planning to NRLTIP intent. Although the plans of our DHBs are largely aligned with the capacity development path outlined in this NRLTIP, we still expect capacity challenges in the short term, and need to further consider how we can create new capacity earlier in our Region’s investment plan.

The initiatives, informing the Region’s capital investment forecasts, reduce in certainty over the longer term. As the level of certainty reduces there is increased need for agility and flexibility in later year planning. Two factors in particular will allow the Region’s metro area to be flexible and agile with regard to capacity development. These in turn will allow some financial investment agility, and management of risk, across the medium to long term. These factors are:

- The relationship between the proposed New South Site development and the Counties Manukau Health (CMH) existing sites development plans will impact upon the capacity development path in the south of our Region. Progressing the required endorsements and approvals of the New South Site strategic direction of travel will enable increasing clarity regarding the operational planning for capacity development and further opportunity to align development plans to the regional capacity requirement view.

- The New North Site allows a capacity development plan that can be re-timed if the Region’s efforts to moderate the demand on hospital services are more, or less successful than the Region’s hospital capacity development target requires.
The capital expenditure forecast will drive significant investment requirements as well as increased financing costs

Initial cost estimates have been developed for the phased investment plan set out above. Summing the individual annual expenditure profiles by ‘type’ of capital investment reveals the phasing impacts and indicates a marked peak in forecast capital expenditure during 2020/21.

![The capital investment phasing by capex grouping](image)

Note: These are all shown as uninflated values and represent best estimates of expenditures at 2017 prices.

There is urgency to the Region’s capacity investment sequence and it is apparent that the level of required expenditure will raise affordability issues for our Region. Over the first nine years of the plan, to year 2025/26, the annual capital expenditure is expected to average $813m. This is a significant increase from the Region’s 2016/17 capital expenditure of approximately $190m per annum.

The indicated level of capital expenditure will incur significant financing costs:

- If all the identified capital expenditure were to be new Crown Funding then the annual capital charge (at 6%) on a total of $813m of funding would be $49m.
- The annual depreciation, on assets having a total value of $813m, would be approximately $33m; assuming a 25 year asset life.

Taken together, the annual capital charge and depreciation would represent approximately 10% of the Region’s annual capital investment expenditure and would sum to approximately $82m per annum across our Region.

The actual Crown Funding requirements will reflect complex inter-relationships between revenue, opex, capex, capital charge and depreciation

The Region’s opening financial reference, 2016/17, approximates as a ‘break even’ overall financial position suggesting the level of capital expenditure in that year is ‘affordable’ for our Region and the impact of financial changes can be assessed as changes on that year’s position.

The assumed Regional future median DHB revenue growth per annum is approximately 3.75% over the period 2016/17 to 2032/33. This is based on Ministry of Health ‘medium’ indicative revenue trajectory guidance for NRLTIP purposes provided in July 2017. This growth equates to an increase of about $200m revenue per annum (on current $5.3b Crown revenue).

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3 The MoH guidance advises that:
- These assumptions are for LTIP purposes only and do not represent an official signal of future DHB funding.
The following table provides outputs of the capital financing analysis for the first six years of this NRLTIP. The highlighted rows provide information regarding the Region’s base and forecast depreciation and capital charge profiles.

Estimated new Crown Equity requirement associated with the capital investment profile proposed within this NRLTIP. Capital financing impacts Year 1 to Year 6

<table>
<thead>
<tr>
<th>All values shown as $m and reflect cost inflation assumptions</th>
<th>2016/17 Base</th>
<th>2017/18</th>
<th>2018/19</th>
<th>2019/20</th>
<th>2020/21</th>
<th>2021/22</th>
<th>2022/23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capital investment forecast (inflated at CPI 2%)</td>
<td>$ 134.4</td>
<td>$ 231.5</td>
<td>$ 612.0</td>
<td>$ 1,031.4</td>
<td>$ 1,443.3</td>
<td>$ 1,384.3</td>
<td>$ 1,094.1</td>
</tr>
<tr>
<td>Total closing asset values</td>
<td>$ 2,522.8</td>
<td>$ 2,624.0</td>
<td>$ 3,086.5</td>
<td>$ 3,933.3</td>
<td>$ 5,137.7</td>
<td>$ 6,259.4</td>
<td>$ 7,037.2</td>
</tr>
<tr>
<td>Total depreciation on closing asset values</td>
<td>$ 124.9</td>
<td>$ 130.2</td>
<td>$ 140.3</td>
<td>$ 184.6</td>
<td>$ 238.9</td>
<td>$ 262.7</td>
<td>$ 316.2</td>
</tr>
<tr>
<td>Assumed total internal funding (= prior period depreciation)</td>
<td>$ -</td>
<td>$ 124.9</td>
<td>$ 130.2</td>
<td>$ 140.3</td>
<td>$ 184.6</td>
<td>$ 238.9</td>
<td>$ 262.7</td>
</tr>
<tr>
<td>New Crown equity required for capital</td>
<td>$ 134.4</td>
<td>$ 106.6</td>
<td>$ 481.8</td>
<td>$ 881.9</td>
<td>$ 1,258.7</td>
<td>$ 1,145.5</td>
<td>$ 831.4</td>
</tr>
<tr>
<td>Opening capital investment related equity position</td>
<td>$ -</td>
<td>$ 2,324.6</td>
<td>$ 2,431.2</td>
<td>$ 2,913.0</td>
<td>$ 3,794.9</td>
<td>$ 5,053.6</td>
<td>$ 6,199.1</td>
</tr>
<tr>
<td>New equity for capital investment</td>
<td>$ -</td>
<td>$ 106.6</td>
<td>$ 481.8</td>
<td>$ 881.9</td>
<td>$ 1,258.7</td>
<td>$ 1,145.5</td>
<td>$ 831.4</td>
</tr>
<tr>
<td>Closing equity position (capital investment related only)</td>
<td>$ 2,324.6</td>
<td>$ 2,431.2</td>
<td>$ 2,913.0</td>
<td>$ 3,794.9</td>
<td>$ 5,053.6</td>
<td>$ 6,199.1</td>
<td>$ 7,030.4</td>
</tr>
<tr>
<td>Capital Charge at 6%</td>
<td>$ 139.5</td>
<td>$ 145.9</td>
<td>$ 174.8</td>
<td>$ 227.7</td>
<td>$ 303.2</td>
<td>$ 371.9</td>
<td>$ 421.8</td>
</tr>
</tbody>
</table>

Note: the capital investment forecast values shown in the above figure include cost inflation from base year

This view of the Region’s capital investment financing cost trajectory is an aggregated Regional view of the capital financing impacts that will act on different DHBs. The aggregated Regional view presents a smooth, or net, view of any new Crown Equity requirements arising from the forecast capital expenditure at individual DHBs.

**Increasing the Regional asset values will increase the annual depreciation available to help fund investments. The balance will need Crown Funding**

We forecast that our Region’s total asset value\(^4\) will increase over time from approximately $2.5bn to about $9.4bn by year 20. This change reflects the impacts on the Region's base asset value arising from the Region's capital investment forecast.

The rising asset value will drive an increasing annual depreciation profile across the Region, as shown in the figure below. This increased depreciation will be available to fund part of the required capital investment. The balance of capital investment funding will require Crown Funding. This relationship results in a fluctuating forecast profile for the net requirement for Crown Funding associated with the proposed Regional capital investments. This requirement for Crown Funding peaks in year 2020/21 at over $1.2bn.

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**They represent scenarios for increases in DHB appropriations and do not take into account inter district flows (IDFs), future devolutions, future changes to top slices to fund national services and specific initiatives, minimum and maximum funding increase rules, nor transitional funding. For guidance at this level of detail, DHBs should consult further with the Ministry of Health.**

\(^4\) 'Value', in this context, reflects depreciated asset value inflated by cost index, not reinstatement or replacement value
Any increased Crown Funding will drive equity changes and increase the capital charge and financing costs

The Region’s forecast annual closing equity position (related just to capital investment) is expected to rise as a consequence of capital related Crown Funding. It will increase from the current base of approximately $2.3bn to approximately $10.2bn by year 20. The capital charge, calculated at 6% of the Region’s annual closing equity position, will increase from approximately $150m per annum to approximately $600m per annum by year 20.

The Region’s forecast total capital financing costs (depreciation and capital charge)\(^5\) as a proportion of the forecast total operating costs\(^6\) displays a gradual rise and decline over the 20 years of the plan. It rises from approximately 5% of total operating expenditure in base year, to 11% by year 11 of the plan, before reducing to 9% in later years.

\(^5\) from just the planned capital investment impacts on base year position

\(^6\) Including capital financing costs
Certain key assumptions and variables are likely to have a material impact upon the outputs of the NRLTIP financial analysis

The following assumptions are highly relevant, and will be revisited as investment plans and financial forecasts are refined as part of subsequent NRLTIP planning and business case development. The NRLTIP financial analysis will be sensitive to:

- **Revenue Trajectory.** The latest MoH guidance provides 3 revenue assumptions; High, Medium and Low. We can expect an updated revenue forecast to inform planning for the 2018/19 year. We have applied the Medium trajectory in this NRLTIP analysis.

- **Opex Trajectory.** The opex profile will be sensitive to changes in the anticipated volume growth profiles and assumed cost inflation factors.

- **Capex Trajectory.** The financial impacts of the capex trajectory will be sensitive to the scale and timing of cost associated with the capex investments requirement

- **Alternative Funding Assumptions.** All the capital funding has been assumed as depreciation or Crown funding with capital charge at 6%. Any variance to these arrangements could have a significant impact on the Region’s financial position

Various financial risks have been raised as part of the financial analysis. These include the risk:

- Of a growing burden of debt across the Region

- Associated with the alignment of asset management and financial management systems, and the cashflows available to fund a replacement

- From deferred maintenance and the lessons learned from the current position regarding condition of assets

- That the Region under-invest in hospital capacity, with the expectation of reduced demand for hospital based services benefits.

**Progressing Regional Work on the Long Term Investment Plan**

One of the most important lessons from the work to prepare this NRLTIP is that the collaboration of Regional leadership is critical to:

- The ongoing development of our Regional investment plan

- Ensuring the plan’s successful implementation.

We are committed to continuing the strong Region’s leadership collaboration as we progress our Region’s work on the Long Term Investment Plan.

To manage the complexity and accelerate implementation we will apply the P3M3 frameworks and disciplines

The NRLTIP priorities cross many organisation boundaries and a wide breadth of topics and expertise. The governance and management of the many relationships required to progress the plan will be complex and challenging for our Region, and will require a well-structured approach. To address this complexity, we will apply the frameworks and disciplines described in the Portfoliol, Programme, Project Management Maturity Model (P3M3).

The overall Portfolio of work will be delivered within a governance framework reporting to the Regional Governance Forum comprising our DHB Chairs, CEOs and CMOs.
Our Region’s immediate next steps to progress this investment plan will place emphasis upon:

- Further detailing our Northern Region Health Plan (NRHP), to set a clear direction of travel and to detail development priorities and implementation plans for our Region across the continuum of care.

- Progressing those service development priorities already identified within this NRLTIP:
  - Implementing the recommendations from the Deep Dives already completed during the 2016/7 NRLTIP
  - Undertaking 5 new Deep Dives in 2018 in the areas of:
    - Community and Primary Care service development
    - Workforce
    - Public Health and Population Health
    - Mental Health Services
    - Laboratory Services

- IS systems as key enablers of service delivery and changing models of care. The ISSP will be an ongoing focus for our Region as a programme of work.

- Progressing the identified significant physical infrastructure and capacity development schedule as a coordinated programme of capital investment work, with more detailed planning to:
  - Align the developments with regional capacity requirements
  - Clarify the requirement for, and gain access to, the expertise required by each phase of the overall capital programme of work
  - Strengthen, streamline and comply with required decision approvals and gateway processes
Identifying and agreeing the critical process-chain logic with regard to our immediate investment requirements. We will establish work-plans to ensure timely advancement, implementation and oversight of each of the investment initiatives. These plans will be informed by identifying ‘good practice’ process.

The first priority for our Region is to clarify and agree the Portfolios working arrangements and delivery plan, supported by Terms of Reference that set out the individual Programmes and Projects’ scope of work, milestones, deliverables; and resourcing arrangements. This is our Region’s immediate ‘next step’ and will be based on the investment plan intentions outlined in this NRLTIP.
1 Introduction

1.1 The purpose of this document

The primary purpose of an LTIP is to stimulate critical thinking and discussion on the factors that are driving the need for investments, the strategic responses to those factors, and the rationale for the preferred way forward. A strong LTIP must be more than a capital plan. It must be concerned about the relationship between demand, resources, services and benefits over the long term, and recognise that investment choices have financial and service level implications that can affect agency baselines and performance expectations over the planning period. Ultimately, it is concerned about making investments that improve the health and wellbeing of the region’s people, communities and patients.

The Northern Region has been asked to develop an integrated Northern Region Long Term Investment Plan (NRLTIP) to detail regionally prioritised investments over a 10 to 15 year timeframe within the context of a 25 year horizon. The Northern Region is defined as the area served by the four northern most District Health Boards (DHBs): Northland DHB, Waitemata DHB, Auckland DHB and Counties Manukau Health. The NRLTIP must align with the New Zealand Health Strategy, which is underpinned by the Triple Aim.

The Triple Aim framework (Figure 1) provides a system approach to improving services. It can help us balance our goals across the three aims of the framework. The three aims of the framework are to:

- Improve health and equity for all populations
- Improve the quality, safety and experience of care
- Ensure best value for public health system resource

![Figure 1: Triple Aim](image)

The NRLTIP must also assist the DHBs to meet their primary objectives as set out in the New Zealand Public Health and Disability Act which include:

- To improve, promote, and protect the health of people and communities
- To reduce health disparities by improving health outcomes for Māori and other population groups
- To promote the inclusion and participation in society and independence of people with disabilities
- To promote effective care or support for those in need of personal health services or disability support services
- To seek the optimum arrangement for the most effective and efficient delivery of health services to meet local, regional, and national needs.

Developing this first long term investment plan for the Region has been challenging given the complexity of the health system and the rapid growth and change that is occurring in the Northern Region.

This first NRLTIP sets the strategic direction for the Northern Region and identifies a future investment path for regional health service capacity within regionally agreed constraints and planning principles. The

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7 New Zealand Public Health and Disability Act 2000, s 22.
NRLTIP is a foundation document that will be updated as regional investment planning work progresses to the next level of detail. In time it will be supported by a Regional Health Plan.

1.2 Planning context

Long term investment planning

In June 2015, Cabinet published its expectations relating to the investment management system in the State Services [Cabinet Office circular (15) 5]. This policy on investment management and asset performance specified the processes, rules, capabilities, information and behaviours required to bring discipline to the way Government agencies manage investments throughout their life cycles. One of the key requirements is that investment intensive agencies adopt and implement Long Term Investment Plans (LTIP).

All four Northern Region DHBs prepared their first LTIPs in 2016 which examined strategic choices within the context of local requirements. These individual DHB investment plans will be complemented by the NRLTIP. Any investments made at a regional level, or with an impact on regional patient flows / volumes will need to contribute to the agreed regional investment objectives and receive approval from appropriate regional governance forums.

Ministerial request for long term planning

In 2016, the then Minister of Health, Hon Dr Jonathan Coleman, requested that the Auckland Metro DHBs complete an integrated plan to provide a prioritised 10 to 15 year view (within the context of a 25 year horizon) of investment across the Region. Consistent with our approach to regional working, the scope was extended to include Northland DHB as it also has major investment requirements in the next 10-15 years.

The Minister of Health’s request was welcomed by the DHBs who recognise that we have historically under-invested in our assets. We need a robust long term investment plan to ensure we have adequate facilities, clinical equipment and information systems to meet the needs of our rapidly growing population and the increasing burden of disease in the Region. This is critical not only for the Northern Region but also for the rest of the country who look to our Region to deliver certain specialist services for their patients.

1.2.1 Planning documents

A number of planning documents exist at a national, regional and local level, both within the health sector and the wider public sector. Key documents used to inform the NRLTIP planning context include:

- New Zealand Health Strategy 2016
- Northern Region Health Plan 2016/17
- Auckland Council Plans
- Northland Council Plans
- Northern Region DHB LTIPs 2016/17.

Other contextual materials such as the NZ Disability Strategy, DHB strategic plans, Maori health plans and the Healthy Ageing Strategy have also informed this plan.

Many of the themes and principles from these documents were used to inform the development of this NRLTIP and are reflected in this document. Each of the key documents is described in the following section.
New Zealand Health Strategy

The New Zealand Health Strategy sets the overall strategic framework for the New Zealand health system to ensure that all New Zealanders live well, stay well and get well. This direction is supported by five themes which are national priorities to establish a health sector that understands and meets people’s needs through integrated services. The New Zealand Health Strategy places an emphasis on investment early in life, maintaining wellness, preventing illness, and providing support for the final stages of life. These are illustrated in the diagram below:

Figure 2: The five themes of the New Zealand Health Strategy

Northern Region Health Plan

The Northern Region Health Plan sets out a regional framework that demonstrates how the Region will deliver on the Triple Aim of improving population health, patient experience and the value of our health services. The plan represents the thinking of clinicians and managers from hospital and community settings and is founded upon working together as a Region to provide healthcare that makes best use of available resources, is sustainable, and improves access to services. It has a three year focus and has prioritised working with 10 clinical networks on initiatives where we maximise the opportunity for our population to improve health outcomes by working regionally.

The Northern Region Long Term Investment Plan (and future iterations of this Plan) will likely supersede the Northern Region Health Plan as the Region’s primary planning document, setting out how we, as a Region, will invest and operate to consistently deliver on the Triple Aim and meet National Health Targets.

Auckland Council Planning

Auckland Council has produced a number of plans setting the direction for the Auckland Region which provide context for the NRLTIP. They are summarised as follows:

- The Auckland Plan gives a 30 year direction for Auckland’s future growth and development. It is a comprehensive strategy covering social, economic, environmental and cultural goals with an overall vision of making Auckland the world’s most liveable city.
- The Unitary Plan is Auckland’s key land use planning document, setting out how land and water resources will be managed. The Unitary Plan provides consistent and simple rules for future development in accordance with the Auckland Plan.
- The Auckland Council Long Term Plan (2012-2022) determines and identifies the Council’s funding requirements over the next 10 years to deliver the activities and service levels that are important to Aucklanders.
Together these plans signal the services, infrastructure and facilities that will be required to cope with the additional demand of a growing population. They are intended to achieve seven specific outcomes for the future of Auckland:

1. A fair, safe and healthy Auckland
2. A green Auckland
3. An Auckland of prosperity and opportunity
4. A well-connected and accessible Auckland
5. A beautiful Auckland that is loved by its people
6. A culturally rich and creative Auckland
7. Te Hau o Te Whenua, Te Hau o Te Tangata – A Māori identity that is Auckland’s point of difference in the world.

Northland Council Planning

Northland Regional Council produces Annual Plans and has published a Long Term Plan for 2015-2025 (currently being revisited for 2018-2028). The long term plan places emphasis on community outcomes that the council aims to achieve in meeting the current and future needs of communities for good quality local infrastructure, local public services and performance of regulatory services. These highlight:

- Northland’s overall environment being maintained or improved, with an emphasis on encouraging the sustainable access to and use of resources
- Northland has strong local government leadership, ensuring safe and resilient communities
- Northland being promoted effectively.

1.3 Development of the NRLTIP

The NRLTIP drew on the context to these plans and was developed over three phases, as shown in the figure below:

- **Phase One: Preliminary Analysis**, established a current state view of supply and demand of healthcare services as well as the impact that projected population growth will have on regional services with a particular focus on hospital bed capacity modelling.
- **Phase Two: Strategic Assessment**, reviewed evidence in support of model of care options and service configuration changes including evidence and guidance provided by the Nuffield Trust. We also engaged with stakeholders from across the Region in workshops and discussions (see Appendix A). The options analysis was supported by ‘Deep Dives’ which looked at key service issues and choices for cancer, radiology, frail elderly and electives. The output of this phase was a regionally agreed direction of travel for health service delivery, supported by a prioritisation framework to help improve the objectivity by which investment decisions will be made.
- **Phase Three: Shape the Future**, engaged with regional stakeholders to identify and agree on the Region’s future investment path; summarised the context of the NRLTIP; identified known and unknown investments required to meet future demand, while moving towards our desired future; and completed a high level cost summary of future investment requirement. The output of this phase was the NRLTIP report.
Work throughout the development of the plan proceeded in alignment with the following principles:

**Agnostic, strategic and ‘open-minded’**
- Planning work in the first instance will be undertaken for the Region as a whole
- Start from the basis of “what services should look like for a population of 1.8 million people” initially and increasing to 2.3 million people plus
- Be people centred and based on known health need
- Design process to be informed by international best practice

**Fact based, logical and objective**
- Planning estimates should provide an investment logic flow, informed by expected demand delivery mechanisms and the resulting investment impacts and costs
- Priorities to be identified by systematic and consistent methodology
- Recognise Metro / Northland clusters based on service delivery model requirements

**Aligned to other relevant work underway**
- Incorporate demography / spatial planning from related sectors (e.g. Auckland Transport, Council etc.)
- Consider DHB service and investment plans and assumptions; highlight divergent assumptions; and progress alignments based on regional principles

**Inclusive**
- Draw on social sector integration initiatives, taking into account the impact of the social determinants of health
- Work in collaboration with PHOs, NGOs, primary care and community providers
- Engage our patients and whānau in service design

The development of the plan was overseen by a Steering Group consisting of representatives from all our DHBs, Primary Care, Auckland Council, Ministry of Health and Treasury. During the development of the plan we have:

- Convened two regional stakeholder workshops with over 120 participants
- Commissioned an independent literature review from the Nuffield Trust that has informed our direction
- Carried out ‘deep dive’ inquiries into Cancer, Electives, the Frail Elderly and Radiology
- Held a combined DHB Board workshop as part of the NRLTIP regional governance process
- Circulated an early draft of our document for peer review
- Presented our initial outcomes to the Capital Investment Committee
- Undertook a high level of engagement with key leadership forums in the Region.

The plan has been presented to, and endorsed by, the Northern Region Executives Forum and the Regional Governance Group.
1.4 Document structure

This document is structured as follows:

- **Section Two: Northern Region Environment** – Outlines the context of the Northern Region, the challenges we face currently and those we anticipate in the future
- **Section Three: Case for Change** – Identifies the Region’s problem statements and states the research completed by the Region, with input from the Nuffield Trust, on opportunities to address our problems and to transform our services to meet future demand
- **Section Four: Our Investment Direction** – Sets out the future direction for health service delivery in our Region and the principles that will guide the Region’s future investments
- **Section Five: Choosing Our Investment Path** – Describes the prioritisation framework that has been developed, outlines the different options for achieving the regional vision, and identifies the preferred investment path for the Region
- **Section Six: Financial Implications** – Describes the required investments associated with the achievement of the preferred investment path and explains the financial impacts of the preferred investment path
- **Section Seven: Progressing Regional Work on the Long Term Investment Plan** – Identifies the further work to be completed to build out concepts contained within this document. It also outlines the governance forums to guide future NRLTIP processes.

1.5 Limitations

This document is the first NRLTIP developed by the Region. It is not a comprehensive health plan for our Region. It focuses on pressing capacity issues on our major hospital sites and identifying whether an additional hospital site is required in the Northern Region within the next 20 years. The findings and future direction presented in this document have drawn on the best available data in regard to population projections, future planning developments and financial information to provide a view of the scale, priority and potential phasing of key regional investments. As we have progressed our work on this first NRLTIP, we have become increasingly aware of the work that remains to be done. Some of this work relates to improving data and enhancing our modelling work. Other areas require more detailed consideration than could be undertaken in the first NRLTIP.

The key limitations this iteration of the NRLTIP has faced are listed in the table below. We will be working to address these limitations as we progress future iterations of the NRLTIP.

<table>
<thead>
<tr>
<th>Limitations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The NRLTIP was not founded on a comprehensive health plan</td>
<td>Ideally, the Region would have developed a comprehensive health plan prior to initiating work on the NRLTIP.</td>
</tr>
<tr>
<td></td>
<td>During the course of this NRLTIP we have developed key elements of a health plan. Further work will be undertaken on shaping a regional health plan as we progress our second NRLTIP.</td>
</tr>
<tr>
<td>Incomplete information regarding ‘non-bed’ capacity in the Region</td>
<td>It can be difficult to assess and compare the capacity of ‘non-bed’ spaces and resources in the Region.</td>
</tr>
<tr>
<td></td>
<td>As a result, this NRLTIP has used ‘beds’ as a proxy for overall demand, and assumed that bed demand is representative of demand for other hospital services.</td>
</tr>
<tr>
<td></td>
<td>There are limitations to this approach as it risks underestimating the need for investment in services which do not require beds, particularly given the trend for decreasing bed use as ambulatory and remotely delivered care evolves.</td>
</tr>
<tr>
<td>Limited visibility of non demographic drivers of demand</td>
<td>The bed model uses population growth and aging as the key drivers of demand.</td>
</tr>
</tbody>
</table>

Table 1: Limitations faced by the first iteration of the NRLTIP
Limitations

- Other drivers in demand include changes in clinical thresholds for existing services, technological drivers and the development of new interventions, patient and clinician expectations, and people living longer in ill-health.
- These other drivers are important but we do not yet have sufficient parameters for modelling to be able to confidently account for them.

Our data is only based on current need and does not identify unmet need

- We have not identified or quantified the scale of unmet need in our Region.
- While it is our hope that the future provision of healthcare services in the Northern Region will identify and address unmet need, this may result in increased demand beyond that projected.

Detail on how we will invest in primary and community settings

- This iteration of the NRLTIP provides substantial detail on how we will invest in hospital settings with comparatively less detail on primary and community settings.
- This is in part due to the lack of transparent data and Regional planning processes with regard to primary and community care settings.
- Future iterations of the NRLTIP will provide further detail on how we will invest in these settings.

Identification of unknown investments

- The process has highlighted the need for some investments that had not previously been identified and consequently have not been subject to the depth of analysis that would normally occur in a business case process.
- Further work is required to develop a more robust view of future capital and operational cost requirements, but we are comfortable that the work presented provides a reasonable estimate of the scale of investment that will likely be required regionally.

More detail is required for many investments

- This first NRLTIP sets the direction for DHB planning, but a more granular detail is required, both in terms of the specific investments and the timing of investments.
- We anticipate that this will result in the need to review and update the scale and timing of some investments in this plan as the more detailed DHB planning is completed.

The NRLTIP is a living document

- The NRLTIP will be updated as future pieces of work are completed. We have already identified some areas of focus for Deep Dives in the development of the next iteration, including:
  - Workforce
  - Mental Health
  - Population Health
  - Community / Primary Care.
2 Northern Region Environment

2.1 Our population

Key messages:

- We are New Zealand’s largest and fastest growing Region, with approximately 562,000 extra people expected to be living in the Northern Region in the next 20 years.

- 19% of people in our total population are projected to be over 65 years of age by 2036/37 (increasing from 230,000 to 446,000) with the proportion of people over 75 years of age expected to more than double from 94,000 to 225,000.

- Our population is also diverse, characterised by large and growing communities of Māori, Pacific and Asian who collectively make up 49% of the Region’s total population.

- Socioeconomic inequality is an issue in our Region, with 22% of people living in deprivation, which is linked to poorer health and social outcomes. There is considerable variation between the DHBs in the percentage of their district’s population occupying the most deprived quintile. This ranges from 8% of residents in Waitemata to 36% and 37% of residents in Counties Manukau and Northland respectively.

- Our population distribution is dominated by the large Auckland Metro population (Waitemata DHB, Auckland DHB and Counties Manukau Health), with satellite towns, islands in the Gulf, and dispersed rural communities, particularly in Northland and the Franklin District.

- Rapid population growth in the Region presents a challenge outside of the health sector, as housing and transport pressures increase. Again, these stressors will have the greatest impact on our most vulnerable communities.

A Region experiencing significant population growth, ageing and demographic change

The Northern Region is made up of Northland DHB, Waitemata DHB, Auckland DHB and Counties Manukau Health, collectively serving the health needs of 1.8 million people across a wide range of geographies, ages, cultures, ethnicities and needs.

Table 2: Population statistics

<table>
<thead>
<tr>
<th></th>
<th>NDHB</th>
<th>WDHB</th>
<th>ADHB</th>
<th>CMH</th>
<th>Northern Region</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population ’000s 16/17</td>
<td>173</td>
<td>599</td>
<td>515</td>
<td>540</td>
<td>1,827</td>
<td>4,737</td>
</tr>
<tr>
<td>Projected population ’000s 36/37</td>
<td>195</td>
<td>804</td>
<td>697</td>
<td>694</td>
<td>2,390</td>
<td>5,719</td>
</tr>
<tr>
<td>Population growth ’000s 16/17 – 36/37</td>
<td>22</td>
<td>204</td>
<td>182</td>
<td>154</td>
<td>562</td>
<td>982</td>
</tr>
<tr>
<td>% Change</td>
<td>13%</td>
<td>34%</td>
<td>35%</td>
<td>28%</td>
<td>31%</td>
<td>21%</td>
</tr>
<tr>
<td>% Overseas born 2013</td>
<td>23%</td>
<td>41%</td>
<td>46%</td>
<td>43%</td>
<td>41%</td>
<td>25%</td>
</tr>
<tr>
<td>% Māori 16/17</td>
<td>34%</td>
<td>10%</td>
<td>8%</td>
<td>16%</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>% Pacific 16/17</td>
<td>2%</td>
<td>7%</td>
<td>10%</td>
<td>21%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>% Asian 16/17</td>
<td>4%</td>
<td>22%</td>
<td>32%</td>
<td>25%</td>
<td>24%</td>
<td>14%</td>
</tr>
<tr>
<td>% European / Other 16/17</td>
<td>60%</td>
<td>61%</td>
<td>49%</td>
<td>38%</td>
<td>51%</td>
<td>64%</td>
</tr>
<tr>
<td>% Rural 2013</td>
<td>43%</td>
<td>6%</td>
<td>0%</td>
<td>7%</td>
<td>8%</td>
<td>14%</td>
</tr>
<tr>
<td>% All ages in Quintile 5 (most deprived) 2013</td>
<td>37%</td>
<td>8%</td>
<td>19%</td>
<td>36%</td>
<td>22%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Currently, more than one third (39%) of New Zealand’s population (4.8 million) live in the Northern Region. Medium growth forecasts estimate that an additional 562,000 people will be living in the Northern
Region in 20 years’ time. This represents 57% of the expected total national growth. In recent years migration growth has been significantly higher than the Statistics New Zealand population forecasts. If the highest growth forecasts are correct, then the population will exceed 2.6 million by 2036/37. This equates to an extra 781,000 people in our Region.

In addition, we serve a diverse population, characterised by large and growing communities of Māori, Pacific and Asian who collectively make up 49% of the Region’s total population. This diversity is especially apparent in Counties Manukau Health where the proportion of Māori, Pacific and Asian is 62%.

- 14% of our Region’s population is Māori. Counties Manukau Health has a higher proportion of Māori (16%), and this statistic is notably high in Northland DHB, where 34% of the total population is Māori.
- The Region is home to the largest Pacific population in New Zealand, with 21% of the Counties Manukau Health’s population being of Pacific descent.
- 24% of Region’s population is Asian; Auckland DHB has a higher proportion of Asian people (32%) and Northland a much lower proportion (4%). The number of people of Asian decent is anticipated to increase to 32% of the Regional population by 2036/37.

The impact of deprivation on access to healthcare and health outcomes

Deprivation is a serious concern for health services in our Region. People living in areas of deprivation experience higher rates of amenable mortality and have shorter life expectancies than those living in more affluent areas. This correlation is shown in the maps below.

93% of our Region’s total population live in urban areas. However, Northland DHB has a more dispersed population, with 43% of people living in rural areas. Rural populations often have different health needs to our urban populations, and their geographic spread presents challenges for access to care. Northland has many isolated communities; it takes over five hours to travel from Northland’s northern to southern extremities and up to two hours west to east. It also takes in excess of two hours to travel from Whangarei to Auckland when patients need to access services out of their own DHB.
Infrastructure and housing, particularly in Metro Auckland, present challenges for healthcare

Rapid population growth in the Region and increasing housing and transport issues are presenting growing challenges for our population. Congestion, transport affordability and distance to services impedes access to healthcare, particularly for the most vulnerable people who cannot always afford the time or cost of travel to health services.

There are also challenges regarding access to services, particularly for those people living in deprivation or further away from care settings. One in five people have an unmet need for primary care due to cost, transport or ability to get an appointment. This is particularly prominent in Northland where one person in five was unable to get a GP appointment within 24 hours.

Supply, overcrowding, transiency, affordability and quality are all pressures placed on Auckland’s housing market that affect our population’s health. Over 15% of our population (200,000+ people) live in overcrowded housing, which increases the risk of spread of infectious diseases such as meningococcal disease and rheumatic fever, as well as other health impacts such as psychological distress and childhood injury.

An increasing proportion of our communities are living in rental accommodation as the average Auckland house price is now more than $1 million, well over 10 times the average income, which is the generally accepted level of affordability. Rental housing stock is often not insulated and commonly damp, which can lead to health problems such as respiratory infections, asthma and pneumonia.

2.2 Health outcomes and inequities

Key messages:

- Health outcomes in the Northern Region are generally better than the New Zealand average and improving as life expectancy continues to increase and mortality rates from cardiovascular disease and cancer decline.
- However, health outcomes are variable across the Region, with significant inequities and ill health linked to ethnicity and deprivation.
- We also have a significant burden of preventable ill health in the Region, with 20% of all deaths (1,800) potentially amenable through healthcare intervention.

Health outcomes are improving in general across the Region

Nine out of 10 people across our Region rate their health as ‘excellent’, ‘very good’, or ‘good’, and life expectancy has increased by 1.9 years over the last 10 years to 82.4 years. Cardiovascular disease and cancer are the two largest causes of death in the Region. Mortality rates for these diseases are slightly lower than the NZ rate and are declining:

- Cardiovascular disease mortality decreased from 157.5 to 105.7 per 100,000 between 2003 and 2014
- Cancer mortality decreased from 137.2 to 116.5 per 100,000 over the same period of time
- Infant mortality has decreased from 5.2 to 3.8 per 1000 births, annual rate, between 2003 and 2016.

There are significant inequities related to ethnicity, geography and deprivation.

Despite the improvements noted above, there is still a substantial life expectancy gap for Māori and, to a lesser extent, Pacific compared to non-Māori and non-Pacific. Māori have a life expectancy eight years shorter than for non-Māori, non-Pacific people. The life expectancy of a Pacific person is (on average) 6.8 years lower than for a non-Māori, non-Pacific person. Māori rates of amenable mortality are three times higher, and our Pacific population’s ambulatory sensitive hospitalisations (ASH) are three times higher. There are also gaps in life expectancy by local board, with a gap of 7.6 years between people in the local board with the highest life expectancy (Howick, 84.9) and those in the lowest (Māngere-Ōtāhuhu, 77.3).

Data from 2014-16, calculated using population estimates from Statistics NZ and mortality data from the Ministry of Health Mortality Collection
Mental health also disproportionately impacts our Māori, Pacific and deprived young people who have higher rates of mental ill health. Evidence suggests that the unmet need for mental health services is due to either barriers in access or lack of appropriate services for young people in particular.9

There are also variances in health outcomes between our DHBs, reflected in differing life expectancies and mortality rates for cancer and cardiovascular disease. Life expectancy for people in Waitemata DHB is almost four years higher than for those in Northland DHB. Northland DHB also has the second highest cancer mortality rate in the country while Waitemata DHB’s and Auckland DHB’s cancer mortality rates are among the lowest.

There is a burden of ill health related to amenable or preventable disease

A large burden of ill health can be avoided and can be considered potentially ‘amenable’ or ‘preventable’. A death can be considered as potentially amenable if it could have been avoided through optimal quality healthcare. The concept of preventable deaths is broader and includes deaths which could potentially have been avoided by public health interventions focusing on wider determinants of public health, such as behaviour and lifestyle factors, socioeconomic status and environmental factors.

On average 20% of all deaths (1,800) within the Region are potentially amenable through healthcare intervention. Cardiovascular disease and cancer account for the largest number of these deaths (700 and 437 respectively). This burden suggests there is more we can do to help people manage their conditions and minimise the impact of chronic disease, particularly for those who are most vulnerable.

Table 3: Life expectancy, mortality and risk factors

<table>
<thead>
<tr>
<th>Life expectancy</th>
<th>NDHB</th>
<th>WDHB</th>
<th>ADHB</th>
<th>CMH</th>
<th>Northern Region</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy (2014-16)</td>
<td>79.9</td>
<td>83.8</td>
<td>82.7</td>
<td>81.3</td>
<td>82.4</td>
<td>81.7</td>
</tr>
<tr>
<td>LE Gap (yrs.) - Māori cf non-Māori, non-Pacific (2014-16)</td>
<td>8.7</td>
<td>5.6</td>
<td>5.8</td>
<td>8.1</td>
<td>8</td>
<td>7.1</td>
</tr>
<tr>
<td>LE Gap - Pacific cf non-Māori, non-Pacific (2014-16)</td>
<td>3.3</td>
<td>6</td>
<td>7.4</td>
<td>6.8</td>
<td>6.8</td>
<td>5.8</td>
</tr>
<tr>
<td>LE Asian (2014-16)</td>
<td>84.2</td>
<td>89.7</td>
<td>86.9</td>
<td>86.6</td>
<td>87.4</td>
<td>87</td>
</tr>
</tbody>
</table>

| Mortality | Mortality (2012-14 rate per 100,000 pop) | 432.8 | 315.9 | 355 | 393.8 | 361.1 | 384.8 |
| Cardiovascular mortality (2012-14 rate per 100,000 pop) | 128.1 | 88.4 | 103.4 | 119.7 | 105.7 | 115.7 |
| Cancer mortality (2012-14 rate per 100,000 pop) | 136.8 | 108.7 | 110.7 | 122.9 | 116.5 | 122.8 |
| Infant mortality two year rate per 1,000 live births (2015 and 2016) | 4.1 | 2.6 | 3.7 | 5.4 | 4 | 3.8 |
| Suicide (2012-14 rate per 100,000 pop) | 16.1 | 9.2 | 8.7 | 9.8 | 9.7 | 11.4 |

| Risk factors | % Adults who are current smokers (2013 census) | 19% | 12% | 11% | 16% | 14% | 19% |
| % Adults overweight or obese (2011-14 Health Survey) | 71% | 58% | 57% | 68% | 62% | 64% |
| % Children overweight or obese (2011-14 Health Survey) | 39% | 26% | 28% | 40% | 32% | 32% |

Key: Dark blue = Greatest opportunity for improvement, Light blue = Lesser opportunity for improvement.

In addition, over one third (37%) of health loss in New Zealand is potentially preventable, suggesting there are benefits to be gained through wellness and prevention efforts. The major risk factors for ill health are also changing in our Region. Smoking prevalence is reducing but rates are high for Māori and Pacific people with additional action required to achieve the Smokefree Aotearoa target by 2025. Poor diet and high Body Mass Index (BMI) are now the leading causes of health loss by risk factor. One in three adults in our Region is obese, with a further third considered overweight. This is contributing to an
increase in chronic conditions including diabetes, cardiovascular disease, and musculoskeletal conditions. Levels of physical inactivity and hazardous use of alcohol are also high.

Mental ill health is the leading cause of health loss by disease category, based on calculations from the New Zealand Burden of Disease, Injuries and Risk Factors Study. It affects one in five people nationally. Neuropsychiatric disorders (including mental illness, addiction, and neurodegenerative disease) account for 19% of premature mortality and morbidity. This represents a greater proportion of explained health loss than either cancer (17%) or cardiovascular disease (17%). A further concern for the Region is our high rates of youth mental health problems and youth suicide, which are among the highest in the OECD.

2.3 Our funding

<table>
<thead>
<tr>
<th>Key messages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Collectively, we currently receive $5.3 billion of revenue per annum to deliver health services for our population.</td>
</tr>
<tr>
<td>• Funding for healthcare has consistently grown faster than GDP over the last 10 years but this growth is not sustainable in the future.</td>
</tr>
</tbody>
</table>

DHBs currently spend around $3.7 billion per annum on DHB provided services and purchase $1.6 billion of services from NGOs and other providers

Our DHBs are funded to provide health and disability services to people resident within their boundaries, as well providing specific services to regional and national populations. In 2016/17, the Northern Region received $5.3 billion in revenue, equivalent to over one third of the total public health expenditure in New Zealand. Capital financing costs make up 4% of regional expenditure, accounting for $238 million. Roughly 66% is spent on DHB provider services and 30% is spent on NGOs and other providers.

In 2016/17 we spent $1.6 billion on payments to external service providers. This included:

- $511 million on PHOs and other personal health services
- $371 million on Community Pharmacies
- $316 million on Residential Care
- $146 million on Disability Support, Public Health, and Māori Health
- $124 million on Mental Health
- $97 million on Community Laboratories.

Over the last 10 years, DHB healthcare revenue has grown by 56%

New Zealand’s health and disability system is primarily funded through general taxation, with money spent through Vote Health, ACC, other government agencies and local government. Spending also comes from private sources, including private health insurance and out of pocket payments. Public financing accounts for 83% of total health expenditure in New Zealand, with the remainder coming from private sources.
Over the last 10 years, DHB Funder Arm revenue for the purchase of services from DHB providers and other, non-DHB service providers has grown by 56%.

Within this 10 year time period, the revenue growth path has slowed, averaging 5.6% annually between 2007/08 to 2011/12, and 2.9% annually between 2011/12 and 2015/16.

### 2.4 Our hospital based services

#### Key messages:

- Health services in the Northern Region are delivered across a range of settings from hospitals to primary and community services. The private sector supports the delivery of care across many specialties / services both in inpatient and community settings.
- The Northern Region DHBs provide a range of national and regional services to patients from across the Region and from other parts of the country.
- Over the last five years, inpatient services have grown by 15.5% (to 374,000 discharges per annum) while the population grew by 9.4% during the same time.
- Our major acute sites are stretched to capacity for some services, particularly medical and surgical services. Within 5 years they will have a 374 bed deficit in capacity to meet demand.
- Our DHBs perform well against existing measures of quality and safety, however there is room to improve delivery as well as how and what we measure.

#### Hospital services are delivered from a number of sites across our Region

Each of our four DHBs operates a major hospital offering a full range of secondary medical and surgical services (Whangarei Hospital, North Shore Hospital, Auckland City Hospital and Middlemore Hospital). There are six hospital emergency departments across the Region, including a dedicated paediatric service at Starship Children’s Health (which sits within the Auckland City Hospital campus) and two emergency departments in Waitemata DHB (North Shore Hospital and Waitakere Hospital). The Manukau Surgical Centre and Greenlane Clinical Centre both provide ambulatory and elective services. The Greenlane Clinical Centre has an emergency eye service but neither centre has a general emergency department.

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10 Source Ministry of Health, Schedule 2 Funder Arm revenue reporting (audited actual).
Alongside these major acute facilities, secondary and tertiary healthcare is delivered in a number of other settings across the Region, including:

- Three separate facilities largely dedicated to elective surgery, one in each of the Auckland Metro DHBs. These are; the Elective Surgical Centre at North Shore Hospital in Waitemata DHB, the Greenlane Clinical Centre at Auckland DHB, and the Manukau Super Clinic at Counties Manukau Health.

- Mental health services are offered across multiple sites by all DHBs, including the Mason Clinic, which is the national forensic mental health service run by Waitemata DHB (physically located within Auckland DHB boundaries). All four DHBs provide inpatient mental health services to their local population.

- Seven community-based hospitals offering mainly general medicine, rehabilitation, obstetrics and paediatric medicine. Four of these sites are small facilities in Northland DHB which serve people in rural areas who live further away from Whangarei Hospital.

- Outpatient consultations are provided from a range of hospital and community sites, including leased premises.

- Other significant sites include; Wilson Centre (child rehabilitation), Point Chevalier (Buchanan Rehabilitation Centre and Rehab Plus), and Bairds Road (Tamaki Oranga and Spinal Rehabilitation Centre).
The footprint and capacity available on our main sites is outlined below.

### Table 4: Beds, theatres and campus area by main hospital sites

<table>
<thead>
<tr>
<th>Location</th>
<th>Inpatient beds</th>
<th>Theatres</th>
<th>Campus area (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northland DHB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whangarei Hospital</td>
<td>260</td>
<td>6</td>
<td>19.10</td>
</tr>
<tr>
<td><strong>Waitemata DHB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Shore Hospital</td>
<td>826</td>
<td>16</td>
<td>14.59</td>
</tr>
<tr>
<td>Waitakere Hospital</td>
<td>269</td>
<td>3</td>
<td>13.73</td>
</tr>
<tr>
<td><strong>Auckland DHB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auckland City Hospital</td>
<td>1,134</td>
<td>39</td>
<td>11.74</td>
</tr>
<tr>
<td><strong>Counties Manukau Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middlemore Hospital</td>
<td>871</td>
<td>14</td>
<td>20.10</td>
</tr>
<tr>
<td><strong>Total Main Hospital Sites</strong></td>
<td>3,160</td>
<td>78</td>
<td>79.26</td>
</tr>
</tbody>
</table>

Data sourced within the Northern Region shows that there is some capacity at private surgical hospitals across the Region. It has also been signalled that private providers are capable of performing additional procedures and surgeries of a similar casemix to those already provided. While this would require the Region to consider how outsourcing would impact staffing and funding requirements moving forward, it is something we will consider.

The Northern DHBs provide a range of services to patients from across the Region and from other parts of the country

Each of our Metro DHBs provide some services for wider catchment populations:

- National services are provided at Auckland City Hospital (heart, lung and liver transplants; paediatric services including cardiac, haematology/oncology, rheumatology, metabolic etc; epilepsy surgery; and high risk obstetrics), Middlemore Hospital (Burns Unit) and Waitemata DHB (the national forensic mental health service, and the hyperbaric service)
- Auckland City Hospital provides a number of regional services such as oncology, cardiothoracic surgery as well and being the “after hours” provider for services such as ophthalmology, ORL and cardiac catheterisation
- Waitemata DHB provides the regional school dental service, alcohol and drug service, and child rehabilitation service at the Wilson Centre
- Counties Manukau Health delivers the regional spinal rehabilitation service, plastic surgery and the acute spinal cord impairment service for the region north of Palmerston North.

Demand for our services has consistently grown faster than population growth

Over the last five years the Region’s population has grown by 9.4% from 1.6 million to 1.8 million. In the same time, growth in demand for our services has exceeded population growth in some areas. These volumes are shown in the table below.

### Table 5: Service demand growth

<table>
<thead>
<tr>
<th>Service</th>
<th>5 year growth</th>
<th>Growth compared to population growth</th>
<th>Current volumes (2016/17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED attendances</td>
<td>18.8%</td>
<td></td>
<td>381,000</td>
</tr>
<tr>
<td>Inpatient discharges</td>
<td>15.5%</td>
<td></td>
<td>374,000</td>
</tr>
<tr>
<td>Bed days</td>
<td>4.7%</td>
<td></td>
<td>1.1 million</td>
</tr>
<tr>
<td>Theatre episodes</td>
<td>8.2%</td>
<td></td>
<td>155,000</td>
</tr>
</tbody>
</table>

While activity has increased, over the last five years the average length of stay has reduced by 4.7% from 5.1 days to 4.9 days for overnight discharges (~ -0.9% per annum). Shorter stays offset the potential
impact of activity increases on bed days. For example, Adult Surgery and Mental Health services experienced a growth in the volume of patients of 16% and 36% respectively, but only a 7% and 4% increase in bed days due to the impact of average length of stay reductions.

**Our major acute sites are at capacity for some services and we will not be able to meet the anticipated demand over the next five years**

As demand for services increases we are increasingly being challenged to address patient needs, particularly in periods of peak activity such as the winter months. We have major pressures in regard to medical and surgical beds on our acute sites. Comparing physical bed numbers with modelled bed numbers (which indicate the supply of beds that we should have to deliver services) indicates that we had just sufficient medical / surgical and AT&R beds regionally to meet demand in 2016/17. At some sites such as North Shore Hospital and Middlemore Hospital we are already short of capacity.

Table 6: Current physical beds versus modelled bed requirement for all services

<table>
<thead>
<tr>
<th>Northern Region</th>
<th>Med/Surg/AT&amp;R</th>
<th>Other Services</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main facilities</td>
<td>Physical beds</td>
<td>Modelled beds</td>
<td>Surplus /</td>
</tr>
<tr>
<td>Northland DHB</td>
<td>2,309</td>
<td>2,314</td>
<td>5 D</td>
</tr>
<tr>
<td>Whangarei Hospital</td>
<td>179</td>
<td>174</td>
<td>5 S</td>
</tr>
<tr>
<td>Waiomgombua DHB</td>
<td>548</td>
<td>564</td>
<td>16 D</td>
</tr>
<tr>
<td>North Shore Hospital</td>
<td>153</td>
<td>154</td>
<td>5 S</td>
</tr>
<tr>
<td>Waitemate DHB</td>
<td>803</td>
<td>766</td>
<td>37 S</td>
</tr>
<tr>
<td>Counties Manukau DHB</td>
<td>620</td>
<td>655</td>
<td>35 D</td>
</tr>
</tbody>
</table>

While there is some limited “spare capacity” on our major sites, this capacity is largely associated with services such as obstetrics, paediatrics and mental health. This capacity cannot accommodate any overflow from adult medical and surgical patients.

It should also be noted that the modelling approach has a number of limitations which will tend to result in an understatement of the beds required to meet demand. These limitations include:

- Flexibility of bed use within specialty categories has been overestimated. Our analysis does not allow for ring-fencing of sub-specialty areas within the broader bed categories (such as ICU and CCU beds within Adult Medicine) and assumes flexibility of use across these bed types. In practice we would not expect to be able to pool beds across clinical specialties where considerations such as specialist staff skill and equipment availability would prevent adaptability in accommodating patients across the different areas.

- We have not accounted for lower flexibility driven by the condition of the patient and clinical safety issues, such as the need to reserve single bedded and negatively ventilated rooms for infectious patients, having separate wards for women and men, and allocating confused or at-risk patients rooms where they are less likely to come to harm or disturb others.

- Short admissions of less than 24 hours that do not span the 12:00am census are not counted in the National Minimum Data Set (NMDS) inpatient data. As a result, we cannot include clinical activity related to these acute patients admitted and discharged on the same day.

- In addition, using the NMDS midnight census results in an underestimation of peak demand. DHBs generally do not discharge patients overnight. However admissions still continue to occur throughout the night, resulting in peak occupancy at around 7:00am before the first discharges of the day start taking place.

- Modelling has been based on an average annual occupancy. However our hospitals need to have sufficient capacity to meet demand during the winter peak. Analysis of this suggests that a further 100 medical / surgical / AT&R beds would be required regionally to attain a 99%

---

* Auckland Hospitals include Auckland City Hospital, Greenlane Clinical Centre, Starship Children’s Health, National Women’s Health, and RehabPlus, as data does not separate activities by the specific facilities.
confidence level that we would not breach our capacity on more than 4 days during the winter peak.

These limitations mean that the ‘surplus/deficit’ view presented above is likely to be the most optimistic view that we can present. Our recent experience has reinforced this, with each of our DHBs facing an excess demand for beds at the 7:00am census throughout the winter period.

Furthermore, when we model the impact of demand growth, we will have exhausted all spare capacity on our acute sites by 2021/22. Unless we invest in additional capacity we will be around 350 beds short and there will be no contingency to address the bed modelling limitations set out above.

Table 7: Projected 2021/22 surplus/deficit in Medical, Surgical and AT&R Beds

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Region</td>
<td>Physical beds</td>
<td>Modified beds</td>
<td></td>
</tr>
<tr>
<td>Waitemata DHB</td>
<td>2,309</td>
<td>2,314</td>
<td>6 D</td>
</tr>
<tr>
<td>Whangarei Hospital</td>
<td>179</td>
<td>174</td>
<td>5 S</td>
</tr>
<tr>
<td>Auckland DHB</td>
<td>803</td>
<td>708</td>
<td>37 S</td>
</tr>
<tr>
<td>Counties Manukau DHB</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Middlemore Hospital</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Not only are our inpatient beds at capacity but recent analysis indicates that in Metro Auckland we are also at capacity in our operating theatres, NICU/PICU, and radiology as set out below. There are some pressures for Endoscopy in two DHBs.

Table 8: Metro Auckland capacity stocktake

<table>
<thead>
<tr>
<th>Based on 17/18 projected volumes</th>
<th>Auckland DHB Inherent Residual</th>
<th>Waitemata DHB Inherent Residual</th>
<th>Counties Manukau Health Inherent Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult ED</td>
<td>Red</td>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>Child ED</td>
<td>n/a</td>
<td>n/a</td>
<td>Green</td>
</tr>
<tr>
<td>Adult IP beds</td>
<td>Red</td>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>Child IP beds</td>
<td>Red</td>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>Critical Care beds</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>NICU / PICU beds</td>
<td>Red</td>
<td>n/a</td>
<td>Red</td>
</tr>
<tr>
<td>Theatres</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Radiology</td>
<td>Yellow</td>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>Outpatient</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
</tbody>
</table>

Key:
- Red = no capacity, Amber = close to capacity, Green = capacity available
- ‘Inherent’ reflects projected demand and available capacity only; ‘Residual’ takes into account any mitigation to help manage capacity shortfalls, including outsourcing services
- Ratings are based on the assumption that the DHB provides specialised services in the listed clinical area. Waitemata DHB does not provide specialist Child ED and NICU/PICU services.
- Auckland DHB Adult ED Residual is green due to Adult ED extension due to open in March 2018
- Analysis of critical care areas also demonstrates pressure points within the Region, particularly in Neonatal Intensive Care at Auckland City Hospital.

12 * Auckland Hospitals include Auckland City Hospital, Greenlane Clinical Centre, Starship Children’s Health, National Women’s Health, and RehabPlus, as data does not separate activities by the specific facilities.
A number of our services currently have spare capacity and are rated as ‘green’. However, it is anticipated that within the next two to three years they will be either close to, or at, capacity if we do not invest in additional capacity.

**Certain patient cohorts represent the majority of current bed days**

The vast majority (89%) of our hospital beds are occupied by patients who present acutely, with 50% of bed days linked to the top 5 specialties (general medicine, general surgery, orthopaedic surgery, AT&R, and adult mental health). Looking specifically at the group of patients who are 65 years and over, this cohort accounts for 42% of all bed days and 39% of outpatient attendances.

<table>
<thead>
<tr>
<th>Table 9: Average daily occupied beds by patient age at all sites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016/17 Modelled Beds By Age Band</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Adult Medicine</strong></td>
</tr>
<tr>
<td>General Medicine</td>
</tr>
<tr>
<td>Cardiology</td>
</tr>
<tr>
<td>Renal Medicine</td>
</tr>
<tr>
<td>Respiratory Medicine</td>
</tr>
<tr>
<td>Haematology</td>
</tr>
<tr>
<td>Oncology</td>
</tr>
<tr>
<td><strong>Adult Medicine Total</strong></td>
</tr>
<tr>
<td><strong>Adult Surgery</strong></td>
</tr>
<tr>
<td>General Surgery</td>
</tr>
<tr>
<td>Orthopaedic Surgery</td>
</tr>
<tr>
<td>Cardiac Thoracic Surgery</td>
</tr>
<tr>
<td>Plastic Surgery [excluding burns]</td>
</tr>
<tr>
<td>Urology</td>
</tr>
<tr>
<td>Otorhinolaryngology (ENT)</td>
</tr>
<tr>
<td>Vascular Surgery</td>
</tr>
<tr>
<td><strong>Adult Surgery Total</strong></td>
</tr>
<tr>
<td><strong>AT&amp;R</strong></td>
</tr>
<tr>
<td>Geriatric A, T &amp; R (active rehabilitation)</td>
</tr>
<tr>
<td>Physical disability A, T &amp; R sub-series</td>
</tr>
<tr>
<td>Geriatric residential care (hospital - long term)</td>
</tr>
<tr>
<td>Psychogeriatric A, T &amp; R (active rehabilitation)</td>
</tr>
<tr>
<td>Psychogeriatric A, T &amp; R (continuing care)</td>
</tr>
<tr>
<td><strong>AT&amp;R Total</strong></td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
</tr>
<tr>
<td>437</td>
</tr>
<tr>
<td><strong>Neonates</strong></td>
</tr>
<tr>
<td><strong>Paediatrics</strong></td>
</tr>
<tr>
<td><strong>Womens</strong></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
</tr>
</tbody>
</table>

Note: Table is sorted by specialty ranked according to the highest modelled beds.
We can improve the patient experience, and the quality and safety of their care

There is variance in the quality and safety of hospital care in our Region, for example overall cancer survival rates vary between DHBs from 61% to 69%, and hospital standardised mortality ratios range from 0.72 to 1.03 compared to the national average of 0.87. While information available suggests that outcomes and patient experience ratings of care in the Northern Region are positive, there is scope to improve both the delivery of care as well as how we measure outcomes and experience.

Table 10: Hospital quality and safety measures

<table>
<thead>
<tr>
<th></th>
<th>NDHB</th>
<th>WDHB</th>
<th>ADHB</th>
<th>CMH</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient experience of hospital care, Nov 16</td>
<td>8.9</td>
<td>8.5</td>
<td>8.1</td>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>% of older people assessed for risk of falling</td>
<td>0.82</td>
<td>0.97</td>
<td>0.95</td>
<td>0.96</td>
<td>91%</td>
</tr>
<tr>
<td>- % assessed as at risk with care plan in place</td>
<td>0.81</td>
<td>0.98</td>
<td>0.96</td>
<td>0.98</td>
<td>95%</td>
</tr>
<tr>
<td>Hand hygiene compliance</td>
<td>0.87</td>
<td>0.83</td>
<td>0.84</td>
<td>0.83</td>
<td>82%</td>
</tr>
<tr>
<td>Surgery: antibiotic 0-60 minutes before knife in</td>
<td>0.98</td>
<td>0.92</td>
<td>0.94</td>
<td>0.94</td>
<td>97%</td>
</tr>
<tr>
<td>- right antibiotic in the right dose</td>
<td>100%</td>
<td>0.94</td>
<td>0.94</td>
<td>0.97</td>
<td>96%</td>
</tr>
<tr>
<td>- appropriate skin antisepsis in surgery</td>
<td>100%</td>
<td>100%</td>
<td>0.99</td>
<td>0.99</td>
<td>99%</td>
</tr>
<tr>
<td>Hip and knee arthroplasty infection %</td>
<td>1.0%</td>
<td>0.7%</td>
<td>1.2%</td>
<td>1.4%</td>
<td>1.10%</td>
</tr>
<tr>
<td>Hospital standardised mortality ratio 2013 MoH</td>
<td>1.03</td>
<td>0.72</td>
<td>0.88</td>
<td>0.89</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Key: Dark Blue = Greatest opportunity for improvement, Light Blue = Least opportunity for improvement

Improving the accuracy with which we measure outcomes and patient experiences will enable us to improve the quality of services we provide as well as target our investments.

2.5 Ambulatory and community based services

Key messages:

- The growth rates for ambulatory and community based services mirror those seen for hospital services.
- Primary care services are generally well utilised by our population but we have a shortage of GPs,¹³ which impacts some areas more than others.
- We currently spend around $400 million on community based aged care services and have access to some spare residential care capacity.

Demand for our community services has also consistently grown faster than population growth

Community and primary care services are delivered by a range of providers in the Region, including general practice, pharmacy, NGOs, DHB provider arms, aged care services, kaupapa Māori and Pacific services, and many others.

Consistent with hospital based services, growth in community based services has exceeded the 9.4% population growth over the last five years. These volumes are shown in the table below.

Table 11: Ambulatory and community based services demand growth

<table>
<thead>
<tr>
<th>Service</th>
<th>5 year growth</th>
<th>Growth compared to population growth</th>
<th>Current volumes (2015/16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP consultations</td>
<td>10.5%</td>
<td></td>
<td>5.1 million</td>
</tr>
<tr>
<td>Outpatient contacts</td>
<td>12.1%</td>
<td></td>
<td>2.0 million</td>
</tr>
<tr>
<td>ED attendances</td>
<td>18.8%</td>
<td></td>
<td>381,000</td>
</tr>
<tr>
<td>Aged care spending</td>
<td>14.4%</td>
<td></td>
<td>$388 million</td>
</tr>
</tbody>
</table>

Outpatient contacts have grown slightly faster than population growth

In 2015/16, there were 2.0 million outpatient attendances, a growth of 12.1% since 2010/11, slightly higher than the population growth of 9.4%. First specialist assessments (FSAs) grew by 15.7% to 249,000 and follow-ups grew by 5% to 510,000.

Table 12: Outpatient attendances by DHB and type of attendance, 2015/16

<table>
<thead>
<tr>
<th>Service</th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Specialist Assessment</td>
<td>26,247</td>
<td>48,780</td>
<td>103,177</td>
<td>70,839</td>
<td>249,043</td>
</tr>
<tr>
<td>Follow-up</td>
<td>40,269</td>
<td>83,206</td>
<td>245,901</td>
<td>140,554</td>
<td>509,930</td>
</tr>
<tr>
<td>Nurse Contacts</td>
<td>50,916</td>
<td>88,219</td>
<td>64,956</td>
<td>97,048</td>
<td>301,139</td>
</tr>
<tr>
<td>Nurse-led Clinics</td>
<td>11,677</td>
<td>13,457</td>
<td>32,616</td>
<td>17,492</td>
<td>75,242</td>
</tr>
<tr>
<td>Procedure</td>
<td>26,242</td>
<td>47,892</td>
<td>129,943</td>
<td>78,916</td>
<td>282,993</td>
</tr>
<tr>
<td>Community Radiology</td>
<td>50,735</td>
<td>64,991</td>
<td>50,028</td>
<td>45,050</td>
<td>210,805</td>
</tr>
<tr>
<td>Needs Assessment</td>
<td>1,948</td>
<td>17,158</td>
<td>2,348</td>
<td>592</td>
<td>22,046</td>
</tr>
<tr>
<td>Other</td>
<td>38,139</td>
<td>81,049</td>
<td>117,975</td>
<td>93,460</td>
<td>330,623</td>
</tr>
<tr>
<td><strong>Total Outpatient (excluding ED)</strong></td>
<td><strong>246,173</strong></td>
<td><strong>444,752</strong></td>
<td><strong>746,944</strong></td>
<td><strong>543,951</strong></td>
<td><strong>1,981,822</strong></td>
</tr>
</tbody>
</table>

Over the last five years, Auckland DHB has consistently had the highest outpatient volumes, but growth rates have varied with:

- The 65-84 year age group of patients contribute 56% of the total growth in demand across the Northern Region
- The highest specific growth areas being in outpatient procedures for patients aged 65-84 years (34%) and in community radiology for patients aged 85 years and over (35%).

14 Note, due to differences in coding and additional services provided by CMH or increased use of CMH’s services compared to WDHB, their totals are quite different.
Mental Health and Addiction services are highly utilised across the Region

It is estimated that in 2016/17, 55,000 people accessed a variety of services from the Northern Region’s Community, Alcohol and Other Drug (AoD); and DHB funded NGO Mental Health and Addictions teams. This is summarised in the table below. With the exclusion of inpatient services, this represents all services provided by the Regions’ DHB Funded Mental Health and Addictions teams.

Table 13: Total number of unique service users by DHB of domicile and ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Northland DHB</th>
<th>Waitemata DHB</th>
<th>Auckland DHB</th>
<th>Counties Manukau Health</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>43</td>
<td>1,250</td>
<td>1,744</td>
<td>1,538</td>
<td>4,576</td>
</tr>
<tr>
<td>Māori</td>
<td>3,388</td>
<td>3,078</td>
<td>2,524</td>
<td>5,068</td>
<td>14,057</td>
</tr>
<tr>
<td>Other</td>
<td>3,510</td>
<td>11,508</td>
<td>8,317</td>
<td>6,811</td>
<td>30,146</td>
</tr>
<tr>
<td>Pacific</td>
<td>140</td>
<td>1,256</td>
<td>1,863</td>
<td>3,473</td>
<td>6,732</td>
</tr>
<tr>
<td><strong>Total unique service users</strong></td>
<td><strong>7,079</strong></td>
<td><strong>17,092</strong></td>
<td><strong>14,448</strong></td>
<td><strong>16,890</strong></td>
<td><strong>55,510</strong></td>
</tr>
</tbody>
</table>

Service users may access a variety of services multiple times, so the total number of contacts for both DHB and NGO provided services is significantly higher than the number of service users. The table below totals all contacts of both DHB and NGO services (excluding inpatient) in the Region. Contacts include physical consultations, phone calls or written text communication. There is likely to be variability in the completeness of data.

Table 14: Total number of Mental Health and Addiction contacts in the Northern Region

<table>
<thead>
<tr>
<th>Type of contact</th>
<th>Northland DHB</th>
<th>Waitemata DHB</th>
<th>Auckland DHB</th>
<th>Counties Manukau Health</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHB community teams (excl. AoD) contacts</td>
<td>125,421</td>
<td>360,808</td>
<td>293,628</td>
<td>308,204</td>
<td>1,086,951</td>
</tr>
<tr>
<td>AoD contacts</td>
<td>21,519</td>
<td>191,606</td>
<td></td>
<td></td>
<td>213,125</td>
</tr>
<tr>
<td>DHB funded NGO contacts</td>
<td>60,684</td>
<td>212,667</td>
<td>106,754</td>
<td>192,013</td>
<td>572,118</td>
</tr>
<tr>
<td><strong>Total MH&amp;A contacts</strong></td>
<td><strong>268,308</strong></td>
<td><strong>977,748</strong></td>
<td><strong>507,136</strong></td>
<td><strong>692,230</strong></td>
<td><strong>2,444,312</strong></td>
</tr>
</tbody>
</table>

Primary Care services

Community and primary care services are delivered by a range of providers in the Region including, general practice, pharmacy, NGOs and aged care services, kaupapa Māori and Pacific providers, and many others. There are 1,400 GPs in the Region working across 380 practices. Over the past five years we have seen a 9% growth in the number of GPs (headcount) in the Region, compared to the population growth of 9.4% for the same period. There is anecdotal reporting that the GP workforce growth has been predominantly in 'part-time' GPs, so the headcount growth is likely to exceed the FTE growth.

Our GPs provided 5.1 million patient consultations in 2016/17, a 10.5% growth over five years. The average person in the Region sees their GP three times a year (a 5% increase on 2009/10), with the highest demand coming from our youngest (0-5 years) and oldest (65 years and over) groups at, 4.1 and 5.6 consults per annum respectively (see blue columns in figure 7 below). Our Pacific communities have the highest total GP consult rate, at 3.7 collectively per annum (figure 7). Māori consultation rates appear to be low given the high levels of need described in earlier sections.

15 Waitemata DHB provides AoD services for Metro Auckland. It is estimated that the relative utilisation of AoD services is 42% Waitemata DHB, 25% Auckland DHB and 34% Counties Manukau Health.
16 Headcount does not equate to FTE.
Alongside GPs, nurses are playing an increasingly important role in the Region as they support primary care in meeting the growing and changing demand for their services. In 2016/17 nurses provided 994,000 consults, nearly double the number of consults they provided five years earlier. At least part of this increase may be due to improvements in data quality.

Most of this care is delivered through relatively small primary care practices. Over 45% of our practices are staffed by two or fewer GPs. In comparison, there are only 16 practices with over 10 GPs across the Region. The median number of GPs per practice is 3 across the Northern Region. Average enrolees (total enrolment / total number of practices) are 4,330. The relatively small size of these practices makes it difficult for GPs to make large capital investments or take on additional staff to increase their capabilities to meet the changing needs of their populations.

There are 68 laboratory collection centres and 423 pharmacies in our Region

In 2015/16, GPs, specialists, midwives and nurse prescribers ordered:

- 11 million pathology tests at a cost of approximately $97 million. The majority of these samples were collected from 61 collection centres in Metro Auckland and 7 collection centres in Northland, and from private surgical and endoscopy centres regionally. A small proportion are collected by primary care practices and via home visits
- 24 million prescription items which were dispensed from 388 community pharmacies in Metro Auckland and 35 pharmacies in Northland.

This large network of collection centres and pharmacies is required to provide reasonable access to these services regionally.

Aged Care services are delivered from a number of sites across our Region

Regionally, we currently spend around $300 million annually on aged residential care services and a further $81 million on home based services. The Region has access to around 10,900 aged care beds, which are currently being utilised at a rate of 90%. In addition, the DHBs hold some contracts with aged care facilities for providing rehabilitation and intermediate care to support older people to live well.
Table 15: Analysis of aged residential care

<table>
<thead>
<tr>
<th>DHB / Region</th>
<th>Dedicated Rest Home</th>
<th>Dedicated Hospital</th>
<th>Dual Service</th>
<th>Dementia</th>
<th>Psycho</th>
<th>geriatric</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland DHB</td>
<td>420</td>
<td>317</td>
<td>311</td>
<td>157</td>
<td>20</td>
<td></td>
<td>1,225</td>
</tr>
<tr>
<td>Waitemata DHB</td>
<td>988</td>
<td>735</td>
<td>1,266</td>
<td>460</td>
<td>101</td>
<td></td>
<td>3,550</td>
</tr>
<tr>
<td>Auckland DHB</td>
<td>1,074</td>
<td>1,055</td>
<td>1,099</td>
<td>314</td>
<td>47</td>
<td></td>
<td>3,589</td>
</tr>
<tr>
<td>Counties Manukau Health</td>
<td>624</td>
<td>785</td>
<td>844</td>
<td>216</td>
<td>35</td>
<td></td>
<td>2,504</td>
</tr>
<tr>
<td><strong>Total regional beds</strong></td>
<td><strong>3,106</strong></td>
<td><strong>2,892</strong></td>
<td><strong>3,520</strong></td>
<td><strong>1,147</strong></td>
<td><strong>203</strong></td>
<td></td>
<td><strong>10,868</strong></td>
</tr>
<tr>
<td><strong>Total utilised beds</strong></td>
<td><strong>2,738</strong></td>
<td><strong>2,669</strong></td>
<td><strong>3,168</strong></td>
<td><strong>1,005</strong></td>
<td><strong>186</strong></td>
<td></td>
<td><strong>9,765</strong></td>
</tr>
<tr>
<td><strong>Utilisation rate</strong></td>
<td><strong>88%</strong></td>
<td><strong>92%</strong></td>
<td><strong>90%</strong></td>
<td><strong>88%</strong></td>
<td><strong>92%</strong></td>
<td></td>
<td><strong>90%</strong></td>
</tr>
</tbody>
</table>

This excludes rest home level serviced apartments which are owned by residents, and which make up a significant proportion of the accommodation available in the seven largest aged care providers. Specialised beds, such as those dedicated to dementia and psychogeriatric care, are in high demand and are less amenable to alternative use.

At a regional level, there are potentially around 1,100 surplus beds at 100% occupancy. However, optimum occupancy is considered to be in the order of 90-95% with rates above this leading to limitations in flexibility, resident choice and timely access.

2.6 Our facilities and clinical equipment

**Key messages:**

- We have $3.8bn (reinstatement value) of building facilities and physical infrastructure with many facilities not fit for modern purpose.
- 18.5% of our buildings are rated as ‘poor’ or ‘very poor’ and around one fifth of our clinical services are in not fit for purpose facilities.
- The Region currently spends around $35 million annually on ‘baseline clinical equipment maintenance and renewals’. A significant proportion (10-50%) of this equipment is approaching or beyond its end of life.

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17 Q4 2016/17 Counties Manukau Health Aged Residential Care analysis.
18 Occupational Rights Agreement, Young Person Disabled and a small number of ‘other’ beds have been excluded from our count as these beds are not available to the DHBs for aged care purposes.
Ageing and outdated facilities require investment

Historic underinvestment in our existing assets has led to facilities in the Northern Region requiring significant investments in maintenance in the near future to improve asset condition and ensure the facilities and site infrastructure are fit for current and future models of care.

The following table shows the value and condition of the building facilities at each of our DHBs, noting that overall, 18.5% of our buildings are rated as being in ‘poor’ or ‘very poor’ physical condition.

<table>
<thead>
<tr>
<th>Asset Summary</th>
<th>Reinstatement Value</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessed / Insured Value ($m)</td>
<td>Very Poor (5)</td>
</tr>
<tr>
<td>Northland DHB</td>
<td>$373.4</td>
<td>12.8%</td>
</tr>
<tr>
<td>Waitemata DHB</td>
<td>$757.3</td>
<td>5.4%</td>
</tr>
<tr>
<td>Auckland DHB</td>
<td>$1,848.1</td>
<td>4.5%</td>
</tr>
<tr>
<td>Counties Manukau Health</td>
<td>$856.9</td>
<td>9.0%</td>
</tr>
<tr>
<td>Regional total (% weighted by building value)</td>
<td>$3,835.8</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

Further, we estimate that over one fifth of our clinical services are operating from buildings which are not fit for purpose for current models of care. This proportion is likely to increase significantly if we do not update our buildings as we adopt new service models in the future. Assets currently identified as being near or beyond their expected life, or not fit for purpose to deliver quality health services include:

- **Northland DHB**: Whangarei Hospital and Bay of Islands Hospital
- **Waitemata DHB**: North Shore Hospital medical tower block, the Mason Clinic and some Waitakere Hospital facilities (e.g. Snelgar Building and Healthwest Buildings)
- **Auckland DHB**: Infrastructure and facilities on the Grafton (including, Auckland City Hospital Central Plant, Support and Starship buildings) and Greenlane sites (e.g. the ex National Women’s block)
- **Counties Manukau Health**: Middlemore Hospital facilities particularly the Adult Rehabilitation and Health of Older People and Galbraith facilities, Papakura Maternity, Franklin Memorial Hospital and the Bairds Road facilities.

In addition to issues with the functional condition of our buildings, each DHB has identified critical site infrastructure challenges that require remediation to ensure service continuity. These challenges include:

- Disruptions to hospital water mains supply
- Ageing and vulnerable power supply infrastructure
- Issues relating to asbestos and building water tightness across all our sites
- Seismic, Health and Safety and Public Health compliance challenges.

Fiscal measures adopted to balance health expenditure and prioritise investment of available funding into service delivery have resulted in planned maintenance being deferred or reduced to minimal levels. This has resulted in the current requirement for substantive investment in backlogged maintenance.

Future proofing will need to take into account our responsibility as public sector agents to drive down greenhouse gas emissions and do our bit to contribute to the UN sustainable development goals. The growing demand for more responsible and sustainable use of hospital resources will require us to reduce emissions, drive down energy use and reduce waste. This is likely to have a big impact on how we will upgrade our facilities and add to the cost of new builds.
Clinical equipment requires on-going baseline maintenance

Our clinical equipment assets are valued at more than $210 million. The DHB LTIPs signal that many items are approaching or already require replacement, some of which are critical to our service delivery. We currently spend around $35 million annually on ‘baseline clinical equipment maintenance and renewals’.

An initial analysis of clinical equipment highlighted that radiology is a key area of investment with the majority of this expenditure linked to major capital items. While our current stock of Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) equipment is relatively up to date, with some new generation equipment in all DHBs, substantial investment is required annually (around $16 million) to keep this equipment current and to meet the growing demand for radiology.

From an asset management point of view, there is room to improve our asset tracking and the measurement of asset utilisation, which currently presents challenges when developing maintenance and replacement plans. Improvements in these areas would allow us to better plan for required replacement equipment and for stepped increase in capacity to support efficient and effective service delivery.

2.7 Our information systems

Key messages:

- The Information Systems Strategic Plan (ISSP) has identified that we need to replace our tired technology infrastructure and make a step change to ensure we can provide safe, high-quality and integrated healthcare over the next decade and beyond.

Our IT infrastructure requires updating and replacing in order to improve how we work together

Many of the information systems in the Region are ageing and require significant investment to bring them up to current versions, and to reduce the risk of failure. Acceptable systems 10-15 years ago are now struggling to keep up with the information requirements of both population growth and an increasing push towards digitisation in healthcare.

The Region has undertaken the development of an Information Systems Strategic Plan (ISSP), concurrent with the development of the NRLTIP. Key findings in regard to our current state IS landscape are summarised overleaf.
### IS Governance
- The current regional IS governance landscape and processes are complex and not conducive to good decision-making.
- Approvals processes are slow and convoluted and add unnecessary overheads to business cases.
- Decisions are made within projects that have an adverse impact on regional systems without visibility or escalation at a higher level.

### Portfolio
- The current project 'portfolio' contains a very large number of small "projects" (average $200k), largely focused on low level maintenance and repair. This is inefficient and not optimal to support the future delivery roadmap.
- While there is some level of regional collaboration across the portfolio, it is limited in both magnitude and quality. In general the portfolio is aligned to DHBs not the region.
- The majority of the FY 16/17 healthAlliance (hA) portfolio consists of projects that are maintenance and upgrade driven, indicating a reactive portfolio that is catching up with historic under-investment in IT.
- There is a history of material underspend against the IS capital budgets (ICT and CABA) due to challenges from a governance, planning, architecture and wider business perspective. To spend the money currently budgeted for the region will require a 50% improvement in productivity over the next 3 years.

### Funding and Planning
- There is a limited view of IT spend across the region, or of the portfolio of IS projects that are not within the purview of hA. We can’t say how much the region is spending on IT.
- There is little commonality between the processes being followed by the DHBs such as their project methodology, capital planning and project prioritisation processes.
- A large portion of IS funding in the region sits at the DHB level, and primarily supports DHB specific needs. This makes it more difficult to initiate and execute initiatives that deliver the best value for money or outcomes from a regional perspective.

### Applications Portfolio Management
- There is a material number of high risk applications spread across all DHBs, services and functions (for example, approximately 70/593 priority 1 applications are rated ‘high’ or ‘very high’ risk.
- There is a very large and growing backlog of technical / architecture debt (deferred maintenance, upgrades etc.) requiring substantial on-going investment and limiting our ability to move forward effectively.
- There are significant gaps between the capability of the existing application environment and that desired to support the emerging target business state (Models of Care, Channels etc.).
- There is a large amount of functional duplication and overlap between different applications within the region. The application landscape is very fragmented. Less than 10% of applications perform ‘core’ regional functions. Integration between applications, especially at a regional level, is limited and brittle.
- While there have been improvements in the level of understanding of the as-is application landscape, there is still substantial work required to understand and effectively manage the full range of regional applications (over 2000).
- The region does not have the required infrastructure to support a rapid move to a digitised operating model that allows greater levels of patient involvement.

### IS Capability
- Northern Region IS roles and responsibilities are poorly defined between healthAlliance and DHBs, particularly in the light of future state requirements.
- healthAlliance currently has a low level of IS capability maturity for an organisation of its type and needs to improve significantly to deliver the operational and large scale, complex multi-organisation investments for the Northern Region.
- DHBs make their own IS investments and run their own IS operations outside the bounds of hA. Not all IS related roles and capability sits with the formal IS reporting lines in the DHBs.

### Supplier
- The magnitude of vendor spend is low compared with the size and complexity of the IT environment. Additionally, it is widely distributed with a very long tail of small vendors of any material size. As a consequence, there are few ‘strategic partners’ and the healthAlliance and DHBs assume most of the integration and performance ‘risk’.
Our current application landscape (more than 2,000 individual applications) is only partially connected, presenting challenges in passing data between systems. The majority of this integration is through an end of life integration platform that needs urgent replacement. As a result of historic locally focused system implementations, there is a lack of common standards across our information systems, contributing to data sharing challenges.

The increase in demand for health services and IS enablers puts pressure on current systems, exceeding their current capacity. Implementing change is slow, expensive and high risk given the tightly connected and highly interdependent nature of the current clinical and operational systems. Extraction of data, supporting new processes and complying with Ministry of Health changes are also complicated and expensive.

Currently, DHBs directly, and through healthAlliance, maintain a programme of on-going IS investment projects using a combination of opex and depreciation funding. The IS investment budget over the last three years has averaged $65 million for infrastructure and clinical and business applications investment.

Our recent focus has been on investments to stabilise our infrastructure and address high priority deferred maintenance issues. We are also working regionally to consolidate applications and support data sharing. We have a shared, common clinical data repository – TestSafe – and several other common systems e.g. e-Referrals. But each DHB has also developed unique strengths and initiatives that could be harnessed by others in the Region.

However, the overall capability level for the Region in terms of technology operation, delivery, governance and stewardship is not as high as it needs to be for such a complex environment. Further detail on the findings from the ISSP current state analysis can be found in Appendix G.

2.8 Our workforce

<table>
<thead>
<tr>
<th>Key messages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Collectively, the DHBs are the Region’s largest employer with over 26,000 workers in 223 different roles. This also translates to each DHB being the largest employer in their area.</td>
</tr>
<tr>
<td>• There is an even larger workforce delivering community based services and supporting our DHBs to deliver services.</td>
</tr>
<tr>
<td>• Our DHBs are important training organisations and contribute significantly to the training pipeline for all professional workforces in our Region and for the rest of New Zealand.</td>
</tr>
<tr>
<td>• Our DHBs make a significant contribution to New Zealand’s health research, which helps drive improvements in health outcomes across the Region and country.</td>
</tr>
</tbody>
</table>
One of the most important parts of our regional health care system is the people who deliver services and support patients.

Our workforce provides a range of national and regional services to patients from across the Region and from other parts of the country.

As at June 2017 there were over 26,000 people employed in the Northern Region DHBs, working in over 223 different types of jobs by ANZSCO description. Total FTE was 22,189.

![Figure 9: Northern Region FTE by occupation group (June 2017)](image)

Our 2016/17 spend on the DHBs’ provider arm and governance workforce was $2.4 billion, representing 70.1% of total operational expenditure in those areas. Collectively, our DHBs have the largest number of employees in the Region and as a result have a significant economic footprint across our communities. In addition to the workforce employed directly by the DHBs, we contract services from many external providers, spending $1.6 billion on their services. A significant proportion of this external service contract expenditure is also workforce related.

Over the past five years our workforce has grown 12% overall with the largest growth in Allied and Scientific (20%) and Medical (19%) occupation groups with lesser growth for Nursing, and Care and Support at 14% each. Corporate support was the only group where there was a decrease (1%) over this period.

We know that our current workforce configuration and supply will not meet the forecast demand of the rapidly growing, diverse and ageing population in our region.

The workforce is also ageing with 18% of Northland DHB’s and 13% of the Metro DHBs’ workforce over the age of 60 years. This is a particular problem for Northland where key a number of workforce groups will be significantly impacted including: Kaiāwhina (56% of these workers are over 60 years of age), Clinical Coders (48%), Dental Therapists (41%) and Social Workers (32%). This presents a challenge as staff head towards retirement, which will lead to reduced and less flexible participation rates, workforce gaps, and loss of skills and valuable knowledge.

The Allied Health, Scientific and Technical workforce comprises many professional groups with some having comparatively few employees. There are multiple institutes involved in providing training, regulation and professional development, and while a large proportion of this workforce is deployed in the community, the DHBs carry the clinical training burden. Consequently, there are some significant challenges associated with growing and developing these workforces to meet future needs.

There are challenges too as we seek to operate extended hours for some of our services and look to deploy health practitioner groups differently as we move to new and integrated models of care. We have limited ability across some of our key areas of practice to build flexibility due to current scopes of practice, professional boundaries, and in some cases a constrained ‘short term’ industrial relations landscape.

Recruiting and retaining staff in Auckland is becoming problematic as the city becomes a less affordable place to live and work. Already many of our staff, particularly in lower paid positions, are moving to other

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19 Kaiāwhina is the over-arching term to describe non-regulated roles in the health and disability sector.
areas of New Zealand where quality of life is more affordable, or to the Australian health sector, which can be more attractive to health professionals.

Over the last five years the Region’s growth in demand for our services has exceeded population growth in most areas. In addition, our workforce supports other regions by delivering national services and we need to allow for this. We note that many staff say that they are under pressure to meet this demand. This is evidenced by the often limited capacity to cover for, or support, colleagues, and some staff are regularly working longer than rostered hours.

We recognise that investing in our entire workforce to support their professional development and prepare them for new ways of working is a fundamental building block for our future services. Our workforce’s “health” in terms of wellbeing, resilience and capacity for change are vital ingredients in building our future workforce.

Given the importance of our workforce to the future of the healthcare system we are undertaking a Deep Dive into workforce to inform the second iteration of the NRLTIP.

**Our Region’s healthcare workforce is not confined to the DHB**

There is good workforce intelligence across the DHB provider arms but intelligence on the overall available health workforce in our Region is incomplete. We have limited visibility of the primary care and community sector workforce, which prevents us from establishing a joined up view of the workforce across the whole system.

We have accessed Statistics New Zealand to develop an indication of the scale of the workforce regionally.\(^{20}\) This signals that in addition to the 26,000 people working in our DHBs, there is an employee count of up to 59,000 working across a broad definition of healthcare services for the Region. This will include people directly involved in delivering health services and people supporting the delivery of health services (for example pharmaceutical wholesalers, health advocacy groups etc.).

We have also started to develop a profile of the workforce directly involved in patient care. This profile is incomplete and requires further analysis to confirm, but current modelling indicates that we have around 29,000 people delivering health services in our Region as set out below:

- 1,990 people specifically associated with General Practices
- 1,240 Community Pharmacists
- 680 Community Laboratories
- 1,220 Oral Health
- 7,270 Aged Residential Care
- 9,800 Home Care services
- 990 NGOs providing Mental Health and Addiction services
- 220 Hospice
- 1,050 Private surgical hospitals
- 4,720 St John Ambulance, including 3529 volunteers

This workforce faces similar challenges to our DHB employed workforce. A key issue that we are already facing, which will impede service change in the future, is a shortage of GPs. This is compounded by the ageing workforce challenges particularly in rural areas. A RNZCGP 2016 survey found that nearly 44% of GPs are planning on retiring in the next decade, up from 36% three years ago. There are not enough mid-career GPs to replace them and some of those earlier on in their career are choosing to work part-time.

In addition to paid employees, there is a large non-paid workforce engaged in delivering services and supporting patients. As we plan for the future we will need to recognise the role that whānau as well as hospital and community based volunteers play and the significant role that our patients could have through increased self-care.

The DHBs are important training organisations for New Zealand’s health workforce

We contribute significantly to the training pipeline for all professional workforces for both our Region and also for the country. However, apart from the junior doctor workforce, we do not have visibility of the entire tertiary training pipeline to effectively plan for future workforce capacity and develop new skills and ways of working.

Many occupational groups require long training times. The medical workforce has the longest training time with six undergraduate years. Postgraduate training commonly takes a further 4–7 years, with those involved in dual training programmes facing longer training periods.

Most non-medical programmes for the regulated workforce take a minimum three years with some now shifting to four years. There is often a further two year investment in postgraduate education and training to secure advanced scopes of practice.

The impact on the DHBs as training organisations is enormous. In 2016 we supported an estimated 5,000 tertiary students into clinical placements across nursing and allied health and 524, pre-vocational, medical students. We also provide ‘on the job’ clinical training for a large number of our medical, nursing, allied health, scientific and technical employees.

In spite of our very significant training role, we have concerns that many of the clinical groups are not ‘work ready’ on graduation and we have a fragmented approach to the management of clinical placements. There is a need to work more closely with our tertiary education partners in the design and development of health workforce curricula to better utilise our clinical placements to ensure that we develop a work ready regulated workforce.

The DHBs make a significant contribution to New Zealand’s health research

New Zealand’s unique population and associated health inequities related to ethnicity and deprivation mean that we cannot rely on other countries to provide us with appropriate research to address challenges faced by our country. Our researchers are driving change to address inequities and contribute to the estimated five times return on investment in research to health outcomes.

There are strong connections between individual clinicians, clinician / researchers and academic researchers across the DHBs and all our universities, but in particular the University of Auckland. The University of Auckland has working relationships with all three Auckland Metro DHBs including active engagement in the Auckland Regional Tissue Bank and the Joint Health Ethics Committee, which approves research proposals that fall below the threshold for Health and Disability Ethics Committee review.

Our clinicians are encouraged to take up clinical research. Auckland DHB is the most prolific clinical research organisation in New Zealand with a current portfolio of over 1,200 active projects and between 300 and 400 new projects activated annually. Nearly every Auckland DHB service or department is involved with research. Auckland DHB has an important partnership with the University of Auckland through the Auckland Academic Health Alliance (AAHA), which lifts the capabilities of both these organisations to elevate educational and research goals.

Both Counties Manukau Health and Waitemata DHB actively participate in academic research. Counties Manukau Health also has a substantial research portfolio with 246 current active projects underway across 89 clinical areas. Counties Manukau Health is scheduled to establish an Academic Alliance in the near future.

The majority of the clinical research activity at Waitemata DHB is clinician led with an average of 60 project registrations per month and in the vicinity of 350 to 400 active research and related projects at any one time. Waitemata DHB has established a Research Precinct which co-locates the Research and Knowledge Centre, the University of Auckland and Auckland University of Technology to provide collaborative research space for staff and students.

Research initiatives enable many of our clinicians to collaborate with colleagues locally and internationally and these relationships are not only fundamental to research growth but also to ensure that we can translate robust science into patient benefit.
Our Region is growing and changing at an unprecedented rate. The demand for health care associated with our growing, ageing and changing population will quickly outstrip our ability to deliver health services under current models of care. Delivering on the Triple Aim requires a strategic shift in how we think about health care in the Northern Region. Three ‘problem statements’ summarise the key issues currently faced across the Region. These problem statements represent a compelling case for change to deliver services differently across the Northern Region. These are:

1. Health status is variable and there are significant inequities for some population groups and geographic areas as well as a large burden of ill health across the Region.
2. Health services are not sufficiently centred around the patient and their whānau, and in certain areas the quality, safety and outcomes of care are not optimal.
3. The needs of a rapidly growing, ageing and changing population cannot be met in a clinically or financially sustainable way with our current capacity and models of care.

To understand how we could address these problem statements we looked at the evidence available to support specific initiatives or changes in the way we work. This was done through five research methods:

- Identification of previous / current successful initiatives and projects across the Region.
- A literature review to examine the international evidence for change.
- Review of existing regional planning documents, including the Northern Region Health Plan and the ISSP.
- ‘Deep Dive’ studies into four key focus areas (cancer, radiology, electives and frail older people) to understand the current challenges and possible future models of care.
- Research commissioned from the Nuffield Trust to explore the international evidence to support potential reductions in demand for hospital care, and how international trends in models of care might impact our Region. Their report detailed a number of possible interventions and case studies, as well as providing recommendations on how to shape the Northern Region of the future. (The full report from the Nuffield Trust can be found in Appendix B).

This section discusses our three problem statements and how we might address these challenges based on the findings of our research. It should be noted that the evidence in a lot of places was weak, or did not specifically indicate an opportunity to reduce demand for hospital services. Thus, while we may go some way towards addressing our problem statements with the changes proposed in this NRLTIP, significant investment will still be required in the facilities, assets and resources required to deliver hospital based care for the future of the Northern Region’s population.
3.1 Problem statement 1: Health status and inequity

Key messages:

Problem statement

- Health status is variable and there are significant inequities for some population groups and geographic areas as well as a large burden of ill health across the Region.

Potential Responses

- Invest in population health approaches, particularly targeted initiatives to ameliorate risk factors and prevent disease.
- Support people to maximise their wellbeing and capacity to self-care, particularly amongst our vulnerable populations.
- Increase our investment in proactive care to avoid illness and understanding the needs of our at-risk populations and how they want to be supported, so that we most effectively target these interventions to deliver the greatest health gain.
- Work with intersectoral partners to address social determinants of health.

Health outcomes and access to healthcare vary significantly across our Region, with some groups and geographies experiencing significant inequities and ill health linked to demographic and socioeconomic factors. In particular, our Māori and Pacific populations have generally lower life expectancy, and higher instances of preventable ill health, amenable mortality and ambulatory sensitive hospitalisations.

Our first problem statement addresses this challenge and is:

Health status is variable and there are significant inequities for some population groups and geographic areas as well as a large burden of ill health across the Region

Optimising health outcomes and the quality of care in our Region will mean addressing these inequities to ensure everyone has equitable access to care and equitable health outcomes, regardless of background or where they live in the Region. Reducing inequities, maximising self-directed care and addressing preventable ill health will also help improve the value of health services because a healthier population requires less health care.

3.1.1 Potential response

The international evidence does not provide specific solutions to address the challenges faced by the Northern Region as our vulnerable populations have unique cultural and social needs, distinct to those in other parts of the world. We have however, identified some areas where we believe there is a good case for investment. Co-designing with our population will be an important part of future change that will improve health outcomes.

Focus on population health interventions, particularly those which address risk factors and prevent disease

Evidence suggests focusing on reducing the impact that known modifiable risk factors, including smoking, obesity and hazardous use of alcohol, have on the health of Māori, Pacific and other priority populations. To deliver better outcomes we need to increase our investment in prevention, chronic disease management and early intervention.

A greater focus on planned, proactive care, particularly in the management of long term conditions will support better health outcomes and will potentially help to manage demand for hospital services. Intended areas of focus are summarised overleaf.
Table 17: Proposed public health interventions

<table>
<thead>
<tr>
<th>Area of Focus</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Lifestyles</td>
<td>Work with Māori, Pacific and vulnerable populations on interventions that enable them to be smoke free, physically active, consume nutritious diets, and reduce alcohol related harm, as well as addressing the environmental determinants of healthy lifestyles. This will require us to better understand our communities and patients, and how they believe we can best support them to improve their health outcomes.</td>
</tr>
<tr>
<td>Screening</td>
<td>Increase the uptake of bowel, breast, and cervical screening programmes and implement abdominal aortic aneurysm (AAA) screening.</td>
</tr>
<tr>
<td>Chronic Disease Management</td>
<td>Implement systems to support early identification and planned proactive management of cardiovascular disease, cancer, respiratory disease and other long term conditions.</td>
</tr>
</tbody>
</table>

Based on evidence from the Nuffield Trust, some population health interventions such as facilitating the reduction of excessive alcohol consumption can have a comparatively short term payback, while others such as supporting people to reduce unhealthy food consumption and enabling their children to achieve a healthy weight will have much longer time lags before health outcomes improve.

Table 18: Evidence based public health interventions

<table>
<thead>
<tr>
<th>Public Health Interventions</th>
<th>Evidence Quality</th>
<th>Cost Saving</th>
<th>Time frame</th>
<th>Impact on hospital activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce excessive alcohol consumption</td>
<td>Limited/Mixed</td>
<td>Moderate potential cost saving</td>
<td>12-24 months</td>
<td>Moderate</td>
</tr>
<tr>
<td>Child wellbeing in deprived areas</td>
<td>Good</td>
<td>Large potential cost saving</td>
<td>20 years</td>
<td>Small-moderate</td>
</tr>
<tr>
<td>Prevention of childhood obesity</td>
<td>N/A</td>
<td>Some potential cost saving</td>
<td>N/A</td>
<td>Moderate</td>
</tr>
<tr>
<td>Diabetes prevention (primary and secondary)</td>
<td>Good</td>
<td>Moderate potential cost saving</td>
<td>N/A</td>
<td>Moderate</td>
</tr>
<tr>
<td>Reduce consumption of unhealthy food and beverages (legislative)</td>
<td>Limited/Mixed</td>
<td>Large potential cost saving</td>
<td>10 years</td>
<td>Moderate</td>
</tr>
<tr>
<td>Immunisation against communicable disease</td>
<td>Good</td>
<td>Large potential cost saving</td>
<td>33 years</td>
<td>Small-moderate</td>
</tr>
</tbody>
</table>

We will invest regionally in capacity that aligns with national interventions such as the bowel screening roll out, cervical screening and breast screening, and will work with national agencies to help deliver successful local programmes. We will also evaluate the evidence for additional local investments. To improve outcomes for our vulnerable populations, we will focus on those groups for whom benefit is likely to be greatest, in combination with targeted interventions co-designed with the communities of interest.

**Empowering patients and whānau through prevention, wellness and self-care**

Empowering our patients or ‘activating’ them, means providing our population with the knowledge, skills and confidence to manage their own health and health care. Self-directed care means providing people with the support they determine they need in order to achieve their desired health outcomes. Evidence shows ‘activated’ patients are better at staying healthy, seeking help when they need it and following guidance from their care teams. Supporting our vulnerable populations and empowering them to determine and drive their own health outcomes will help reduce inequities in a health system which has historically underserved these populations.

Support for self-care can involve education, psychological strategies, help in adherence to treatments, practical support and social support. Self-directed care could include individual budgets, open access appointments and service results being delivered in different ways to meet the needs of local communities. Self-care in long-term conditions has been shown to reduce ED and follow up attendances, in particular for adults with COPD and asthma, and possibly heart failure. Self-management support is associated with a small significant improvement in quality of life and significant reductions in healthcare...
Targeting proactive care to avoid illness and understand the needs of our at-risk populations

Alongside patient activation and self-directed care efforts, the Nuffield Trust also suggests a shift towards ‘proactive care’, supported by extensive use of digital technology including predictive analytics. This would help us understand the needs of our vulnerable populations and target evidence based interventions to help them before they develop illness or require acute care.

This can range from work we are already doing in the Region around falls prevention with our older patients, through to cutting edge technology-driven prevention such as home-based vital sign monitoring. It also involves understanding both the physical and mental health of our population, to predict when they may face health problems, and intervene early.

Targeted, co-designed care has also shown that by adapting our interventions to suit the needs and wishes of specific groups, we can increase the engagement of vulnerable populations. This means ensuring that health care services meet both the health and cultural needs and wishes of the population group.

This will require us to engage with Mana Whenua and other appropriate representatives when planning, developing and evaluating services. By collaborating with these representatives we would better understand how the health system can best serve all parts of our population and therefore improve our ability to proactively engage with them. This is further discussed in the following section.

Addressing the social determinants of health

Many of the determinants of health including education, employment, income, housing, transport etc are outside the direct control of the health sector. There are, however, a range of actions DHBs can take to address these determinants as shown in the table below.

Table 19: Action to address the social determinants of health

<table>
<thead>
<tr>
<th>Area of Focus</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter sectoral collaboration</td>
<td>Build relationships and referral pathways with non-health services to better understand our communities and patients, and achieve shared holistic health goals.</td>
</tr>
<tr>
<td>Advocate, where appropriate, on key upstream drivers of inequity</td>
<td>Advocate to central and local government for effective measures that address the drivers of inequity both within and outside the health sector.</td>
</tr>
<tr>
<td>Design and provision of services to meet the needs of the least well off</td>
<td>Designing and providing health services to ensure that they work at least as well for people who do not have a high income, do not have high levels of education, who are unemployed, or who live in highly deprived and stressful circumstances..</td>
</tr>
<tr>
<td>Supporting the education, income and wellbeing of its workforce and of staff</td>
<td>As a major employer and purchaser of services, DHBs also have opportunities to support the education, income and wellbeing of its staff and those employed in DHB contracted services. There could be specific opportunities to pursue this as part of the capital programme set out in the LTIP.</td>
</tr>
</tbody>
</table>

Relationships and initiatives are in place across the Region that can be built on and developed to achieve this. A number of social investment programmes, for example, are underway across the region that will provide valuable experience and infrastructure for further developments in this area.
3.2 Problem statement 2: Patient centricity and outcomes

Key messages:

Problem statement

- Health services are not sufficiently centred around the patient and their whānau, and in certain areas the quality, safety and outcomes of care are not optimal.

Potential responses

- Co-designing solutions with our populations will improve patient centricity and increase the uptake of interventions aimed at improving equity of access to health care.
- Collaborating and communicating across all care settings in the Region to work as an integrated network of care will better focus care around the patient.
- Standardising care pathways will reduce variation in health outcomes and resulting inequities.
- Developing a more integrated primary, community and social care system that collectively places a greater emphasis on proactively preventing and managing the impact of long-term conditions, will achieve outcomes, particularly amongst Māori and other vulnerable populations.

Care should be more patient-centric for better quality, safety and health outcomes

Historically, structural and geographic challenges have presented obstacles to how DHBs provide care for their patients and integrate services across care settings. Our DHB boundaries create artificial barriers that lead to inefficiencies as services and funding are duplicated across the Region.

Noting that our populations require more than just hospital services, the DHBs have funded primary and community care providers to deliver community based services to the catchment areas. Current funding models are not well aligned to support integration between the primary / community care provider and the hospital. A further challenge faced by primary care is that many of the GPs in the Region operate in small practices which cannot make the capital investments required to expand capacity or adopt new technologies or ways of working.

Historically, we have not supported our populations well to enable people to maximise their health outcomes through self-care. Learning from this, we have realised that a ‘one size fits all’ approach does not meet the diverse cultural, social and economic needs of our population. We must understand the context within which people are dealing with health issues to enable optimal health gain.

In addition to this, how patients rate their care experience, and the quality and safety of care in our Region is variable. There is room to improve both how and what we measure. For example, cancer survival rates vary from 61% to 69% and hospital standardised mortality ratios range from 0.72 to 1.03 compared to the national average of 0.87. While information available suggests that outcomes and experiences of care in the Northern Region are positive, there is scope to improve both the delivery of care as well as how we measure outcomes and patient experience.

While health outcomes are improving in general, and we are living longer, we are also spending more time in ill health. Our life expectancy is increasing faster than health expectancy, or the amount of time we can expect to live in good health. As a result, only 70-80% of the total life years gained are spent in good health, with the remainder being spent living with one or more chronic conditions. This results in poorer health outcomes for older people, and increased demand for health services to provide care for their conditions.

This leads to our second problem statement which addresses this challenge:

*Health services are not sufficiently centred around the patient and their whānau, and in certain areas the quality, safety and outcomes of care are not optimal*
3.2.1 Potential responses

Co-design services with the impacted populations

If we are to meet the needs of our vulnerable populations and address these inequalities, the evidence suggests we should co-design services and solutions alongside our vulnerable populations to ensure changes in care provision meet their unique health and cultural needs. We need a profound understanding of how people view their health and want to be supported, and we need the courage to allow patients to determine the model of care best for them. The Nuffield Trust evidence stated that where interventions are co-designed with the population of interest, there is generally increased ‘reach’ and acceptability of the intervention and therefore likelihood of success. This approach fits well with our vision of a patient-centred system (for consistency) of care and is of particular importance to meet the needs of our Māori and Pacific populations, who currently experience inequities in health outcomes across the board.

To co-design with Māori in the future we should look at how we can partner with local iwi to co-design interventions. Our interventions will need to combine Te Ao Māori (a Māori world view) and tikanga Māori (Māori protocols and customs) with western understandings of medicine and wellbeing as a means of developing culturally appropriate programmes. We can learn from existing examples of this type of partnership planning already underway within the Region.

Increasing communication, collaboration and coordination across the health system

The Deep Dives identified a need to commission services for our whole population and to work across traditional DHB boundaries, invest across the health system, and increase coordination of care. This was echoed by the Nuffield Trust’s evidence which suggested a shift towards networked models of care. In a network, all players within the health care system connect with each other, working across boundaries and borders to deliver optimal outcomes that patients want, and to improve access, equity and outcomes of health care. The Nuffield report describes how care is shifting away from its traditional hospital focus:

“No hospital is an island. Hospitals are part of an interconnected web of care stretching from the patient’s home to the most specialist tertiary-level service. Clinical networks and new technologies offer opportunities to strengthen that web and deliver more co-ordinated care, but those planning services need to look across that web to ensure the most efficient distribution of services, to remove duplication, and to ensure that patients receive the right care, in the right location, at the right time.”

Networked care means improving communication and collaboration within our system. The boundaries between primary, community and hospital based care would become increasingly blurred to ensure patients receive care in the setting they feel is most appropriate. It also provides opportunities to reduce unnecessary duplication in the system, consolidating certain services to improve quality, safety and outcomes of care. Further information on this can be found in the Nuffield Report in Appendix B.
Standardised care pathways to reduce the variability of care

We are aware that we have some quite significant variations in access to care and outcomes of care regionally. The Electives Deep Dive identified some significantly different intervention rates for several elective procedures as set out below.

### Table 20: Standardised intervention ratios for a range of surgical procedures by DHB, 2016/17

<table>
<thead>
<tr>
<th>Surgical Procedure</th>
<th>NDHB</th>
<th>WDHB</th>
<th>ADHB</th>
<th>CMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary artery bypass grafts (CABG)</td>
<td>1.34</td>
<td>1.02</td>
<td>0.78</td>
<td>0.86</td>
</tr>
<tr>
<td>Angioplasties</td>
<td>1.21</td>
<td>1.25</td>
<td>0.9</td>
<td>0.85</td>
</tr>
<tr>
<td>Heart valve replacements and repair</td>
<td>1.67</td>
<td>0.98</td>
<td>0.94</td>
<td>0.94</td>
</tr>
<tr>
<td>Total hip replacement</td>
<td>1.16</td>
<td>0.99</td>
<td>0.5</td>
<td>0.84</td>
</tr>
<tr>
<td>Total knee replacement</td>
<td>1.23</td>
<td>1.28</td>
<td>0.81</td>
<td>1.04</td>
</tr>
<tr>
<td>Prostatectomies</td>
<td>1.16</td>
<td>0.83</td>
<td>0.83</td>
<td>1.15</td>
</tr>
<tr>
<td>Cataracts</td>
<td>0.94</td>
<td>1.14</td>
<td>1.11</td>
<td>1.00</td>
</tr>
<tr>
<td>Repairs of hernia</td>
<td>0.97</td>
<td>0.98</td>
<td>0.75</td>
<td>0.89</td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>0.76</td>
<td>0.96</td>
<td>0.7</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Key:** Dark Blue = Greatest opportunity for improvement, Light Blue = Lesser opportunity for improvement.

Standardised intervention rates provide one indication of service provision relative to need. The above table suggests variation and potential inconsistencies in our service delivery. To address this issue we need a better understanding of how need varies across our Region, recognising that there may be a good reason why DHBs have different intervention rates, and not all DHBs populations will be expected to have the same needs. Different patients will place different value on different interventions. Aligning service delivery to those patient expectations is paramount.

The Elective Deep Dive also highlighted variability across service measures. For example, average length of stay for hip and knee procedures ranges from 2.9 days to 5.4 days between different sites. Some of this variability appears to remain even after allowing for case mix.

We expect high quality and consistent delivery of care in all settings. Including:

- Standardising clinical and non-clinical systems and processes
- Determining appropriate standardised intervention ratios for key interventions and procedures based on
  - An understanding of their contribution to health gain
  - The variability between DHBs
  - Patient reported outcome measures (PROMs)
- Applying common referral and triage processes
- Using consistent prioritisation tools across services
- Applying minimum quality standards across providers.

The Cancer Deep Dive highlighted that our DHBs do not have consistent approaches to funding consumables, which a number of patients will require post operatively for the rest of their lives. Variations in access will be reviewed to determine if there is a case for change which may mean changing the threshold for access either upwards or downwards to meet our regional goal of comparable service and access regionally, regardless of where patients present in the health system. This will result in patients having more equitable access to high quality care, which will increase the value of the services we provide.

The Cancer and Electives Deep Dives also both identified opportunities to ensure quality standards and adherence to best practice across the Region through the standardisation of care. One example highlighted in the Electives Deep Dive is the variance in average length of stay for patients needing non-

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complex hip replacements. This varies from 2.8 days to 6.0 days between different sites in the Region. This level of variance suggests that standardisation may help us to better support our patients during their care pathways by ensuring they are receiving the best care possible. This will also release capacity if we can reduce length of stay at certain sites while supporting our patients to recover outside of hospital settings.

There is evidence internationally, particularly in the delivery of cancer care, that outcomes are improved where standards are set for the full pathway of services and providers are accredited against these standards. For some services, we may move to a model where we accredit care providers who demonstrate their ability to meet all elements of service delivery for the population they are serving, including any minimum thresholds included in standards.

In standardising the care we offer our patients, we must acknowledge that, due to the geography of the Region, the model of delivery for some elements of care may differ between different regions or DHBs. What works in one location may not be applicable or optimal for the population or services in another location.

**Develop an integrated care system that focuses on proactively preventing and managing the impact of long term conditions**

There are a number of initiatives attempting to do this underway in the Region. Northland DHB has led local innovation to improve access to care across their dispersed population through the Neighbourhood Healthcare Homes initiative. This initiative sees Northland DHB collaborating with local PHOs to keep people healthier for longer and impact the future demand for acute services. The model is defined as:

“A team based healthcare delivery model led by primary care clinicians that provides comprehensive and continuous health and social care with the goal of supporting individuals to obtain maximised, equitable health outcomes”

Northland DHB anticipates improvements in the areas of:

- Timely acute and unplanned care for patients
- Proactive care for high needs patients
- Excellent routine and preventative care
- Improved business efficiency.

Another model of community based management of care is the Patient Centred Medical Home model which has been adopted in several jurisdictions internationally and has been adopted in some practices regionally. Key aspects of this model are:

- Every patient has an on-going relationship with a GP who is supported by a multidisciplinary team. The key GP contact takes a holistic approach to care and organises care with other professionals as needed
- Care is coordinated or integrated across all domains of the healthcare system
- Clinical excellence is enhanced by integration of information technology into medical practice and tracking of quality measures
- Patients actively participate in decision-making
- Emphasis on population health and the particular needs of the local population.

This model is sometimes applied to a whole population and in other instances for a stratified population. For example:

- Iora Health is an American model of wrap-around, primary care service for elderly patients. It is based on multidisciplinary team-based care that works collaboratively to treat the whole patient. Each patient also has their own advocate and care is coordinated across the whole system. Each primary care physician is supported by a large number of non-medical staff including people recruited from the local community. This enables them to have comparatively large lists or panels of patients per doctor.
- Nuka system of care serves 60,000 Alaska Native and American Indian people in Southcentral Alaska. This system works with multidisciplinary teams who take an holistic approach to care, focus on engaging with patients and strive to meet the needs of the local population. The Nuka
model looks beyond the health needs of the population to initiate broader community and wellbeing education programmes which address domestic violence, abuse and neglect.

3.3 Problem statement 3: Demand growth

Key messages:

Problem statement

- The needs of a rapidly growing, ageing and changing population cannot be met in a clinically or financially sustainable way with our current capacity and models of care.
  - Increased demand across the Region will be felt differently by different services, which requires us to plan and prepare accordingly.
  - Our current facilities will be unable to adequately meet the needs of our regional population in the future and we must therefore consider where and how we will grow further capacity.
  - Historic funding growth for healthcare may not continue in the future and will not meet growing demand, requiring us to think differently about how we spend and invest.

Potential Responses

- Balancing care across primary, community and hospital settings will help us improve health outcomes, reduce inequities through better access to care and reduce the demand on our acute sites.
- Investment in intermediate and home based care will allow us to support non-acute patients outside of hospital settings; ensuring care is delivered in the most clinically appropriate setting and reducing the demand on our acute sites.
- Technology offers us the opportunity to improve communication and collaboration across care settings as well as improving the efficiency and effectiveness of our services.

Current models of care are not clinically or financially sustainable

Our current facilities are already pressed to meet demand. This issue will be compounded as our population not only grows but ages. The changing demographic mix and growing burden of disease will put increasing demands on our health services. This growth presents a challenge for our current facilities and models of care to serve the health needs of the Northern Region’s population in the future.

Table 21: Projected demand increases

<table>
<thead>
<tr>
<th>Growth area</th>
<th>Anticipated increase in demand by 2036/37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modelled beds at main sites (Medical / Surgical / AT&amp;R)</td>
<td>+1,772</td>
</tr>
<tr>
<td>Modelled beds at main sites (other services)</td>
<td>+128</td>
</tr>
<tr>
<td>Modelled beds at ‘other’ sites (all services)</td>
<td>+155</td>
</tr>
<tr>
<td>Theatres</td>
<td>+41 theatres</td>
</tr>
<tr>
<td>Outpatient attendances</td>
<td>+1.1 million attendances</td>
</tr>
<tr>
<td>GP consults</td>
<td>+2.2 million consults</td>
</tr>
</tbody>
</table>

If we assume current levels of activity and our existing rate of change, the Region will require significant investment to develop the necessary capacity for the expected population growth over the next 20 years. This is illustrated in the table overleaf:
The areas where we are expecting greatest growth is in medical, surgical and AT&R services. As a Region we already have insufficient beds on our acute sites to meet this demand. While there may be ‘surplus’ beds on other sites, or in services such as paediatrics, these are not suitable for adult acute medical and surgical services. Unless we are successful at mitigating demand in the future, our shortfall will have grown to 374 beds within five years and nearly 1,800 beds within 20 years.

These challenges are summarised by our third problem statement:

*The needs of a rapidly growing, ageing and changing population cannot be met in a clinically or financially sustainable way with our current capacity and models of care*

**Demand growth will be different across each of our services**

The growth expected in the future will not be uniform, and different services and demographics will require the bulk of these additional beds. Of the projected 2,055 additional modelled beds required by 2036/37:

- 67% will be for acute presentations
- 79% will be required by patients over 65 of age
- 72% of the additional beds will be for five core specialties.

The projected bed requirement of 2,055 represents the increase in modelled beds from 2016/17 to 2036/37 across all bed categories and all sites. The total modelled number for all main acute sites is 1,900. For the main acute sites this equates to a deficit of 1,800 physical beds when compared with current physical beds.

The following table shows how bed demand is split between these five core specialities, and the other specialities which make up the remaining 30% of total demand.

<table>
<thead>
<tr>
<th>Northern Region Main facilities</th>
<th>Physical beds</th>
<th>Modelled beds</th>
<th>Surplus / Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland DHB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whangarei Hospital</td>
<td>179</td>
<td>174</td>
<td>5 S</td>
</tr>
<tr>
<td>Waitemata DHB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Shore Hospital</td>
<td>548</td>
<td>564</td>
<td>16 D</td>
</tr>
<tr>
<td>Waitakere Hospital</td>
<td>159</td>
<td>154</td>
<td>5 S</td>
</tr>
<tr>
<td>Auckland DHB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Auckland Hospitals</em></td>
<td>803</td>
<td>786</td>
<td>37 S</td>
</tr>
<tr>
<td>Counties Manukau DHB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middlemore Hospital</td>
<td>620</td>
<td>655</td>
<td>35 D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical beds</td>
<td>2,309</td>
<td>2,314</td>
<td>5 D</td>
<td>374 D</td>
<td>800 D</td>
</tr>
</tbody>
</table>

---

22 This analysis assumes the occupancy rate is 90% for most services and all physical beds are resourced. All year round, DHBs are flexing resourcing on a daily basis. Currently we are addressing the ‘shortfall’ by running at higher occupancy rates and utilising capacity such as acute assessment units, discharge lounges to supplement the physical bed stock.

23 While there is currently an overall bed surplus, it does not always offset the deficit as the beds available might not suit the purpose required. As an example, at Middlemore Hospital, the deficit in medical, surgical and AT&R is 57 beds currently but can be offset by surplus in other services e.g. mental health, neonates, paediatrics and women’s (52).

24 Note the total bed deficit is different to the overall demand increase as it takes into account the additional capacity already planned in the Northern Region.

25 * Auckland Hospitals include Auckland City Hospital, Greenlane Clinical Centre, Starship Children’s Health, , National Women’s Health, and RehabPlus as data does not separate activities by the specific facilities.
Table 22: Projected growth requirements for 2035/36 based on modelled beds

<table>
<thead>
<tr>
<th>Service</th>
<th>Total additional beds</th>
<th>Number from Acute admissions</th>
<th>Percentage from Acute admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Medicine</td>
<td>708</td>
<td>685</td>
<td>97%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>67</td>
<td>55</td>
<td>83%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>190</td>
<td>151</td>
<td>79%</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>174</td>
<td>129</td>
<td>74%</td>
</tr>
<tr>
<td>AT&amp;R Geriatric Active Rehab</td>
<td>333</td>
<td>14</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1,471</strong></td>
<td><strong>1,035</strong></td>
<td><strong>70%</strong></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Medical Others</td>
<td>150</td>
<td>132</td>
<td>88%</td>
</tr>
<tr>
<td>Adult Surgical Others</td>
<td>135</td>
<td>76</td>
<td>56%</td>
</tr>
<tr>
<td>AT&amp;R Others*</td>
<td>90</td>
<td>17</td>
<td>19%</td>
</tr>
<tr>
<td>Mental Health**</td>
<td>122</td>
<td>83</td>
<td>68%</td>
</tr>
<tr>
<td>Neonates</td>
<td>16</td>
<td>8</td>
<td>46%</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>30</td>
<td>23</td>
<td>77%</td>
</tr>
<tr>
<td>Women's</td>
<td>40</td>
<td>11</td>
<td>26%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>584</strong></td>
<td><strong>349</strong></td>
<td><strong>60%</strong></td>
</tr>
<tr>
<td><strong>Total increase</strong></td>
<td><strong>2,055</strong></td>
<td><strong>1,384</strong></td>
<td><strong>67%</strong></td>
</tr>
</tbody>
</table>

* AT&R Others includes physical disability and psychogeriatric AT&R
** Mental Health includes 32 additional beds for Forensic Services at Waitemata

Further details about our bed modelling are provided in Appendix D.

Geospatial analysis highlights the challenges we face in serving our entire geographic catchment

A catchment analysis was completed by mapping spatial accessibility of geographical areas (demand) to the current main facilities in the Northern Region (capacity). This mapping highlights the catchments that our current facilities would and would not be able to serve in the future, and therefore potential future gaps in access to care.26

The following figures highlight the areas served by our current capacity (light blue) and the projected area that our current capacity mix would be able to serve in 10 and 20 years’ time (green and dark blue respectively). In 20 years, the existing bed capacity in Northland will only be able to meet 55% of the expected bed demand for medical, surgical and AT&R beds. This leaves approximately 87,000 people not being served. In Metro Auckland, the existing capacity will only be able to meet 57% of the expected demand for medical, surgical and AT&R beds, equating to approximately 852,000 people not being served.

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26 Note we have used ‘beds’ as a proxy for overall demand and access to care, assuming a correlation in the availability of hospital beds with other facilities and services.
The mapping process oversimplifies the complex demand-capacity relationship at a pure facility view, due to the impact of any regional / national service mix provided. This is particularly relevant for Auckland City Hospital. However, the catchment gap view for the overall Auckland Metro Region averages out this facility specific variations, given the close proximity of the Metro facilities.

Further detail on the bed modelling and population growth projections can be found in Appendices C, D and E.

**We will need to invest in additional acute site(s) to best meet our future population and demand growth**

Our current sites have served our historic population well, but when we look out 20 years and beyond, it will be challenging to serve the growing population from our current sites.

There is physical space on our major acute sites in Whangarei Hospital, North Shore Hospital, Auckland City Hospital and Middlemore Hospital to expand our footprint further. However there is no spare capacity to relocate services on a temporary basis, and it would be challenging to continue to deliver services while construction activities are in progress.

Given the infrastructure that is already in place at the Waitakere site, it makes sense to grow this acute site to be a full district hospital.

Other sites that have considerable spare land are:
• The Manukau site – this site is within 8 kilometres or 15 minutes of Middlemore Hospital and as such is not ideally located as a future acute site. It makes sense to continue to expand ambulatory and planned activity on this site.

• Greenlane Clinical Centre – this site is within 5 kilometres or 10 to 20 minutes of Auckland City Hospital and 22 kilometres or 20 to 60 minutes of Waitakere Hospital. Given this proximity, it is also not ideally located for another acute site. Again it makes sense to leverage the current infrastructure which is geared to deliver ambulatory services. There is a small volume of acute ophthalmology patients admitted as inpatients on this site. With this exception the site provides ambulatory services.

There is large population growth occurring both north and south of Metro Auckland as well as in the north of the Waikato and Midlands. These future populations will be best served by additional sites to the north and south of the City if we require a stepped increase in capacity. While it may be feasible to stretch our current sites to accommodate the anticipated 20 years demand growth, this cannot continue indefinitely. Access to existing sites will become increasingly challenging as population density increases and travel congestion worsens. The question is therefore, not if we need a new site in the north and south, but rather one of when these sites will be needed. Our modelling suggests that one additional site will be required within 10–15 years’ time and a second additional site within 20-25 years’ time.

3.3.1 Potential responses

Balancing care across all settings

A common theme emerging from our Deep Dives and the Nuffield Trust was the need for investments to be balanced across the health system, not solely focused on hospital improvements and capacity. Investments should be balanced across public health, community and primary care, and hospital based services, including investments in:

• Cost-effective public health interventions
• Primary and community based services
• Different types of hospital based services
• Increased productivity across the whole system.

From a community perspective, the Nuffield Trust evidence demonstrates how new ways of working in primary and community care offer opportunities to curb the growth of activity in hospitals and other high cost per unit settings. While these interventions may not necessarily result in cost savings themselves, they would allow us to release hospital capacity to meet growing demand for acute services.

<table>
<thead>
<tr>
<th>Community interventions</th>
<th>Evidence Quality</th>
<th>Cost saving</th>
<th>Impact on Hospital Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved GP access to specialists including e-communication</td>
<td>Good</td>
<td>Good</td>
<td>Moderate</td>
</tr>
<tr>
<td>Remote monitoring for certain long-term conditions</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Condition specific rehabilitation</td>
<td>Good</td>
<td>Good</td>
<td>Moderate</td>
</tr>
<tr>
<td>End-of-life care in the community</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Rapid access clinics for urgent specialist assessment</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Support for self-care for specific conditions</td>
<td>Good</td>
<td>Good</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ambulance / paramedic triage to community</td>
<td>Limited/Mixed</td>
<td>Good</td>
<td>Moderate</td>
</tr>
<tr>
<td>Support to people in nursing / care homes</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Extensivist model for high risk patients</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Systematic Secondary Prevention</td>
<td>Good</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

The report identifies the challenges associated with delivering community based initiatives, including a need for expanded capacity and capability in primary and community care. We need to ensure we have a
workforce with the size and skills to take on the additional responsibility and demand associated with a shift in care to the community.

While hospitals will continue to play a crucial role in the delivery of highly specialised and urgent care, we can increase the range of services provided outside of our acute hospitals to reduce demand placed on acute facilities.

This will require us to invest in:

- Community sites and enabling infrastructure
- Model of care changes in parallel across the whole system
- Capacity to manage change
- Workforce capacity and capabilities
- New digital technologies.

By investing in this way, we can improve how we provide healthcare to people with long term, chronic conditions and who are frail. We can also improve equity of access across the Region, enhance the healthcare experience for patients, and reduce the demand placed on our acute facilities.

The Electives Deep Dive highlighted that streaming elective surgeries and procedures to focused elective surgery centres can improve overall efficiency and patient outcomes. High volume, low complexity procedures are amenable to this shift. There are also opportunities to undertake activity such as skin lesions in primary care. We may also consider how we can release capacity on our acute sites through outsourcing arrangements.

Increasing our investment in intermediate care settings

Supporting our need to balance care across all settings is the opportunity to improve the patient experience and health outcomes of our older populations by enabling them to be cared for outside of acute settings and within their community.

An extended hospital stay can do as much harm as good for an older patient, and there is an imperative to maximise the benefits of an admission while avoiding the risks of deconditioning and other iatrogenic illness. Our system should be designed to provide hospital care where specialty inpatient services are necessary, and reduce admissions and length of stay where appropriate. To reduce length of stay we need to provide options for enhanced care in a community setting that includes access to specialised health expertise. Providing care in a community setting will require us to support patients in intermediate care settings as well as home based care. Supporting home based care will require us to consider how we can enable the workforce to be mobile and connected with the necessary expertise. We will also work with partners to provide support in a range of residential settings.

As older people are anticipated to fill eight out of every 10 additional hospital beds required in 2036/37, shifting even a portion of them into the community can release much needed capacity in our acute settings. It will also likely result in improved patient outcomes, with reduced deconditioning associated with time spent in hospital.

Extending service delivery across settings locations and times

We have traditionally provided the majority of our services in ‘business hours’ which can adversely impact our patients’ ability to access care. By extending service hours and moving towards a 24/7 model of care delivery, we may be able to maximise outcomes, access to care and the utilisation of expensive clinical equipment.

We will make care available across a range of settings, locations and times of the day and week including in people’s homes, online and in community settings. This will enable patients who have found the way we provide services difficult to connect to, or who require increased support, to receive care appropriate to their wishes as and when required. To support the increase in the range of settings, and times that people receive care, whole system integration will need to improve to ensure patients can seamlessly transfer between settings.
Technology investment to improve care across all settings

Overall, digital technologies offer significant opportunities to improve the quality and efficiency of health services. In primary care, electronic health records and data sharing support integrated multi-disciplinary teams, improve the referrals process, enhance patient experience and support population health improvement efforts and proactive intervention.

In hospitals, technology supports reduced variation, improved patient flow and more efficient resource management. This involves making the best use of electronic health records, clinical decision support tools and enterprise resource planning technologies. Improved data collection, management and analysis will also foster a culture of continuous learning and improvement across the system. The dramatic advance of medical technology and technological capability such as artificial intelligence and machine learning offer considerable potential to improve the efficiency and effectiveness of health services.

Outside of hospitals, technology can enable us to engage with hard to reach populations through the use of telehealth. It supports our workforce to operate outside of traditional care settings and to better support our patients in getting well and staying well.

The Nuffield Trust notes that it is very easy to get digitisation wrong. It takes time, resource and effective leadership; in most cases productivity will go down before it goes up. There is also the potential to create additional demand, as previously underserved parts of our population take advantage of improved access to care.

3.4 Bending the demand curve

Key messages:

- Modelling was completed to identify how our bed growth might change depending on the success of our interventions.
- There is little evidence to support the direct modelling of these interventions on bed demand. A pragmatic evaluation of their potential to impact demand has been made by developing a set of scenarios that provide us with five potential growth scenarios ranging from a bed requirement of 1,200 beds to 2,055 beds.
- Based on advice from the Nuffield Trust and consultation with key regional stakeholders, this NRLTIP is planning for the mid-point of 1,600 beds, assuming that our interventions have a moderate impact on the future demand on hospital beds.

Through population health initiatives, we are planning to bend our demand curve to result in a need for 1,600 additional beds by 2036/37

To date, we have successfully managed to change our model of care to keep up with demand. However, as depicted in this case for change, we are going to struggle to meet the rapidly growing demand for our services based on our current ways of working.

We know that if nothing changes in our current models of care we will need:

<table>
<thead>
<tr>
<th>Growth area</th>
<th>Anticipated increase in demand by 2036/37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital beds</td>
<td>+2,055 beds</td>
</tr>
<tr>
<td>Theatres</td>
<td>+41 theatres</td>
</tr>
<tr>
<td>Outpatient attendances</td>
<td>+1.1 million attendances</td>
</tr>
<tr>
<td>GP consults</td>
<td>+2.2 million consults</td>
</tr>
</tbody>
</table>
Knowing that we cannot financially or clinically sustain this growth, we looked at the impact on future demand based on our research findings. The research findings promoted initiatives that increase the health and wellbeing of our population, streamed patients to alternative care settings, and optimised the operations of our major hospitals.

Modelling was completed to identify how our bed growth might change depending on the success of our interventions. A pragmatic evaluation of their potential to impact demand has been made by developing a set of scenarios that describe the combined impact of changes on the following variables:

- **Health improvement in people aged 65-85 years** - Two sensitivities are tested, a 2.5 year gain in life expectancy in the 65–85 year age group and a 5 year gain in life expectancy.

- **Average Length of Stay (ALOS)** – a simple approach has been adopted which tests the impact of reducing all lengths of stay by 0.25 days.

- **Reduction in Admissions** – a simple approach has been adopted which tests the impact of reducing our admission rates by 2.5% and 5.0% from the forecast growth of 2.1% per annum, which is included in our baseline modelling (demographic).

- **The percentile of occupied beds** – this represents the percentage of time when the modelled beds will be able to meet the demand. At the modelled occupancy (i.e. 90% for Medical / Surgical / AT&R), this equates to 95\textsuperscript{th} percentile, i.e. the modelled beds will be able to meet the demand for 95% of the time, leaving the potential risk of 11 days where the demand might exceed the modelled beds. Flexing this will impact the likely days per annum that DHBs would not have sufficient physical beds to meet demand based on current daily and seasonal patterns.

It was assumed that the impact of these variables would not be realised until after five years, due to the fact that many of these initiatives require a change of behaviour for clinicians, patients and communities.

<table>
<thead>
<tr>
<th>Growth Scenario</th>
<th>Occupancy</th>
<th>Health Gain</th>
<th>ALOS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>At current activity</td>
<td>95\textsuperscript{th}</td>
<td>N/A</td>
<td>N/A</td>
<td>Status quo based on current utilisation and configuration. Current percentile of occupied beds (11 days breach)</td>
</tr>
<tr>
<td>Mid-high</td>
<td>95\textsuperscript{th}</td>
<td>2.5 years</td>
<td>N/A</td>
<td>Status quo on percentile of occupied beds (11 days breach) Health gain in people aged 65+ by 2.5 years</td>
</tr>
<tr>
<td>Mid</td>
<td>90\textsuperscript{th}</td>
<td>N/A</td>
<td>0.25 days</td>
<td>Decrease of percentile of occupied beds (37 days breach) Reduction in ALOS by 0.25 days</td>
</tr>
<tr>
<td>Mid-low</td>
<td>90\textsuperscript{th}</td>
<td>2.5 years</td>
<td>N/A</td>
<td>Decrease of percentile of occupied beds (37 days breach) Health gain in people aged 65+ by 2.5 years</td>
</tr>
<tr>
<td>Low</td>
<td>90\textsuperscript{th}</td>
<td>2.5/5 years</td>
<td>N/A</td>
<td>Decrease of percentile of occupied beds (37 days breach) Health gain in people aged 65+ by 2.5 years for first five years then increased to health improvement by 5 years by the end of 20 years</td>
</tr>
</tbody>
</table>
This analysis depicts a range of bed demand projections from around 1,200 beds up to the high projection of 2,055 beds. Based on advice from the Nuffield Trust and consultation with key regional stakeholders, this NRLTIP is planning for the mid-point of 1,600 beds, assuming that our interventions have a moderate impact on the future demand on hospital beds. We will be constantly reviewing the impact of our interventions and population growth information to enable us to adjust course and provide the full 2,055 if our initiatives are not having the expected impact.

While this iteration of the NRLTIP has completed substantial analysis on future bed requirements, further more detailed analysis will be completed on the likely growth rates of different types of beds to ensure that we have accurately estimated future requirements and a reasonable range of beds for us to plan for moving forward. This analysis will be completed in preparation for and to inform future iterations of the NRLTIP.

3.5 Strategic responses and business objectives

Key messages:

- We have agreed to a set of strategic responses to our problem statements, as well as several business objectives to articulate how each of these responses will apply to our ways of working.
- These all tie into the overarching investment logic map which has guided the development of this NRLTIP.
- The strategic responses identify how we want to improve the delivery of care within the Region and deliver on the Triple Aim.
- Our business objectives will help guide planners in determining what investments will be prioritised by the Region in alignment with these responses.

27 Modelling has been applied to both anticipated growth and current baseline.
Informed by our research, international evidence and discussions with key stakeholders across the Region, a set of strategic responses, with associated business objectives have been developed to address our problem statements and guide investment decisions.

These will act as shapes to guide our regional direction and the Region’s leadership expects all DHBs will adopt this framework, individually and collectively. All decision makers should be able to depict how proposed projects will deliver on these strategic responses and business objectives.

The relationship between problem statements, strategic responses and business objectives is illustrated in the investment logic map (ILM) in Figure 15. The strategic responses and business objectives are summarised in the table below.

<table>
<thead>
<tr>
<th>Strategic Responses</th>
<th>Business Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optimise health outcomes</strong>&lt;br&gt;(prevent, intervene early, planned proactive care and targeted to need)</td>
<td>• Prioritise investments which result in the best health outcomes throughout the continuum of care settings&lt;br&gt;• Target resources for communities which face the greatest health challenges&lt;br&gt;• Wellness will be promoted across environments where people live, work and play</td>
</tr>
<tr>
<td><strong>Optimise patient experience</strong></td>
<td>• All care transitions are planned and supported&lt;br&gt;• Patient and whānau experience is the starting point for how we act and invest&lt;br&gt;• Care is provided as close to home as clinically appropriate&lt;br&gt;• Enable patient engagement and self directed care</td>
</tr>
<tr>
<td><strong>Optimise quality, safety, and effectiveness</strong></td>
<td>• Services will be configured to deliver the best quality and outcomes (e.g. consolidate specialty services, separate planned versus acute care, outsourcing)</td>
</tr>
<tr>
<td><strong>Optimise efficiency and productivity</strong></td>
<td>• The way we work will be focused on maximising outcomes per resource input across all care settings and regional locations&lt;br&gt;• Only do things in hospital that need to be done in hospital — resource intensive, specialist, economies of scale, critical mass</td>
</tr>
<tr>
<td><strong>Investment in fit for purpose resources</strong>&lt;br&gt;(workforce, facilities, clinical equipment and IS/IT)</td>
<td>• Ensure effective governance process to support investment decision making and delivery&lt;br&gt;• Workforce will be appropriately trained and operate at top of scope&lt;br&gt;• Ensure the resilience of existing assets</td>
</tr>
</tbody>
</table>

These responses have been incorporated into our Investment Logic Map as set out below.

Figure 15: Strategic responses and the investment logic map
4 Our Investment Direction

4.1 A vision for the future

Key messages:

- We will deliver care through an integrated, collaborative, patient centred network of primary, community and hospital based care settings.

- Boundaries between care settings will become increasingly blurred with the focus being on providing care in the most appropriate setting. Care will be delivered by teams with the right skills working collaboratively across settings and will be provider “agnostic”.

- We will focus on consolidating services in our Region where this can improve the quality, safety and outcomes of care and localising services where increased access will improve equity and population health.

- Patients will increasingly engage in the development and delivery of their care plans. We will improve health literacy, knowledge and technology to enable them to plan and monitor their daily health as well as communicate with their care teams.

Key to our vision for the future for the Region is a shift from our current siloed, treatment focused health system to a more integrated, collaborative health system led by the four DHBs. Working more closely together will allow us to plan for a single population and implement initiatives in a collaborative and organised manner, leverage our strengths to optimise health outcomes for our population and better engage our population in their health and wellbeing.

Delivering care through an integrated, collaborative network of primary, community and hospital based healthcare settings

Our vision for the future of healthcare in the Northern Region is characterised by a shift towards a networked model of care, where all players in our healthcare system connect with each other, acting as nodes within the wider regional system. This means working both across and beyond traditional boundaries to deliver optimal outcomes for patients and to improve equity and access to healthcare.

The boundaries between our DHBs, primary, community and hospital based care will become increasingly blurred, with care teams supported to provide care in the most appropriate setting. This model also provides an opportunity to reduce unnecessary duplication, by consolidating certain services to improve quality, safety and outcomes of care.

The following figure demonstrates the array of settings, services and enabling tools within the regional network. Patients will be surrounded by primary, community and social services, with access to community based health centres as well as self-care tools to take more control of their healthcare journey. These settings will in turn be supported by the network of differentiated hospitals playing specific roles. Linking these together will be agreed pathways and protocols, a mobile and multi-disciplinary workforce, shared data systems, telemedicine and collaborative financial arrangements.
We assume the current regulatory arrangements will continue, and this networked care model will be led collaboratively by the four DHBs. The DHBs will work closely with other care providers within the system to ensure patients receive the most appropriate and high quality care regardless of where they are in the Region. By increasing collaboration with other care providers, we will improve the overall health of our population, increase access to care, improve our health outcomes and reduce inequities.

Service mix of our future health system

Our integrated care system will consist of a number of health services situated close to the patient, enabling them to live well, stay well and get well. These will in turn be supported by our Region’s hospitals, which will provide a differentiated range of specialist services to our population.

The following list describes the services closer to the patient in the inner ring of the diagram:

- **Self-care** – Monitoring and communications technologies will help patients and whānau determine their care plan, track their daily health and communicate with their care teams. This will encourage patients and their whānau to be engaged with, and accountable for their own care.

- **Social services** – Health is a function of a number of factors beyond our control, including housing, education and socioeconomic factors. Partnering with social services in the delivery of healthcare will help ensure interventions are targeted and delivered appropriately, with a complete view of an individual’s health and social background.

- **Primary care** – Primary care providers play an important role in the delivery of care. For many patients, they are the first point of contact for non-acute health issues and help manage general health and wellness. They also act as a gateway to the rest of the health system by referring acute cases to specialist providers as necessary. They are a key part of our future integrated health system, and will be supported to deliver the expanded role required by a shift in the
balance of care. The model of delivery will be aligned with community needs, with models such as Northland’s Neighbourhood Healthcare Home being more widely adopted and primary care operating within our community hubs where this will help to increase integration across care settings.

- **Community care** – A range of community (intermediate) care services will be developed, and integrated with primary care and NGO provision centred around the patient’s care plan requirements. In some instances the focus will be on providing services for specific patient cohorts (e.g. long term conditions, comorbidities, frail elderly and specialised rehabilitation) and in other instances they will focus on the needs of a local population. Community care may be coordinated or delivered through virtual hubs or could include facilities that deliver ambulatory and / or residential care. This will provide better access to certain services delivered in a way that our population desires, while simultaneously allowing hospitals to focus on more acute services.

- **Aged care** – Aged care services are important contributors to the health of our communities. They provide a broad spectrum of home based health and support services and alternative living environments for older people, who are typically the greatest users of our health system. Services include community based initiatives to enhance social connectivity and independence as well as help manage long term conditions so people are able to live well in their own homes. Targeted interventions will help prevent the effects of advancing frailty and optimise recovery through rehabilitation following acute episodes. A range of residential settings will meet needs that range from the provision of short term intermediate care with a view to transitioning elsewhere; through to longer term arrangements including independent living units, rest home services and intensive 24 hour care for people with high needs.

The hospitals of the future are described in three categories in the outer ring of the diagram, reflecting the differentiation of hospital services:

- **Major hospitals** – A major hospital will provide a full set of core services to its local population, and may provide a number of specialty services to the regional population. In addition, some services will be provided at only one major hospital (e.g. burns, specialist paediatric surgery). Our major hospitals will work as a network with designated local, regional and national roles to ensure we deliver care as close to home as possible, but centralise care where there is evidence that this improve outcomes or where there are economies of scale. In some cases a major hospital will also support the delivery of specialised care across the Region (e.g. a Tumour Stream Lead will work other hospitals and community based providers to best meet the needs of patients with cancer across the Region).

- **Elective surgery facility** – Elective surgery facilities will specialise in the delivery of planned elective services for the Region. These centres could be standalone, where they perform low patient risk / low complexity procedures, or co-located on a hospital site where they may need support for higher risk / higher complexity. Having these distinct facilities will enable the efficient and effective delivery of elective services, leveraging the benefits of the separation of acute and elective procedures. Northland’s hospitals will continue to deliver the majority of their elective surgeries to their local population with only specialised services being performed in Metro Auckland.

- **Local hospitals** – Local hospitals will work closely with the community based providers to deliver services to meet the needs of their local population, including hosting visiting specialists and providing outreach services. Integrated pathways will be in place both for referrals into the hospital, as well as referrals of complex patients onto major hospitals. Local hospitals will continue play a crucial role in meeting the health needs of geographically distributed communities. This is particularly relevant in Northland.
4.2 Principles for service design

Key messages:

- To appropriately invest as a Region and provide services in a manner that aligns to our future vision, we will adhere to principles that ensure we work in a collaborative manner that encompasses all care settings.

As we invest as a Region and reconfigure how we provide certain services across the Region we will adhere to the following principles to ensure we work in a manner that is more collaborative and encompassing of all care settings. To do this we will:

- Plan for the Region as a whole with our starting position being ‘what should services look like for a population of 1.8–2.3 million people?’
- Clearly identify the impact on the Triple Aim and how the population’s wellbeing will be improved
- DHBs will take all accountability for performance and will carry service risk
- Resource use will be maximised to ensure we live within our means while optimising health gain for the populations
- Procurement and partnering options will be considered as a matter of course when business cases are prepared for investments identified within the NRLTIP.

Services will be designed to a common set of design principles as set out below.

Table 26: Service design principles

<table>
<thead>
<tr>
<th>Design principles</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>The needs of the patient come first</td>
<td>• The patient is involved in decision making</td>
</tr>
<tr>
<td></td>
<td>• Care is responsive to individual patient and family needs and priorities</td>
</tr>
<tr>
<td></td>
<td>• Timely access to care is provided</td>
</tr>
<tr>
<td></td>
<td>• Care is delivered as close to home as appropriate</td>
</tr>
<tr>
<td>Same standard of care across the Region</td>
<td>• Regardless of location, socio-economic status, ethnicity or gender</td>
</tr>
<tr>
<td></td>
<td>• Regionalised ways of working</td>
</tr>
<tr>
<td></td>
<td>• Standardised processes</td>
</tr>
<tr>
<td></td>
<td>• Meet national standards</td>
</tr>
<tr>
<td>Coordinated care</td>
<td>• Patient has an identified (single) point of contact at all times</td>
</tr>
<tr>
<td></td>
<td>• Transparent decision-making along the entire patient pathway</td>
</tr>
<tr>
<td></td>
<td>• All team members have access to patient information</td>
</tr>
<tr>
<td></td>
<td>• Transitions of care are planned and supported</td>
</tr>
<tr>
<td>Workforce wellbeing</td>
<td>• Appropriately skilled and accredited workforce</td>
</tr>
<tr>
<td></td>
<td>• Work planning and operational support are provided</td>
</tr>
<tr>
<td></td>
<td>• Appropriate tools and systems are available</td>
</tr>
<tr>
<td></td>
<td>• Commitment to learning and improvement (individual, team and system) and support for professional progression</td>
</tr>
<tr>
<td>Best possible outcomes</td>
<td>• Services will be consolidated where increased volume improves outcomes</td>
</tr>
<tr>
<td></td>
<td>• Treatment discussions will occur in a multidisciplinary team setting</td>
</tr>
<tr>
<td></td>
<td>• Improvement will be measured against agreed criteria</td>
</tr>
<tr>
<td>Sustainable services</td>
<td>• The model of care is clinically sustainable</td>
</tr>
<tr>
<td></td>
<td>• The health system delivers what populations need within a long term sustainable funding allocation</td>
</tr>
<tr>
<td></td>
<td>• Utilisation of all public and private resources in our Region are maximised to best meet demand in a sustainable manner over the medium and longer term</td>
</tr>
<tr>
<td></td>
<td>• Strengths of each DHB will be leveraged while recognising the context of working with four autonomous DHBs</td>
</tr>
<tr>
<td>Innovation</td>
<td>• Learning from and leading international best practice will be at the forefront of our mind when we plan our models of care</td>
</tr>
<tr>
<td></td>
<td>• Services that operate on a Centre of Excellence model will innovate centrally and disseminate knowledge through their network</td>
</tr>
</tbody>
</table>
4.3 Three investment ‘themes’ for the Northern Region

### Key messages:

- We will balance our investments across the themes of ‘fix’, ‘future proof’ and ‘accelerate’ to ensure maximum health gain for our population.
  - Fix investments are those focused on fixing our current facilities and assets to make them more fit for modern purpose.
  - Future proof investments focus on growing our capacity to meet expected demand.
  - Accelerate investments are those targeted at implementing model of care changes to maximise health outcomes.
- In the short term we will focus on fixing facilities that are critical to on-going service delivery, postponing less-critical programmes of work to ensure we have funding to begin accelerate and future proof initiatives.
- In the medium and long term we will invest proportionately more in future-proofing our capacity and accelerating model of care changes.
- We will emphasise accelerate initiatives as they will improve the health and wellbeing of our population and reduce the need for additional capacity development.

To deliver on our future vision we must prioritise investments that meet both our short and long term capacity requirements while simultaneously delivering a way to improve health outcomes and reduce inequities for our population. To do this, investments will be grouped into three themes defined below, which are used to categorise our investments and initiatives throughout the remainder of this document.

#### Table 27: Three investment themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accelerate</strong></td>
<td><em>Accelerating model of care change programmes to maximise health outcomes</em></td>
</tr>
<tr>
<td></td>
<td>The Accelerate theme encompasses any model of care change programmes in the Region. These investments will change how we deliver care to maximise health outcomes for our current and future populations. These investments are those which directly involve model of care change, or are necessary to support new models of care. This theme is currently the smallest of the three, due to both the size of the investment requirement for the other two, and tensions between the long term nature of model of care change and the DHBs’ historic near term planning horizons.</td>
</tr>
<tr>
<td><strong>Future Proof</strong></td>
<td><em>Future proofing our capacity for expected demand</em></td>
</tr>
<tr>
<td></td>
<td>The Future Proof investment theme captures those investments intended to right size regional capacity to ensure fit for future purpose services against expected demand. These investments will ensure the Region is able to sustainably deliver the optimal health outcomes for our population by developing sufficient capacity to meet expected demand.</td>
</tr>
<tr>
<td><strong>Fix</strong></td>
<td><em>Fixing our current facilities and existing assets to make them more fit for modern purpose</em></td>
</tr>
<tr>
<td></td>
<td>Fix investments are those which are intended to address our backlog maintenance burden, either through remediation or the replacement of assets and infrastructure. As a result of the size of our maintenance burden, this is the largest of our investment themes in terms of current planned expenditure.</td>
</tr>
</tbody>
</table>

#### Prioritising across investment themes

As we invest we need to prioritise our investments within each of these themes, as well as balancing our future investment path across these themes. To sustainably deliver optimal health outcomes for our population we will need to give careful consideration to what investments we prioritise and when.

In the short term this means we will focus our ‘fix’ investments only on projects which are critical to ongoing service delivery while postponing the less critical programmes of work. This will ensure we have remaining funding to begin ‘accelerate’ and ‘future proof’ initiatives. As we look to the medium and long term investments we will invest proportionately more in future-proofing our capacity and accelerating model of care changes.
We need to ensure an appropriate balance across these three portfolios. We must serve our current populations while also focusing on ‘accelerate’ initiatives which improve the health and wellbeing of our population and reduce the need for additional capacity development.

Given the sheer size of the projected demand, model of care changes will likely not fully address the need for additional capacity across the Region. Meaning we need to invest in future-proofing our ability to meet acute demand by expanding current facilities and building new facilities where appropriate.

While we are planning for 1,600 beds by 2036/37, we must build into our planning the ability to accommodate the full 2,055 if a mid-point course review reveals our accelerate initiatives are not having the expected impact. There is also a risk that even if we are successful at moderating demand, population growth and/or demand growth will exceed the projections we have used in our modelling.

The following sections will discuss how we will invest to accelerate, fix and future proof, as required.

**4.4 Accelerating model of care changes**

**Key messages:**

- To improve health outcomes, reduce inequities and mitigate demand for healthcare services across the Region, we will invest in accelerating model of care changes.

- The areas in which we will accelerate model of care change are:
  - Investing in population health and prevention efforts to address growing demand
  - Investing in community care to improve patient experiences and outcomes as well as support a shift away from hospital services
  - Accelerating IS/IT investment and integration to support the regional network and our population health approach
  - Developing our workforce to deliver on our population health strategy and support our staff to work at the top of their scope
  - Configuring our hospital based services to optimise delivery of services across the Region
  - Implementing our Deep Dives to accelerate model of care changes.

To improve health outcomes across the Region and therefore potentially mitigate demand for healthcare services we will accelerate the pace at which we introduce new models of care across the Region. Model of care changes will result in us being able to improve the health of our populations who have been less engaged with us in the past. While this will reduce preventable and amenable health loss, it may also increase demand on health services where people, who had previously not used the full spectrum of our services, increase their use.

Early priorities that will noticeably impact how care is delivered across the Region include:

- Population health based initiatives to improve health literacy, preventative care and early screening and diagnosis
- Supporting older patients to remain in their own community
- Transforming how we deliver cancer services across the Region
- Strengthening our IS/IT foundations to enable on-going integration between all care settings
- Building a flexible and agile workforce, with the capacity and skills required to deliver on our population health strategy.
Investing in population health and prevention efforts to improve health outcomes

The vision shown in Figure 16 is centred on the patient with the delivery of a population health strategy aimed to help the people of the Northern Region stay well and be treated effectively and efficiently if they are injured or fall ill. Our population health and prevention efforts will incrementally improve the health outcomes of our whole population but will be particularly focused on reducing inequities by targeting groups who typically have worse health outcomes due to deprivation, access to care and ethnicity.

To truly improve the health of our regional population we need to make a step change in how we invest in population health and prevention, targeting known major causes of health loss in the Region such as obesity. The importance of the change required has been identified by the Region and exact initiatives will be identified by the Population Health Deep Dive that will be completed in the second iteration of the NRLTIP.

For our Region, this means:

- Stratifying the population based on both health and social risk to intervene in a targeted manner for optimised health outcomes.
- Screening and intervening before people get sick to improve overall population health and mitigate the demand for hospital services.
- Planned proactive management of long terms conditions such as cardiovascular disease, diabetes and respiratory diseases.
- Empowering patients and improving health literacy so patients can understand their own healthcare choices and determine their care pathway.

Investing in community care to improve patient experience, health outcomes, equity and enable the balance of care across all settings

This approach will see us develop capacity and capabilities in community based services. Our DHBs will invest in expanding existing community settings, partnering with existing primary / community providers to develop these settings and services and considering how technology can improve access to care for our remote localities through virtual care tools. It will require bold changes to our existing ways of working. It represents a significant acceleration of our DHBs’ community health strategies. Our community initiatives will initially be focussed on targeting populations or localities where health outcomes and access inequities exist.

For our Region, this means:

- Redesigning ambulatory care delivery, including outpatient care, older persons care and rehabilitation, to enable more services to be delivered in the community and home, where appropriate.
- Delivering more services in primary and community settings with targeted investment to support these changes.
- Supporting a network of intermediate services (home care and bedded care), both DHB and contracted, to manage patients who do not require acute hospital care.
- Developing our information systems to support system-wide integration (e.g. Health Information Exchange), communication and population health management.
- Performing more diagnostics, imaging and screening in the community (e.g. through labs, mobile clinics, pharmacies).
- Integrating mental health services with physical health services.
- Developing and supporting our workforce and the community based workforce to deliver the necessary care to the patients, wherever it is needed.
- Identifying and implementing IS/IT solutions that allow us to improve access to healthcare for our hard to reach populations. Inviting NGOs and other social sector organisations (e.g. education, housing and justice) to partner with us to provide holistic community based care for our high needs groups.
The range of services that will be delivered or coordinated by community hubs will be specific to the community needs, but may include services such as:

- Mobile community health teams (including district nursing).
- Ambulatory services appropriate to the profile of the local population such as:
  - Outpatient appointments
  - Radiology
  - Haemodialysis
  - Chemotherapy
  - General rehabilitation
  - Minor surgical procedures
  - Services provided by contracted non-government organisations
  - Mental health services.

Certain hubs may provide a greater scope of services, such as:

- Primary maternity services and short stay ‘intermediate care’ beds where there is sufficient local population demand for the service to be clinically and financially viable.
- Urgent care services with observation beds.

Community hub activity will be supported locally through shared care models with GPs and community based specialist clinicians and remotely by specialist clinicians from within the DHB network, including use of telehealth models.

By increasing our ability to care for our populations in their communities we will increase equity of access to healthcare in the Region. This will help reduce unmet health need in the Region. It is likely that this will increase the pressure on our healthcare system as patients who may previously not have presented, may now access services. Any increase in uptake of healthcare services will need to be considered by future iterations of the LTIP as it will impact the scale and type of capacity we plan for moving forward.

**Investing in the acceleration of IS/IT to support an integrated regional network and a population health approach**

Information systems and technology will play an increasingly significant role in both driving model of care change and supporting our network of patient-centred care settings to work more effectively with patients to achieve better outcomes. The Region requires a step change in investment in IS/IT to support regional integration, information sharing and the analytical capacity and capabilities underlying a population health approach.

The Nuffield Trust identified how improved information systems can have impact on model of care change to shift the balance of care away from hospitals:

> “Electronic health records and data sharing facilitate integrated teams that work across settings and sectors; remote consultations between patients and professionals can extend the reach of health services and improve patient access; easy GP access to specialists empowers GPs to care for more patients without onward referral; and better use of data and analytics enables improved population health efforts and proactive intervention.”

The Region’s IS/IT direction is set out in the Information Systems Strategic Plan (ISSP), which contains a number of initiatives to strengthen our foundations and accelerate our IS/IT capabilities to support the vision and requirements identified in the LTIP. The ISSP identified our current state and ideal future state with the supporting strategy to take us from current state to future state. A high level summary of their findings can be seen in the image overleaf:
The ISSP is framed across three phases spanning 10 years. For our Region, this means:

- **Years 1 – 3**: Focusing on building and securing strong IS/IT foundations which can then be transformed and extended in the following years.

- **Years 4 – 7**: Transforming our IT landscape based on the targeted model of care changes. This involves improving our data-sharing capabilities across the Region as well as enhancing some applications. Medical professionals, patients and their whānau will be able to interact with the health system and feel supported by it even when they are outside our physical facilities.

- **Years 8 – 10**: Embedding and extending our technical and operational capabilities to support both our staff and patients in the giving and receiving of care. At this point, our systems will be sufficiently mature to support a federated electronic health record enabling increased automation for our staff and a more targeted care experience for our patients.
The figure below states the four portfolios of work in which we need to invest to improve our digital health capability.

**Figure 18: The four work portfolios of the Information Systems Strategic Plan**

- **Modernise and strengthen our ICT foundations**
  - Migration to the cloud and enhanced cybersecurity
  - Network and identity consolidation (foundation for health and social care sharing, single sign on and device strategies)
  - Stabilisation programme completed
  - Device and channel strategy developed

- **Simplify, harmonise and rationalise our layers of applications**
  - ‘High’ and ‘very high’ risk applications stabilised
  - Strategic Application Portfolio Management established
  - Strategic Innovation programmes – ‘Enhanced Primary & Community Care’ & ‘Leapfrog’ – championed
  - Core system Options Analysis & Roadmap Definition – admin, clinical, resource & workforce, knowledge, population health, patient & whanau engagement
  - Initial Roadmap Implementation
  - Oracle harmonisation – finance and supply chain
  - Regional ‘Innovation Support’ capability, including platforms, user-centric design & mobile support

- **Become experts at interoperability to improve the way we share data and connect systems together**
  - Information management capability, including data governance established
  - Core inter-operability, integration and workflow foundations, processes, tools and skills in place
  - Data sharing for care delivery, business intelligence and mobile applications

- **Work effectively as a ‘capable region’**
  - Regional IS governance model
  - Regional capital pooling and decision-making
  - Regional IS Operating Model and Delivery
  - Regional Architecture

Much like the investment portfolios of the NRLTIP, the portfolios of the ISSP will all be invested in across all phases of development. In practical terms this means we will first focus most of our investment on modernising and strengthening our foundations and simplifying and harmonising our applications before we prioritise becoming experts in interoperability and being a ‘capable’ Region.

Successful delivery of the ISSP will enable the Region to be innovative and adaptable, and will ensure we are able to provide the best quality service to our regional population both before they become ill and across all care settings whenever they require care. It will also enable healthcare providers to communicate across care settings to ensure that the most appropriate care providers are involved in the care journey of each patient.

More information on the above can be found in the first version of the ISSP contained in Appendix G. Note this provides an initial direction, which will be further expanded upon in the second iteration of the ISSP.

**Strengthening our workforce, ensuring the capacity and capability required to deliver on our population health strategy and provide care to our rapidly growing and changing population**

Investments to accelerate model of care change across our Region will be unsuccessful without investment in our current workforce, as well as in the training pipeline and in the development of our non-hospital workforce.

The Nuffield Trust recommends both addressing impending workforce gaps where projected demand will exceed the future supply, and introducing new roles and capabilities to shape the ‘workforce of the future’. This means expanding our clinical and non-clinical workforce to support growth in service delivery where
aligned to future models of care. It also means upskilling our existing staff to work closer to the top of their scopes and encouraging skill sharing and skill delegation to fully utilise our entire available workforce.

Our workforce needs to be engaged, healthy and resilient, prepared for the cultural, professional and behavioural changes needed to work in different ways. They also need to be appropriately trained and equipped with the skills mix to match the case mix and models of care throughout the continuum of care settings. We will also need to ensure that the workforce requirements of rural and urban settings are met as staffing models will differ.

This thinking around our workforce of the future is still in its initial stages. Further work will be completed a comprehensive Deep Dive which is planned to start in 2017/18. In the meantime, at a high level, we plan to increase investment in workforce development across the full spectrum of our workforce (clinical, non-clinical, volunteer, whānau etc.) to support the delivery of new models of care.

We will do this by:

- Establishing a workforce that is flexible, mobile and works to the top of scope. These health workers will be supported by master diagnosticians and clinical decision makers, and powered by health information and organisational support.
- Developing and expanding the support workforce to enable increased caring responsibilities.
- Expanding and developing advanced non-medical professional roles.
- Focusing efforts on building inter-disciplinary and inter-agency team capability that supports service delivery alliances across the sector.
- Building a modern industrial relations landscape that future proofs the Region and supports “direction of travel” for workforce development and flexibility.
- Considering providing certain training from the DHB to the private workforce to increase the capability in the private setting and thus free up capacity in the hospital.
- Considering ways to include and support our large non-paid workforce, our patients themselves and their whānau who are already engaged in caring roles.

Investing in hospital delivery to support the shift towards a DHB supported integrated care network

Accelerating model of care change in our hospitals means exploring different ways to configure service delivery to ensure the right care is delivered in the right place. Our hospitals will continue to be an important part of our vision for the future and need to be able to meet the complex and acute needs of our population as well as lead the health system in delivering specialist services. It also means our hospitals will be increasingly connected, communicative and collaborative with other care settings within the system.

Optimising how we deliver care in our hospitals will be crucial to managing future demand. If our public health interventions and community care presence are successful, this may result in increased use of hospital services.

Optimising hospital delivery will see our Region:

- Moving towards a centre of excellence, or hub and spoke model for certain services to consolidate experience and knowledge in a central place.
- Streaming certain services across the Region, or having hospital specialists working with community providers to deliver traditional hospital services outside of those settings.
- Shifting hospital care to address our short term demand pressures. There may be opportunities to share demand across our major sites, or work with private, community or NGO providers to deliver care outside of hospital settings. This will require the understanding of the requirements (IT, clinical equipment and workforce) and supporting services necessary to deliver highly-specialised or highly-complex services through different care models (hub and spoke, “centres of excellence” (COEs), regional service provider, etc.).
- Focusing on improving the capabilities, capacity and productivity of our care settings

Further detail on how we will reconfigure hospital services can be found in the following section which outlines how we will implement our Deep Dives.
4.4.1 Implementing our Deep Dives to accelerate model of care changes

The NRLTIP completed a series of Deep Dives to provide detail about what the Northern Region services could look like in the future. The Deep Dives were completed for the following key service areas:

- Cancer
- Frail Elderly
- Electives
- Radiology

The Deep Dives were informed by international best practice and research on ways to meet growing demand. While international exemplars provide a useful starting point, the challenge for the Northern Region is to determine the optimal model of care that suits the local population and healthcare system.

The key recommendations that our Region will adopt from each of these Deep Dives is set out below with further information on the key conclusions from each of the Deep Dives provided in Appendices H - K.

Establishing a Northern Region Integrated Cancer Service (NRICS)

Cancer is a major cause of health loss and is the largest cause of mortality in the Region. There is considerable variation in cancer survival rates within the Region as well as opportunity to improve survival rates when compared to other countries such as Australia.

The Northern Region will establish an Integrated Cancer Service (NRICS) which is aligned to tumour streams and ensures that all patients in the Region receive the same standard of care regardless of where they present. The NRICS will accelerate and strengthen progress already underway within the Region. It will be responsible for the full spectrum of cancer provision including the prevention, screening, diagnosis and treatment of cancer. The standard of care will be consistent regionally, but the geography of the Region is such that the service delivery model in Northland may differ from the Metro Auckland model of delivery for some elements of care.

The NRICS will also have a strong research focus and will need to stay well abreast of the challenges and opportunities that will arise in the fast moving areas of genomics, precision medicine and new drug and diagnostic developments. This has the potential to significantly impact the delivery of our inpatient services, diagnostic services and both chemotherapy and radiotherapy delivery.

In overall terms this means we will:

- Develop a single cancer service delivered in a managed clinical network model with a lead provider/s for each tumour stream who will be accountable for the delivery of the tumour stream through the accreditation of providers across the pathway
- Ensure that patients will be at the centre of all we do, and we will engage proactively with them in the design and delivery of their care
- Ensure robust approaches are in place to support the prevention and screening of cancer
- Increase the local delivery of the high volume / low complexity elements of a tumour stream pathway and oncology within each DHB, and deliver infusion services in a number of primary and community care settings
- Invest in radiotherapy capacity in locations other than the Auckland City Hospital campus when step increases in capacity are required
- Ensure we have ready access to data and information to inform our decision making in a service where personalised medicine will increasingly become the norm, and to inform research that will enable evidence based decision making to achieve best outcomes for our population.

This does not mean that we will centralise all cancer care on a single site. Rather, we will work regionally to deliver low complexity services locally and will concentrate complex care in fewer locations where there is evidence that this will improve outcomes, or where we need to do so to ensure clinical or financial viability.
We will plan our service delivery around tumour streams with each having a lead provider that will take accountability for:

- Ensuring standards are in place that align with New Zealand tumour stream standards and international best practice. The development of these standards will be clinically led and they will be agreed regionally.

- Accrediting providers against these standards and ensuring that the network of providers can demonstrate how they will meet all elements of service delivery for the population they are serving and meet any minimum thresholds included in the standards.

- Facilitating multidisciplinary meetings which will be a key mechanism for ensuring that all key decision makers are included in determining the best course of treatment for patients. This will include consideration of when it is appropriate to deliver care locally and when it should be delivered by a tumour stream lead.

- Delivering the majority of the complex surgical procedures, investigations and treatment services in one or multiple locations where there is evidence that improved health outcomes are achieved with scale and/or co-location of other services.

- Supporting the local delivery of agreed elements of service.

- Ensuring participation in research.

- Sponsoring the development of business cases for services change and investment in workforce, information systems, clinical equipment and facilities.

- Developing a workforce plan and ensuring that all key appointments are consistent with this plan and are agreed regionally.

- Monitoring performance and developing a continuous improvement plan for the tumour stream.

- Delivering services within the budget parameters agreed for the service.

Consistent with international best practice, we will develop agreed standards of care and pathways across the full cancer journey. Over the next 5-10 years, the region will progressively adopt these standards. Services will increasingly be delivered by providers who can demonstrate that they are able to meet these standards, working in a networked way to ensure the cancer pathway is joined up for the patient.

While our Deep Dive focused on the diagnostic and treatment elements of the pathway, we recognise that a substantial investment needs to be made in ameliorating risk factors and increasing screening and prevention if we are to address the equity gap that currently exists in the region. We also need to further develop our palliative care services to better support our cancer patients and their whānau at the end of the cancer journey. These model of care changes and investment requirements will be considered further as we begin to implement the recommendations that have been agreed through our initial work.

Further detail about how the implementation of the Cancer Deep Dive will shape regional investment in the future can be found in Appendix H.

**Developing new models of care to better support our frail and older population**

Frail and older people are amongst our most vulnerable population groups and they currently account for a significant proportion of the Region’s health service use. As the population grows over the next 20 years, the number of people aged 75 years and over will more than double to 225,000. This growth will drive additional demand with analysis showing that 80% of the projected need for additional hospital beds will be for people aged 65 years and over.

The current health system does not serve the needs of frail older people well as it is primarily based around the management of individual diseases. Instead we should focus on providing an holistic approach to an individual’s need, optimising healthy ageing and preventing the negative effects of frailty (e.g. reduced mobility, falls and cognitive impairment). We should also design our systems to provide care targeted towards the needs of frail and older people while preventing the potentially harmful effects of prolonged stays in the acute hospital, and improving our approach to end of life care.

Primary care and population health interventions throughout a person’s life can play a greater role in helping keep our older people in good health while remaining independent for longer. By enhancing primary care models and optimising population based preventive health initiatives, we can improve the services we offer older people through initiatives such as frailty screening, falls prevention, enhanced long
term condition management, active medication review and management, dietary improvement and alcohol use reduction.

As part of a multi stranded approach we need to provide options for enhanced care in a community setting with timely access to specialised health expertise. Providing care in a community setting will require us to support people both in their own home as well as in intermediate care facilities with a focus on recovery and optimising independence. While these interventions do not necessarily cost less, they do allow us to release hospital capacity to provide care for additional acute patients where it might have otherwise been committed to prolonged stays for ageing or frail patients. Enhancing community based care will also require us to consider how we can enable our workforce to be mobile and connected with the necessary specialist expertise.

We have significant potential to enhance the patient experience through improved advanced care planning and end of life care. Improvements to our interventions will ensure we can better meet the needs of our population and ensure people can choose, and be supported, to die where they prefer.

To achieve this change effectively we need to develop alternative models of delivery, enhance integration and increase social investment and cross sector partnerships. The Northern Region will accelerate the initiatives recommended by the Frail Elderly Deep Dive to ensure we are providing the best care for our ageing population. This means we will:

- Provide a greater focus on population health interventions using a life-course and prevention approach while promoting independence and self management of long term conditions and healthy ageing
- Work with primary care partners to target appropriate prevention and primary health services for frail older people. We will also consider options such as developing alternative contract models in Aged Care settings and improving GP access to DHB specialist advice. Specific initiatives in the community could include reducing social isolation; active medication review and management; support for GPs to discuss end of life preferences; interventions to reduce alcohol consumption; falls and balance assessment; and frailty and cognitive screening
- Enhance support to maintain existing living arrangements / independence and strongly support home discharge from hospital admissions with additional rehab and support services. A number of current DHB programmes (Appendix I) which are successfully developing this type of approach should be accelerated and more widely publicised to broaden their reach and provide models for areas where they don’t yet exist
- Partnering with community providers within the residential care sector to provide enhanced care in a community setting as well as rehabilitation services and options for early supported discharge from hospital. Further development of DHB community outreach services or external contracting for similar expertise will increase access to specialist rehabilitation and aged care interventions in the community. Ideally, this will include targeted care to prevent exacerbation and deterioration of long term and chronic conditions as well as enhancing recovery from acute episodes
- Improve acute hospital care processes to reduce delays in receiving a diagnosis and accessing appropriate care with an aim to minimise the effects of unnecessarily long stays in the acute hospital. To achieve this we will improve hospital ED processes and access to diagnostics, reduce delays in transferring to specialist inpatient care in medical / surgical wards, enhance rehab access and develop pathways of care for high volume diagnostic groups (e.g. falls, confusion, sepsis, and respiratory conditions)
- Review current end of life care initiatives to enable people to explore and express their preferences around dying and provide support if they choose to die at home in more familiar and comfortable surrounds. Increase access to services to support people to die at home rather than in hospital
- Enhance social investment and cross sector partnerships to improve the longer term social determinants of healthy ageing and community inclusion by working more closely with sector partners (MSD, Council, Housing NZ and others). This would help build communities where ageing and frailty are supported (e.g. improve transport options and community inclusiveness, provide suitable accommodation, enhance early and regular access to health and wellness services) as well as change current perceptions of ageing towards a positive view – “a good old age” that normalises and provides the supports to live well with frailty.

Further detail about the implementation of the Frail Elderly Deep Dive can be found in Appendix I.
Streaming electives to increase efficiency and improve outcomes across the Region

Elective services are important in terms of health gain as well as the delivery of national targets, however there are a number of performance challenges in the Region. The Electives Deep Dive identified a number of opportunities within elective services to deliver better health outcomes for our population and to support the provision of high quality, patient centred, and accessible services.

To realise the opportunities identified above and respond to the significant population growth in the Northern Region it is proposed that we will:

- Treat metro Auckland as a single catchment area for elective services
- Have a consistent approach to electives across the Region including:
  - Standardising clinical and non-clinical systems and processes
  - Determining appropriate standardised intervention rates for key procedures based on an understanding of the variability between DHBs and their contribution to health gain
  - Applying common referral and triage processes
  - Using consistent prioritisation tools across services
  - Applying minimum quality standards across providers.
- Separate elective and acute activity as far as reasonably possible, invest in specialised elective facilities to support this separation where it is economically feasible and co-locating services where required
- Organise services around four broad tiers of service as follows:
  - Short stay surgery, focussed on high volume procedures with an admission of three days or less. These surgeries will be provided where clinically appropriate e.g. skin lesion removals will be provided by primary care providers where possible
  - Procedure specific units e.g. ophthalmology, and hips and knees, will be provided either in standalone facilities or alongside short stay surgery units
  - Complex surgery for complex patients will be delivered from sites where acute services are also provided
  - Specialist services will increasingly be delivered by one provider where there is evidence that this will improve outcomes or there are economy of scale benefits
- Develop a planned and long term relationship with the private sector.

The full implications of this tiered approach need to be detailed, but potential changes include:

- Continued focus on efficiency and productivity
- Concentration of day stay surgery at a limited number of sites e.g. Greenlane and Waitakere
- Concentration of short stay (3 day or less) activity at existing elective centres
- Concentration of hip and knee procedures at a single or limited sites
- Concentration of ophthalmology surgery at a single site or private provider
- Outsource high volume low complexity procedures on a planned and long term basis (3-5 years) such as day surgery, some short stay surgery, cataracts and some diagnostics (e.g. endoscopy)
- Consolidation of low volume procedures on a limited number of sites (e.g. bariatric, spinal fusion, and hand / wrist surgery)
- Increased minor surgery in primary care e.g. removal of skin lesions.

While working to a common framework and approach across the region we would expect to be pragmatic and flexible in the way in which this is implemented. Also the geography of the Region is such that the service delivery model in Northland may differ from the Metro Auckland model of delivery for some elements of care.
The role of our main sites in relation to the tiered approach proposed is likely to be as follows:

- **Short Stay Surgery** – Greenlane Clinical Centre and Waitakere will focus on day stay activity. Elective Surgery Centre and Manukau Surgical Centre will focus on minor and intermediate short stay surgery predominantly of less than 3 days stay.

- **Procedure Specific Units** – Elective Surgical Centre and the Manukau Surgical Clinic could develop as sub regional hip and knee centres. Greenlane will particularly focus on ophthalmology and dental surgery.

- **Complex Surgery** – North Shore Hospital and Middlemore Hospital will deliver intermediate and complex surgery to their local population. Middlemore Hospital will continue to be the regional provider of burns, plastics and spinal services. Whangarei Hospital will deliver a range of minor intermediate and complex surgery to its local population, partnering with the Metro DHBs to deliver specialist care.

- **Tertiary and Quaternary Services** – Auckland City Hospital will increasingly focus its elective service delivery on tertiary and quaternary services.

Further detail about the Electives Deep Dive can be found in Appendix J.

**Providing high quality clinical care to our population through on-going provision of up to date radiology equipment**

Radiology is an essential enabler of the provision of high-quality clinical care through diagnostic imaging and increasingly therapeutic intervention. It is also an area of significant technological development and change and provides an opportunity to look in depth at an area of clinical equipment. The Radiology Deep Dive provided an asset management plan for radiology equipment to meet demand over the next 10 years.

The Northern Region will adopt the recommendations of the Radiology Deep Dive and support the ongoing investment requirements to keep our Computed Tomography (CTs), Magnetic Resonance (MRs) and Positron Emission Tomography (PET-CTs) up to date. This will require an investment of around $166 million over the next ten years. The 10-year replacement cost of radiology equipment and the additional CT and MR costs are shown below.

**Table 28: 10-year cost of replacement of radiology equipment and additional CT and MR, to 2025/26**

<table>
<thead>
<tr>
<th>Replacement</th>
<th>DHB Total ($ mil)</th>
<th>Additional CT</th>
<th>Additional MR</th>
<th>Total ($ mil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHB</td>
<td>DHB Total</td>
<td>Moderated</td>
<td>Moderated</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>($ mil)</td>
<td>Scenario</td>
<td>Scenario</td>
<td>($ mil)</td>
</tr>
<tr>
<td>Northland</td>
<td>$13.7</td>
<td>1</td>
<td>1</td>
<td>$20.8</td>
</tr>
<tr>
<td>Waitemata</td>
<td>$24.2</td>
<td>2</td>
<td>2</td>
<td>$42.4</td>
</tr>
<tr>
<td>Auckland</td>
<td>$41.9</td>
<td>2</td>
<td>1</td>
<td>$52.4</td>
</tr>
<tr>
<td>Counties Manukau</td>
<td>$32.7</td>
<td>2</td>
<td>2</td>
<td>$50.1</td>
</tr>
<tr>
<td>Total</td>
<td>$112.4</td>
<td>7</td>
<td>6</td>
<td>$165.6</td>
</tr>
</tbody>
</table>

The Region is under considerable pressure to manage growing demand for services within its capital funding envelope. Radiology is a key driver of capital expenditure but is also an enabler to the provision of high-quality clinical care through diagnostic imaging and increasingly therapeutic intervention. Conversely, if radiology is unable to keep up with demand it can result in longer length of stay and poorer outcomes for patients.

CT and MR will continue to experience high demand over the next 10-years, and for a number of reasons services will need to continue to be delivered in-hospital. There is value in exploring non-purchase options to defer capital expenditure while maintaining capacity to meet demand.

The region will also need to address the looming workforce crisis associated with MR due to the requirement set by the Medical Radiation Technologists Board which requires all Medical Radiation Technologists to have an MR Scope of Practice. This is a 2-year post graduate diploma, and as New Zealand is an outlier internationally with this requirement, it effectively means we need to train our own MR workforce. There is a potential for the same perverse workforce market which the Region has seen recently with the Sonographer workforce. The core issue will persist for as long as the Scope of Practice requirement is in place.
Information systems and storage are also an integral part of radiology work to support workflow within each DHB and between DHBs. Moving forward, radiology and IS planning will need to be planned in step with each other to ensure that both the incremental increase in requirements and the step change arising from changing technologies such as 3D tomosynthesis in mammography are accommodated.

Further detail about the asset management plan provided by the Radiology Deep Dive can be found in Appendix K.

4.5 Fixing our current care settings

Key messages:

- We will retain all of our current sites and in many cases expand both their capacity and the services they offer.
- We acknowledge that we must address the significant maintenance burden associated with our ageing and not fit for purpose assets.
- Given the size of our maintenance burden we will prioritise investments in current sites by first focusing on those which are crucial to future service delivery. In turn, this will mean we extend the life of some assets where appropriate.

Accelerating model of care changes will have implications for our current sites as we regionalise or localise delivery of certain services as appropriate. This means we need to leverage the infrastructure on our current sites and invest in them in a way that aligns to their future role in service provision.

This section sets out a high level direction for how we propose to utilise our current sites and invest in them to ensure we are well positioned to best meet the needs of our regional population in both the short and long term.

The future roles of our major sites

We will retain all of our current major sites. We have made a set of assumptions around the roles each major acute site will play in the future

- **Whangarei Hospital** (Northland DHB) will continue to deliver core services to its local population, partnering with the Metro DHBs to deliver specialist care.
- **North Shore Hospital** (Waitemata DHB) will continue to deliver core services to its local population, and will be the national provider of hyperbaric services. Within this site the Elective Surgical Centre will likely take on a wider sub-regional role with some agreed elective procedures being streamed there.
- **Waitakere Hospital** (Waitemata DHB) will be developed over the next 5 – 10 years to a full district hospital with the addition of general surgery, orthopaedics and potentially other services.
- **Auckland City Hospital** (Auckland DHB) will have dedicated capacity for the most complex patient needs for the Region and in some instances the country, and will increasingly focus its service delivery on complex tertiary and quaternary and acute care. Some elective services that it has historically provided for its immediate catchment may in future be delivered elsewhere.
- **Middlemore Hospital** (Counties Manukau Health) will continue to have a role as a supra-regional hospital focused around burns, plastics and spinal services.
- We will retain two level 5 and 6 paediatric hospitals (respectively **KidzFirst** (Counties Manukau Health) and **Starship** (Auckland DHB)); with Starship continuing to have a supra-regional and national role, and decide whether a third paediatric hospital is needed.
We will also retain and expand a number of our other sites

A number of other sites will also continue to play an important role in a networked service delivery model:

- **Northland’s Community Hospitals** will continue to play an important role in the delivering care to a geographically dispersed population. The Bay of Islands upgrade will be completed to support the mid-North population. All hospitals will be maintained and expanded to ensure they are able to meet the future needs of people living in Northland’s more remote areas. They will support the Neighbourhood Healthcare Homes initiative, as well as leverage technologies to connect into the wider regional network of care.

- **Mason Clinic Site** will be retained and expanded to meet future forensic mental health demand and will continue to have a role as a supra-regional and national provider these services. In addition, planning is already underway to ascertain whether minimum secure services should be collocated on an expanded site.

- **The Manukau Site** will continue to deliver ambulatory (outpatient services) and day case and short stay elective surgical services, which could include some regional or sub-regional elective services. Given its proximity to Middlemore Hospital, we have no plans to build an acute hospital on this site but we are evaluating whether we increase support services to allow us to provide services for more complex elective patients. In the medium term we will also deliver specialist rehabilitation services, including spinal rehabilitation services, from this site and we are investigating whether we may also provide some intermediate care services on this site.

- **Greenlane Clinical Centre** will continue to be a provider of ambulatory services, including a wide range of specialist outpatient services. For the foreseeable future it will deliver the Region’s specialist dental service and the acute ophthalmology service. We will leverage the elective inpatient capacity at the Elective Surgery Centre (Waitemata DHB) and Manukau Surgical Centre (Counties Manukau Health) before investing in inpatient elective capacity on this site. This may be considered in the medium term, along with consideration of the provision of some intermediate care services on this site. Given its proximity to the Auckland City Hospital site there are no plans to grow the Greenlane site into an additional acute hospital site in the next 20 years.

We have yet to decide the future role of a number of our other sites

This initial LTIP focused on answering the question of whether an additional acute hospital site/s would be required in the Northern Region. Consequently there are a number of sites where we have yet to confirm the future role - this will be a task for the next NRLTIP. These sites include:

- Point Chevalier site where Buchanan Rehabilitation Unit and RehabPlus are located
- Primary community birthing sites
- Bairds Road where Tamaki Oranga and the Spinal Rehabilitation Service are located
- Counties Manukau Health Community Hospital sites

Ensuring the resilience of our existing sites

Given the decision to retain our current sites, we will need to address the significant maintenance burden associated with ageing and not fit for purpose assets, as identified in the previous section. The investment required to address this burden and fix our current assets and facilities to make them fit for modern purpose is significant. Therefore, it is unlikely that all of these investments will be able to be accommodated alongside the requirement to future proof our capacity and accelerate model of care change.

This means further extending the life of some assets where appropriate and prioritising only those investments which are crucial to future service delivery. Having defined our vision for the future and outlined the future roles of our current sites allows us to identify which investments are crucial, and where alternative solutions should be developed.

The specific investments will be further explored through the options consideration in section 5.
4.6 Future proofing to meet anticipated demand

Key messages:

- To meet future demand we will need to both expand our current facilities as well as build at least one new acute site.
- Our Region is facing short-term capacity pressures, particularly in Metro Auckland, that are unlikely to be sufficiently mitigated by our model of care changes and the way in which we work together.
- In the immediate future we will invest in quick, tangible decongestion efforts within our current facilities. This will include:
  - Capacity expansions
  - Extending working hours
  - Utilising all physical beds
  - Continuing current and exploring new outsourcing arrangements
  - Investigating temporary facility options e.g. prefab theatres
  - Investing in community based services.
- A key investment in the short to medium term will be the expansion of Waitakere Hospital alongside other Metro Auckland sites which will help meet growing demand coming from north of the city.
- Longer term, we will assess where we need to and have the ability to expand on current sites in a way that aligns to the anticipated demand profile for each facility.
- We will build a new acute hospital south of Auckland City in the next 10 to 15 years while also looking to buy land north of the city to meet demand in the longer term.

Projected population growth indicates that we will soon outgrow our current facilities and capacity. This requires us to consider and plan for how we can expand our capacity to meet future demand in both the short and long term. While we are planning for the mid growth scenario of 1,600 beds we must be prepared to meet the high growth scenario of 2,055.

4.6.1 Short term response to immediate pressures

Our Region is facing short-term capacity pressures that are unlikely to be sufficiently mitigated by our model of care changes and the way in which we work together. Also, it will be a minimum of 10 years before a new hospital could be operational. Therefore, to ease these pressures and prepare the Region for the future model of care changes we need to focus our efforts on quick, tangible decongestion efforts within our current facilities in the immediate future to ease the current capacity pressures.

To provide a strong foundation from which we can accelerate model of care changes and meet future demand we need to invest in both fixing and expanding our existing facilities and assets. This section will describe:

- The short term initiatives to expand current sites to decongest our hospital sites and relieve short term pressures
- The larger investments we need to make to ensure the resilience of key facilities and assets
- The IS/IT investments identified in the Information Systems Strategic Plan which will increase resilience of key systems and set a foundation for future growth and change.
Decongestion efforts

The Northern Region, particularly Metro Auckland, is projected to face capacity shortfalls by 2021/22. To address these urgent pressures, our Metro Auckland DHBs will apply a coordinated approach to the submission of decongestion related business cases to be put forward for discussion with Treasury and the Capital Investment Committee. The business cases will explore decongestion initiatives in further detail, but a summary has been provided here to inform long term planning.

Given the time taken to design and approve investments, the easiest short term capacity developments will be those already underway.

A summary of the capacity they will provide is set out in the table below.

Table 29: Short-term capacity available by 2022

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Beds</th>
<th>Theatres</th>
<th>Procedure rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource all physical beds</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remediation and repurposing current facilities</td>
<td>228</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(including: Auckland City Hospital level 5, Level 2 extension and Phase 1 support building; Counties Manukau Health Galbraith refurbishment; and Waitakere prefabs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective capacity and inpatient beds (ECIB)</td>
<td>60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Middlemore specialist rehab</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>402</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

Decongestion challenges

There are a number of challenges associated with commissioning this additional capacity, including:

- Funding constraints which limit the ability to resource some currently available physical capacity
- Recruitment of workforce, particularly sufficient nursing staff, to expand in the short term
- Time to decant administration and other functions from hospitals to free up space for repurposing as wards
- The process to design, approve and build facilities (including; developing business cases, undertaking detailed design and contracting facility developers) is challenging to accelerate.

Contingency planning

The development of additional short-term capacity will still have a lag time that requires the Region to explore alternative solutions to relieve pressures on current sites. Metro Auckland is also considering the following options:

- Extending working hours of theatres and outpatient clinics
- Increasing our resourced capacity to utilise all physical beds
- Continuing current outsourcing arrangements and exploring options for strategic contracting arrangements for elective surgical procedures, frail older people and mental health services
- Investigating temporary facilities e.g. prefab theatres and wards
- Investing in community based services e.g. extending primary and home based care hours, acute care teams, enhancing post-discharge support, greater use of Primary Options for Acute Care (POAC).

Similar to Metro Auckland, Northland DHB is experiencing unprecedented growth for acute medical and surgical services. To meet demand pressures while Whangarei Hospital is redeveloped they are developing temporary capacity to provide theatre capacity, an endoscopy suite and an Acute Assessment Unit (AAU) for 36 hour observations.
Potential impacts on long term planning

Despite being short term in nature, these decongestion efforts will have implications for long term planning. The capacity they create will go some way towards meeting the Region’s long term capacity needs, but will also absorb funding and effort in the short term. This may impact our ability to accelerate model of care change efforts in the short term, and potentially delay longer term options to future proof regional capacity.

4.6.2 Developing new capacity

Our current sites are all able to expand to meet short term demand, with potential for larger expansion projects in the future. However it is neither feasible nor desirable to exclusively grow capacity on our current sites. The scale and dispersed nature of the expected growth means that even if we were able to build sufficient capacity on them, access issues would persist, and the high population growth areas north and south of the city would likely be underserved. We are therefore considering developing new sites for both new acute and ambulatory capacity in the Region.

Expansion of our current major acute sites

We also recognise that regardless of how successful we are at changing our model of care, we still need capacity in the short and long term. Significant regional planning will need to be completed to assess where we need expansions on current sites and for what services to meet the demand profile for each facility. Our major Metro Auckland sites all have existing plans to be expanded to create additional capacity for the Region (on top of expansions identified previously):

- **North Shore Hospital** (Waitemata DHB) is developing a business case to refurbishing the existing Tower Block as well as building a second tower to provide an additional 216 beds for the Region by 2036/37.
- **Auckland City Hospital** (Auckland DHB) may provide 250 beds by 2036/37, on top of beds provided through decongestion efforts.
- **Middlemore Hospital** (Counties Manukau Health) could be expanded to provide an additional 128 beds by 2036/37 through the development of an additional tower block.

There is also the potential to expand our current sites beyond what has been immediately planned above. Further business cases and details need to be developed to identify how this capacity might best be developed for a regional purpose. In doing so, we will also explore the roles and nature of the capacity we develop on those sites in line with our vision for the future.

Growing new acute capacity

Based on the geospatial analysis, we will likely need to build a new acute hospital south of Auckland City in the next 10 to 15 years, while also looking to buy land north of the city to meet demand in the longer term. This decision has been made based on the expansion of Waitakere Hospital and other Metro Auckland sites, which will help meet demand north of the city.

Developing an acute site south of the city first will help us serve the growing southern Counties Manukau population. This site may also be accessed (to the scale of 40-60 beds) by the North Midland and Waikato populations in the future. Road network changes will likely make travel times to a new South site shorter for some Midland residents than their travel time to Waikato. If we build south of Metro Auckland we will want to factor this into our planning and discuss with Waikato DHB the impact our new hospital site may have on them.

This new acute site will initially be a 350 to 400 bed hospital providing core services to its local population with additional services determined based on the specific needs of the catchment. In the future, this site could be expanded to 600 beds if required to meet further demand growth. Any development north of the city will likely be of a similar size.

Extending the spatial mapping from earlier in this document, we are able to demonstrate the impact both the additional southern and northern sites will have on our ability to serve our population in the future.

Figure 19: Potential impact of new 400 bed northern and southern sites

<table>
<thead>
<tr>
<th>Northern Site</th>
<th>Southern Site</th>
</tr>
</thead>
</table>

93
This sequencing of future investments is discussed further in the assessment of our preferred investment path.

4.7 Investment objectives to guide our planning

Achieving this future vision will require significant investment, and in a constrained funding environment we need to ensure the investments we make will take us as far as possible in the right direction. To support investment planners and decision makers in designing investments and building business cases, we have developed a set of investment objectives. These will guide us in accelerating model of care change, future proofing our capacity and strengthening the foundations of our healthcare system.

As well as shaping the investment path in this document, these will allow decision makers to assess and compare both existing and future investments based on how they align to our vision for the future. They will also enable regional governance to assess and prioritise investments which will deliver the best value for the Region using the investment objectives as guidelines.

The table below lists our three investment objectives, along with examples of how we will invest to support them. The investment objectives were developed over the course of our planning process and allow us to translate our problems, strategic responses and business objectives into tangible investments.

These investment objectives completed the Investment Logic map that links together our:

- Problem Statements as set out at the beginning of Section 3: Case for Change
- Business Objectives as set out at the end of Section 3: Case for Change
- Investment Objectives as set out overleaf.
Figure 20: Investment objectives and the investment logic map

<table>
<thead>
<tr>
<th>Problem</th>
<th>Accelerate model of care change programmes to maximise health outcomes</th>
<th>Design a system with the flexibility, capacity and capabilities to meet the needs of our future populations</th>
<th>Strengthen our foundations to ensure service provision as the future model of care is implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health status is variable and there are significant inequalities for some population groups and geographic areas in our health across the Region</td>
<td>Ensure self-directed care</td>
<td>Undertake backlog remediation work with regard to key sites across the Region</td>
<td></td>
</tr>
<tr>
<td>Health services are not sufficiently centred around the patient and their family, and are often driven by hospital-based care and care delivered in acute hospital settings</td>
<td>Enable self-directed care</td>
<td>Decongest and repurpose our existing hospital sites to address current capacity constraints</td>
<td></td>
</tr>
<tr>
<td>The needs of a rapidly growing, ageing and changing population are an issue</td>
<td>First priority to deliver a wider range of non-hospital options, including public health, primary, community and home care to deliver more services to be delivered in the most appropriate setting</td>
<td>Maintain and replace current assets to ensure they are fit for modern purpose and aligned with future models of care</td>
<td></td>
</tr>
<tr>
<td>Invest in fit for purpose new acute hospital sites to the Regional network to deliver services for a local population where required and target resources for communities which face the greatest health challenges</td>
<td>Stream elective surgery / procedures / services to specific sites across the Region where it makes most sense</td>
<td>Strengthen ICT foundations to improve resilience of our systems, reduce risk and improve efficiency and effectiveness</td>
<td></td>
</tr>
<tr>
<td>The way we work will be focused on maximising outcomes per resource input</td>
<td>The way we work will be focused on maximising outcomes per resource input</td>
<td>The way we work will be focused on maximising outcomes per resource input</td>
<td></td>
</tr>
<tr>
<td>Patient and whānau experience is the starting point for how we act and invest</td>
<td>Services will be configured to deliver the best outcomes</td>
<td>Services will be configured to deliver the best outcomes</td>
<td></td>
</tr>
<tr>
<td>Ensure the resilience of existing assets</td>
<td>Care is provided as close to home as clinically possible</td>
<td>Care is provided as close to home as clinically possible</td>
<td></td>
</tr>
<tr>
<td>Patient and whānau experience is the starting point for how we act and invest</td>
<td>All care transitions are planned and supported</td>
<td>All care transitions are planned and supported</td>
<td></td>
</tr>
<tr>
<td>Ensure effective governance processes to support investment decision making and performance management</td>
<td>Target resources for communities which face the greatest health challenges</td>
<td>Target resources for communities which face the greatest health challenges</td>
<td></td>
</tr>
</tbody>
</table>

Table 30: Investment objectives

<table>
<thead>
<tr>
<th>Investment objective</th>
<th>We will:</th>
</tr>
</thead>
</table>
| Accelerate model of care change programmes to maximise health outcomes | • Enable self-directed care  
• Expand care across a wider continuum of non-hospital options, including public health, primary, community and home care to deliver more services to be delivered in the most appropriate setting  
• Leverage patient technologies which provide new opportunities to capture, relay and present clinical and non-clinical information both in the home and other care settings  
• Provide mobile services and telehealth to ensure the needs of our isolated populations are met.  
• Utilise information systems which support new models of care and provide patients and care teams with full, timely access to health information  
• Develop our non-hospital workforce to support the delivery of new models of care (incl. GPs, nurses, pharmacists, other allied health and specialist medical practitioners, volunteers, whānau etc.) |
| Design a system with the flexibility, capacity and capabilities to meet the needs of our future populations | • Ensure capacity on current sites will deliver an agreed set of core services for the local population where required and assigned regional services  
• Add new acute hospital site(s) to the regional network to deliver services for a local population where required and purchase land where necessary  
• Stream elective surgery / procedures / services to specific sites across the Region where it makes most sense  
• Increase patient access to care providers by creating more options to access care (e.g. virtual / phone), extending hours of operation and delivering care closer to home where appropriate  
• Explore all forms of funding and provision models (e.g. private capacity) to ensure a full range of options are considered when exploring new facilities and services  
• Expand our clinical and non-clinical workforce to support growth in service delivery where aligned to future models of care |
| Strengthen our foundations to ensure service provision as the future model of care is implemented | • Undertake backlog remediation work with regard to key sites across the Region  
• Decongest and repurpose our existing hospital sites to address current capacity constraints  
• Maintain and replace current assets to ensure they are fit for modern purpose and aligned with future models of care  
• Strengthen Information communications technology (ICT) foundations to increase the resilience of our systems, reduce risk and improve efficiency and effectiveness |
5 Choosing Our Investment Path

Key messages:

In determining the preferred investment path to achieve the Region’s future vision, we have considered three investment options. Consideration of these options informs our decision about how we will need to invest to develop hospital capacity and to accelerate model of care change.

The NRLTIP details how the Northern Region will invest to ensure we have both the capabilities and capacity to deliver high quality health services to our growing and ageing population. Through our investments we will:

- Accelerate changes in models of care
- Improve the performance of current assets
- Future-proof hospital services to meet projected demand and the needs of our population.

In the preceding section of this plan, we have set out our vision for the future and have also outlined how our bed growth on our main hospital sites might change depending on how successful we are at accelerating model of care changes across the Region. These scenarios are summarised below.

Figure 21: Bending the demand curve

This analysis depicts a range of bed demand projections. It assumes that we would not be able to influence the demand trajectory in the immediate future as many of the proposed accelerate initiatives require a change of behaviour for our clinicians, patients and communities. The scenarios vary from the

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28 Modelling has been applied to both anticipated growth and current baseline.
bed projection of 2,055 beds, which reflects the number of beds we would require if we simply multiply activity by population growth, through to the most moderated view of the impact that accelerating change would have, which is to reduce the additional requirement to around 1,200 beds.

In evaluating the preferred investment path to achieve the Region's future vision, we have considered three investment options based on how we can bend the demand curve. This will inform our decision about how we will need to invest to develop hospital capacity and accelerate model of care change.

These options and a brief summary of what this will mean in terms of investment are shown in the table below.

<table>
<thead>
<tr>
<th>Investment Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. Maintain our current pace of change and meet the current activity growth forecast (2,055 beds by 2036/37) | • Investment in years 1-5 is predominantly in current sites  
• An additional acute site in the south commissioned and fully operational by year 10. Initially 250-400 beds commissioned, but the site will accommodate up to 600 beds  
• A second additional acute site in the north is commissioned with 350-400 beds operational by year 20 |
| 2. Moderately increase pace of change to meet medium moderated growth forecast (1,600 beds by 2036/37) | • Investment in years 1-5 is predominantly in current sites  
• Significant growth at Waitakere Hospital  
• An additional acute site in the south commissioned and fully operational by year 20  
• Purchasing land in the north in anticipation of 20 to 50 year demand growth |
| 3. Rapidly accelerate the pace of change to meet the most moderated growth forecast (1,200 beds by 2036/37) | • Additional capacity is met on our current sites  
• No additional acute hospital locations proposed within the next 20 years but we will purchase land in both the north and south to prepare for 20-50 year growth  
• Significant investment in acceleration of model of care changes including population health interventions, primary and community services and hospital efficiency and productivity  
• Additional capacity requirements managed through competitive commercial outsourcing arrangements |

Irrespective of what option we choose, the demand projections will be regularly reviewed over the term of our plan to ensure that proposed hospital service investments are appropriately scaled to meet the low, medium or the high forecasts if required.

5.1 Assessing our options

**Key messages:**

- The Region has developed a prioritisation framework to enable us to assess options between DHBs and across asset classes.
- Our investment path options have been assessed against certain criteria from our prioritisation framework.

**Development of a regional prioritisation framework**

One of the key tasks of the NRLTIP was to provide the Northern Region with a means of regionally prioritising investments. Regional prioritisation of investments is necessary to ensure the optimal spending of the Region’s limited funding to best serve our population in the future. By prioritising investments as a Region we will ensure a joined up approach and will minimise duplication across the Region.

As the Region has not prioritised investments across the DHBs in the past, a prioritisation framework had to be developed. We researched good practice frameworks within the Northern Region DHBs, across other New Zealand DHBs as well as other New Zealand and international organisations.
From this research we identified categories typically used as drivers for investment prioritisation:

- Strategic alignment
- Financial impact
- Risk
- Ability to implement

Waitemata DHB had a very robust framework which aligned to these four categories and also included a ‘Must we’ section to allow for the prioritisation of mandatory investments. We used the Waitemata DHB framework as our starting point and adjusted the prioritisation criteria to account for the regional perspective. This ensures that we invest in a way that aligns with our investment objectives and considers all benefits, risks and achievability factors of an investment.

The prioritisation framework for the Northern Region was then refined and iterated through work with Treasury, a range of regional forums and the NRLTIP Project Steering Group. Through the process, the criteria and weightings were tested and amended to eliminate any apparent biases.

The final Framework provides a set of clear and agreed criteria against which investments can be measured. The framework will support the Region to assess and rank potential investments across the Region against four questions:

- **Must we?** Indicates areas where there is a clear mandate, be it a Ministerial directive, legislative mandate or statutory requirement. Investment proposals that meet the ‘must we’ criteria will be undertaken, regardless of the ‘should we’, ‘would we’, or ‘could we’ criteria.

- **Should we?** Identifies the strategic alignment of each proposed investment to the regional investment objectives to ensure the investment will result in the Region moving toward the desired future state.

- **Would we?** This component of the framework outlines the benefits and risks of the investments. The benefits address the financial, patient experience and health outcomes of the investment whereas the risks assess both the risk the project is addressing as well as the functional risk of failure.

- **Could we?** Prompts consideration of achievability of the project, noting the degree of regional support for the project, the technical and business complexity of implementation and the change management required.

Below is an overview of the Northern Region Prioritisation Framework. Further information is provided in Appendix L.

### Figure 22: Overview of the Prioritisation Framework

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The case for change</td>
<td>Mandatory requirement</td>
<td>Strategic alignment</td>
<td>Value and risk</td>
<td>Achievability</td>
</tr>
<tr>
<td>What should we invest in, taking into consideration all criteria?</td>
<td>Is there a clear legislative, statutory requirement, or Ministerial directive?</td>
<td>Should we make this investment to help achieve our Regional strategy?</td>
<td>Would we make this investment to achieve these benefits and / or address these risks?</td>
<td>Could we do it together as a Region?</td>
</tr>
<tr>
<td>Scores from each of the respective considerations:</td>
<td>Yes or no</td>
<td>Investment objectives:</td>
<td>Benefits</td>
<td>Regional support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Accelerate model of care change</td>
<td>- Financial benefit</td>
<td>Technical and business complexity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Future proof to meet the needs of current and future populations</td>
<td>- Non-financial benefit</td>
<td>Change management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Strengthen foundations</td>
<td>- Health outcomes Risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Current organisational risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Functionality Risk</td>
<td></td>
</tr>
<tr>
<td>Investments which are mandated, or are the most strategically aligned, value-adding and are achievable.</td>
<td>Investments the Region is required to make.</td>
<td>Investments which will move us closer to our desired future state.</td>
<td>Investments with the biggest value, benefit and / or risk mitigation.</td>
<td>Investments we think are most achievable as a Region.</td>
</tr>
</tbody>
</table>
Each of the sections above (Should We, Would We, and Could We) will be scored independently of each other on a 100% weighted basis. The final prioritisation will be calculated by weighting the final value from each of the three sections above (total of 100% weighting).

Aspects of the prioritisation framework were selected to enable us to assess our different investment path options to arrive at a preferred investment path. The criteria are shown in the following table.

Table 32: Investment options assessment criteria

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Should we?</th>
<th>Would we?</th>
<th>Could we?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix: Strengthen our foundations to ensure service provision as the future model of care is implemented</td>
<td>Future proof: Design a system with the flexibility, capacity and capabilities to meet our current and future needs</td>
<td>Impact on population health (inequity, access and health outcomes)</td>
<td>Achievability</td>
</tr>
<tr>
<td>Accelerate: Accelerate model of care change programmes to maximise health outcomes and make best use of resources</td>
<td>Patient experience</td>
<td>Financial evaluation</td>
<td></td>
</tr>
</tbody>
</table>

We have used a dial scale to demonstrate how well an investment option scores against our investment criteria:

![Dial Scale](attachment:image)

**Application of the Prioritisation Framework to the investment options**

The remainder of this section outlines how each identified investment option is assessed against the criteria and ultimately what option is the preferred way forward for the Region.

**Investment Option 1: Current activity projections resulting in high growth projections**

This option presupposes that there will be little or no change to our current utilisation, average length of stay, admissions, percentile of occupied beds or the health of older people. The impact of this approach would see the Region needing another 2,055 modelled beds by 2036/37. Based on our current physical beds this equates to a net new requirement of 1,800 physical beds.

We would need to increase capacity on our current sites as well as investing in two new acute sites in the Region. Investments under this option will focus on developing:

- Some acute capacity at both North Shore Hospital and Waitakere Hospital
- Limited elective capacity at the North Shore and Manukau sites
- Ambulatory and short stay elective capacity at the Greenlane and Manukau sites
- A new 400 bed acute site south of Metro Auckland within 10 to 15 years
- A new 400 bed acute site north of Metro Auckland within 20 years

The substantial increase in capacity throughout the Region means we would be well positioned to meet both the demand growing in the south and the north. By dispersing our population across more sites we will be able to alleviate infrastructure pressures on our current sites. However, we will need to collaborate...
with other regional agencies to ensure new sites are well serviced by public transport while also providing sufficient parking and other supporting infrastructure.

Figure 23: Assessment of investment Option 1 (Current activity projections)

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Scoring</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix: Strengthen our foundations to ensure service provision as the future model of care is implemented</td>
<td>🌈</td>
<td>We will leverage existing infrastructure where appropriate and complete remediation work to ensure that our facilities are fit for future models of care. Some remediation work will be deprioritised where it does not provide additional capacity as our two priorities will be developing capacity and having sufficient capital to build two new acute sites.</td>
</tr>
<tr>
<td>Future proof: Design a system with the flexibility, capacity and capabilities to meet our current and future needs</td>
<td>🌈</td>
<td>Where our current sites are redesigned and remediated they will be done so with current and future needs in mind. Our new sites will be designed with future expansion and remodelling in mind to ensure long term suitability.</td>
</tr>
<tr>
<td>Accelerate: Accelerate model of care change programmes to maximise health outcomes</td>
<td>🌈</td>
<td>Hospital based model of care changes will be accelerated based on the remediation and development of acute capacity. All sites will enable an integrated regional care network closer to where patients live, work and play. Wider population based model of care changes will be limited however due to the prioritisation of funding going towards hospital expansion initiatives.</td>
</tr>
<tr>
<td>Impact on population health (inequity, access and health outcomes)</td>
<td>🌈</td>
<td>Increased access for areas with growing populations will enable people to receive care when required. Reduced investment in population health initiatives will minimise overall health gains in the Region.</td>
</tr>
<tr>
<td>Patient experience</td>
<td>🌈</td>
<td>Shorter travel times and increased services at the two new acute sites will improve patient experience and decrease wait times.</td>
</tr>
<tr>
<td>Financial evaluation</td>
<td>🌈</td>
<td>Substantial investment will be required to acquire two new sites and both complete essential remediation of our current sites and invest in infrastructure and facilities on new sites.</td>
</tr>
<tr>
<td>Achievability</td>
<td>🌈</td>
<td>This option is achievable in that it does not require us to successfully intervene to mitigate future demand for hospital beds. However, in turn it requires substantial capital and operational investment to develop sufficient capacity and would require significant workforce increases which makes this option notably less achievable for the Region.</td>
</tr>
</tbody>
</table>

A key risk associated with this option is the need to acquire two plots of land that are accessible, sufficiently sized and within our budget to build our two new facilities on. The staffing of two new acute sites will require significant planning and may present recruitment issues for the Region. While some staff may find it appealing to be able to work outside of Metro Auckland given the cost of living in the city, it is likely that recruiting this quantity of staff would have serious flow on effects for the rest of New Zealand.

The capital cost associated with both the remediation work and construction of two new acute sites is significant as are the costs of staffing and delivering the associated increase in services. Given the lack of funding that would remain to implement our population health initiatives, it seems unlikely that we will obtain ‘best value’ for the public health system resource. Reduced population health investment will negatively impact our ability to improve the outcomes of hard to reach populations and / or populations requiring preventative action.
Investment Option 2: Moderated pace of change resulting in medium growth projections

Under this option we moderately accelerate our pace of changes which will see the Region only requiring 1,600 additional beds by 2036/37.

This investment option sees a blend of short to medium term development of capacity on current sites as well as the longer term development of a new acute site in south Auckland.

Investments under this option will focus on:

- Developing acute capacity at the Waitakere and North Shore sites as well as the new southern site
- Developing complex elective capacity at the North Shore and Manukau sites along with the consideration to contract services to the private / NGO sector will decongest acute sites
- Developing ambulatory and day stay elective capacity the Waitakere, Greenlane, Manukau sites
- Constructing a new 400 bed acute site south of Metro Auckland within 10-15 years
- Purchasing land north of Metro Auckland to prepare for 20 to 50 year growth.

Figure 24: Assessment of investment Option 2 (Moderated pace of change)

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Scoring</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix: Strengthen our foundations to ensure service provision as the future model of care is implemented</td>
<td><img src="Image" alt="Score" /></td>
<td>Our current facilities will be designed in line with their future role in our healthcare network and therefore capable of meeting the demands of new models of care. Some facilities will have maintenance delayed where it is not critical to on-going service provision which may result in critical repairs being required in the future.</td>
</tr>
<tr>
<td>Future proof: Design a system with the flexibility, capacity and capabilities to meet our current and future needs</td>
<td><img src="Image" alt="Score" /></td>
<td>Current facilities that are remediated or redesigned will, as far as possible, be designed to meet future model of care requirements. Our new southern site will be designed with future expansion and remodelling in mind to ensure long term suitability.</td>
</tr>
<tr>
<td>Accelerate: Accelerate model of care change programmes to maximise health outcomes</td>
<td><img src="Image" alt="Score" /></td>
<td>Current facilities and the new site will meet the demand for future care and enable an integrated regional care network closer to where patients live, work and play. We will accelerate the implementation of certain evidence based population health investments that will result in the greatest health gain for our most in need populations.</td>
</tr>
<tr>
<td>Impact on population health (inequity, access and health outcomes)</td>
<td><img src="Image" alt="Score" /></td>
<td>Access will be improved within Metro Auckland and Counties Manukau through the expansion of services at Waitakere and North Shore as well as the new site to serve the high-needs patients in South Auckland and possibly the residents of the northern Waikato. As we are only investing in one new acute site, we will have increased funding for population health initiatives that will improve the health of our regional population.</td>
</tr>
<tr>
<td>Patient experience</td>
<td><img src="Image" alt="Score" /></td>
<td>Shorter travel times and increased services at Waitakere and the new southern site will improve patient experience and decrease wait times.</td>
</tr>
<tr>
<td>Financial evaluation</td>
<td><img src="Image" alt="Score" /></td>
<td>Investment will be required in the remediation and expansion of current sites, but in the development of only one additional site within the next 20 years.</td>
</tr>
<tr>
<td>Achievability</td>
<td><img src="Image" alt="Score" /></td>
<td>To meet short term demand this option will see us rapidly develop capacity on our current sites with later development of capacity on a new acute site. The buffer provided in the earlier years by our current sites will allow us time to purchase land in the south and develop appropriate plans for a new hospital.</td>
</tr>
<tr>
<td>Overall Outcome</td>
<td><img src="Image" alt="Score" /></td>
<td></td>
</tr>
</tbody>
</table>
Our current site expansions and new acute site will better enable DHBs to provide access to hospital based services and meet national health targets (e.g. waiting times). This will also alleviate some infrastructure pressures on our current sites.

Developing capacity at North Shore Hospital and Waitakere Hospital will help meet the needs of the growing Waitemata population and decongest Auckland City Hospital, better enabling it to serve our highly complex patients. We cannot however, guarantee that we will be able to meet the growing demand for the northern Waitemata and southern Northland populations and may therefore need to make early investments in local ambulatory options north of Metro Auckland to meet demand.

The construction of a new site south of Auckland would serve the southern Counties Manukau district and likely some residents of the northern Waikato.

By investing in both current sites and a new site, we are ensuring that all our facilities with planned future service provision will be fit to meet modern purposes. However, as the new southern site is not expected to be completed for at least 10 years, we continue to run the risk of not expanding rapidly enough to keep pace with demand.

Staffing to develop new capacity on our existing sites as well as the new southern site may present a challenge for the Region. While the new southern site will likely be appealing to many staff due to the decreased living costs associated with living outside of Auckland City, we will need to ensure that our training and recruiting teams are prepared to fully staff the needs of a new hospital. To appropriately stand up, the new acute site we will need to consider how many staff, what levels and what services will be required to make the site operational.

This option presents a challenging but not unachievable goal of mitigating demand for hospital services. It will require us to invest in population health strategies that will improve the health outcomes of our population. We will also need to invest in optimising how we deliver care in hospitals to ensure that we are not only delivering care efficiently but that we are providing care in the most appropriate location. Our reliance on bending the demand curve presents a risk to the Region’s ability to meet future demand. This requires us to not only land bank in the north but also constantly review whether we are effectively mitigating demand for hospital beds.

**Investment Option 3: Accelerated pace of change resulting in low growth projection**

This option assumes an accelerated pace of change will significantly reduce the number of additional beds required by 2036/37 to only 1,200. Our capacity growth will therefore be focussed only on our current sites with partnerships with private and NGO providers to help us meet demand.

Investments under this option will focus on developing:

- Acute capacity on the Northland, North Shore, Waitakere, Auckland City and Middlemore sites
- More complex elective capacity on the North Shore and Manukau sites
- Ambulatory and day stay elective capacity at the Waitakere, Greenlane and Manukau sites
- Strong commercial relationships and contracts.
### Figure 25: Assessment of investment Option 3 (Accelerated pace of change)

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Scoring</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Should we?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fix: Strengthen our foundations to ensure service provision as the future model of care is implemented</td>
<td>⚫</td>
<td>We will leverage existing infrastructure where appropriate and complete extensive remediation work to ensure that our current sites and facilities are fit for future models of care.</td>
</tr>
<tr>
<td>Future proof: Design a system with the flexibility, capacity and capabilities to meet our current and future needs</td>
<td>⭐</td>
<td>Our ability to design flexible facilities will be limited by the infrastructure and design of our current facilities. Minimal investment in DHB owned capacity may threaten service delivery beyond a 20 year time horizon.</td>
</tr>
<tr>
<td>Accelerate: Accelerate model of care change programmes to maximise health outcomes</td>
<td>⭐</td>
<td>By substantially reducing our capital investment in acute facilities we will be able to increase our investment in population health strategies and other non-hospital based accelerate initiatives.</td>
</tr>
<tr>
<td><strong>Would we?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact on population health (inequity, access and health outcomes)</td>
<td>⬆️</td>
<td>Access and equity for growing communities in the north and south will continue to present challenges particularly where local access is an important driver of initiatives to improve equity of outcomes.</td>
</tr>
<tr>
<td>Patient experience</td>
<td>⬆️</td>
<td>There will be limited benefits to patient experience outside of their familiarity with our sites. Increased investment in community based services is likely to improve the experience of these services.</td>
</tr>
<tr>
<td>Financial evaluation</td>
<td>⬆️</td>
<td>This option potentially requires the least capital investment, but this may be offset with higher operational costs.</td>
</tr>
<tr>
<td><strong>Could we?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievability</td>
<td>⬆️</td>
<td>There are risks inherent in this option as it is highly likely that we will struggle to mitigate demand for acute capacity to the extent that this option requires. The staffing and workforce implications are more achievable.</td>
</tr>
</tbody>
</table>

**Overall Outcome**

By addressing our maintenance backlog and undertaking large scale remediation of all sites, we will ensure our current sites are fit for purpose and capable of maintaining services to the Region. We will not however, be addressing the accessibility of our acute sites, which will become an increasing challenge. Under this option, we are unlikely to fully alleviate the current stresses our sites face. We will need to invest in substantial amounts of supporting infrastructure, such as car parks, to accommodate the increase in hospital activity that would occur on all sites. Further, our current sites may have physical / land constraints that impede our ability to expand and meet demand.

We must also consider the risk that this scale of remediation and expansion may have in terms of impacting on-going service delivery and meeting anticipated demand. It is possible that the remediation work may disrupt our services or alternatively not be completed in a timely fashion to keep pace with demand.

The greatest risk of this option is whether we are able to sufficiently mitigate demand for acute services in the future to be able to deliver services within a very constrained capacity footprint. We may be able to mitigate this risk to a degree by the successful negotiation of commercial contracts for ambulatory and elective services. However, we will need to identify a clear strategy for how we will meet acute demand that exceeds our capacity capabilities. To partially mitigate this threat if this option is chosen, we will need to invest in land south and / or north of the city so that we can build new acute capacity on it in the future.
5.2 Options assessment comparison

**Key messages:**

- Option 2, ‘moderate pace of change and moderate growth projection’ is the preferred investment path.

Comparison of the three investment options demonstrates relative strengths and weaknesses. The ‘Overall outcome’ for Option 2, identifies it as the preferred investment path.

**Figure 26: Comparison of Investment Options**

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Option 1 Current Pace</th>
<th>Option 2 Moderate Change</th>
<th>Option 3 Rapid Change</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix: Strengthen our foundations to ensure service provision as the future model of care is implemented</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>All options will require a similar investment in urgent baseline remediation work if the Region is to address its current capacity shortfall</td>
</tr>
<tr>
<td>Future proof: Design a system with the flexibility, capacity and capabilities to meet our current and future needs</td>
<td>Green</td>
<td>Yellow</td>
<td>Yellow</td>
<td>By investing in substantial new capacity Option 1 will ‘future proof’ us to a greater extent than the other options. By not building any new sites Option 3 poses a risk to service provision both within and beyond the duration of the NRLTP.</td>
</tr>
<tr>
<td>Accelerate: Accelerate model of care change programmes to maximise health outcomes</td>
<td>Green</td>
<td>Green</td>
<td>Yellow</td>
<td>Limiting investment in DHB bed capacity in Option 3 will require the greatest investment in accelerating model of care changes, while in Option 1 limited funds will be available to invest in new model of care</td>
</tr>
<tr>
<td>Impact on population health (inequality, access and health outcomes)</td>
<td>Green</td>
<td>Yellow</td>
<td>Yellow</td>
<td>By creating new acute sites both Options 1 and 2 will increase access and reduce inequities across the Region. Further, by investing capital in non-hospital based initiatives Option 2 and 3 will be able to improve the health outcomes of our population</td>
</tr>
<tr>
<td>Patient experience</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>New acute sites outside of Metro Auckland and the expansion of Waitakere will improve the patient experience by reducing travel times to acute services across the region</td>
</tr>
<tr>
<td>Financial evaluation</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Preliminary assessment of financials, based solely on costs capex and opex costs indicates that Option 1 has the greatest capex and opex costs. Option 3 will have the lowest costs if it is possible to limit the investment required in commercial contracts</td>
</tr>
<tr>
<td>Achievability</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Option 2 is the most achievable as it balances capital investment in facilities with investment in non-hospital based initiatives…</td>
</tr>
<tr>
<td>Overall outcome</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Option 2 balances our investments between our physical capacity and investments in population health strategies and community care to improve the health and outcomes of our population</td>
</tr>
</tbody>
</table>

Investments will be made concurrently in remediating our current infrastructure, future proofing to our medium growth (1,600 beds) scenario and in new sites, whilst also investing to support model of care changes.

Under this option we will:

- Ensure the resilience of our current facilities, develop new acute capacity while also ensuring sufficient capital remains to invest in our necessary population health initiatives, community and primary care, workforce sustainability and IS/IT
- RemEDIATE, reconfigure and expand our current sites, particularly in the short term to meet anticipated demand
- Rapidly grow Waitakere Hospital to meet the needs of West Auckland and decongest both North Shore and Auckland City Hospitals
- Build a new 400 bed acute site south of Metro Auckland within the next 15 years
- Land bank north of Metro Auckland to ensure the sustainable delivery of healthcare in the Region beyond the duration of the LTIP.

By only investing in our current sites and one additional new acute site, rather than developing capacity to meet the current activity growth forecast, we will avoid both some capital expenditure and operational expenditure, particularly in our hospital settings. The avoidance of this cost is critical if we are to be able to invest remaining capital in accelerating model of care changes to improve regional population health. These investments will include:

- Public health interventions, patient activation and proactive care
- Developing our primary and community care settings to enable patients to be supported outside of hospital settings
• Strengthening of our workforce, ensuring staff have the capacity and capability required to deliver on our population health strategy

• Modernising our IS/IT systems to enable interoperability and communication across all sectors of the health system.

5.3 Investment implications of preferred investment path

Key messages:

• The preferred way forward for the Region to plan to provide only 1,600 additional beds for the Region by 2036/37.

• We will do this by investing in our current sites and building one new facility in the south.

• Through this option we will improve the health outcomes of our population by ensuring our current and new facilities are fit for purpose, creating new capacity to meet demand coming from both the north and south of the Region and increasing equitable access across the Region.

The NRLTIP seeks to optimise our ability to achieve the Triple Aim. After consideration of the qualitative benefits, relative economic costs, and overall achievability of each option, the Northern Region has chosen to proceed to plan for the medium pace of change scenario. We believe that this option will best address the future demand for hospital services while delivering the best value and patient experience.

By planning for the medium pace of change projection we will need to make a step change in how we deliver health services to meet the demand from the communities we serve. This option balances our need to be realistic about the impact we can have on acute demand and population health over this time period while also motivating us to make fundamental changes to the way we work to transform how we deliver care to deliver the best health outcome improvements for our population.

By selecting this option we will be able to ensure the resilience of our current facilities, develop new acute capacity while also ensuring sufficient funding to invest in our necessary population health initiatives, community and primary care, workforce sustainability and IS/IT. These investments are of crucial importance if we are to successfully improve health outcomes and equity across the Region.

Investing to meet medium growth projections

Our investment in only one new acute site, alongside the expansion of our existing acute sites, will ensure that we are able to optimise the use of all acute facilities without risking understaffing or insufficient volumes of procedures to ensure safe and cost-effective care. Further, by rapidly expanding capacity on current sites we are increasing the Region’s ability to meet demand in the first five years when our accelerate initiatives are unlikely to have impacted health outcomes or demand.

Expanding capacity to meet short, medium and long term demand

The Region has determined the optimal sequencing of investments that would address our short, medium and long term population demand. In the first five years we would concentrate our efforts on the expansion of Waitakere Hospital and other short term initiatives to create immediate capacity while simultaneously planning a new hospital in South Auckland to come online within 10 to 15 years. Full detail on how we will develop acute capacity can be found in the following section.

Remediating and reconfiguring our current facilities to better meet the needs of our population

This option will see us invest in the remediation of many key assets throughout the Region. Remediation efforts will be targeted and investment will be made to ensure that facilities are well designed to meet the requirements of their future role in the healthcare system. Our remediation efforts will also focus on building flexibility into facilities where possible to ensure that we can continue to use these facilities as models of care evolve. We will first focus our remediation and remodelling efforts on sites which can provide additional capacity to the Region. Our investment in clinical equipment and other assets at refurbished sites will also be updated to meet each facility’s purpose within our care network.

The scale of investment required to make all of our facilities fit for future purpose is large and therefore there will be certain assets that will have their life extended beyond what is optimal. Approaching
remediation in this way will ensure that our facilities are capable of meeting current and future demand and enable new models of care. As some of the required repair work is extensive we will look to partner with private or NGO providers. These independent providers will help us maintain services throughout the course of remediation or repair work. Their collaboration will ensure that patient experience and health outcomes are not compromised.

**Rapid expansion of Waitakere to meet the needs of West Auckland and decongest North Shore Hospital and Auckland City Hospital**

Expanding Waitakere will improve the services we provide to the west and north of Auckland while simultaneously releasing capacity at both Auckland City Hospital and North Shore Hospital. This will improve the patient experience as wait times / lists across Metro Auckland will be better managed and hospitals will be increasingly less likely to exceed target times. However, we will periodically review our demand projections and consider early investment in community care settings in the northern Waitemata district and southern Northland district to ensure adequate service provision across the Region.

**Building a new acute site south of Metro Auckland**

By building in the south we will be able to meet the growing demand being placed on Counties Manukau facilities, while also helping serve the Midlands and upper Waikato populations for whom the new south site will likely be easier to access than current Waikato DHB facilities. The new southern site will be planned and built with future model of care changes in mind. We will not only conduct our own research into how to best configure this site but we will also learn from the Canterbury and Southern DHBs’ experiences in building a new hospital. The hospital that will be built in the south will initially provide approximately 350–400 additional beds to the Region with the ability to be expanded to 600 beds if required in the future.

We are not anticipating the need for a new acute site in the north within the next 15 years. However, we will examine where population growth is most significant north of Auckland and identify where a potential northern site may need to be in the future. Once this has been identified, we will purchase land to allow for a new site to be built in 15 to 20 years’ time if required. Any purchase of land in the north will be based on the same capacity requirements as the southern site. The potential to expand these facilities further will help ensure the sustainable delivery of healthcare to the Region beyond the 25 year time horizon this LTIP was asked to consider.

**Parallel investment in accelerating model of care changes**

To enable the Region to invest in only an additional 1,600 beds, we will need to make a series of investments that improve health outcomes and equity, enable future model of care changes, and improve asset performance. Therefore, throughout this period we will invest in accelerating model of care changes and public health initiatives to start to improve population health throughout the Region. Investing in this way will allow us to be flexible in how we meet both short and long term demand projections within anticipated fiscal constraints.

A key focus of our future investment will be increasing our capability to analyse, target and improve population health outcomes through public health interventions, patient activation and proactive care. This type of investment will allow us to increase equity across the Region and address unmet need. These investments will be further detailed by the Population Health Deep Dive to be completed as part of the second NRLTIP.

As previously stated, our investment in population health initiatives may identify previously unmet needs and therefore increase the demand placed on our primary and community settings. To meet this potential increase in demand, and enable the Region to work in a more integrated manner, we will strengthen and grow our investment in operational expenditure for primary and community care. Not only will this investment be required to address previously unmet need, but as the population we serve grows and ages, we will need to fund more services in future to help people to live well.

Operational investment in primary and community settings will be complemented by investment in enhancing the services provided by our current community sites and developing new community sites and services in areas of high needs and demand. Phasing and location of community settings will have some dependencies upon other planned acute and ambulatory investment strategies.

Our workforce is crucial to the on-going delivery of care across the Region. We will invest in our workforce, ensuring they have the capacity and capability required to deliver on our population health
strategy and provide care to our rapidly growing and changing population. Our future workforce strategy will be identified by the Workforce Deep Dive that will be completed as part of the next NRLTIP iteration.

To support our patients, care providers and care settings we will invest in the strengthening and modernisation of our IS/IT systems to enable interoperability and communication across all sectors of the health system. Our IS/IT investment are fundamental to enabling future models of care and ensuring that all care settings are able to connect and share data to ensure our patients can seamlessly transfer through the system.

5.4 Sequencing our investments

Based on our need to grow new capacity, we have staged how and where we will grow capacity over the next 20 years. Our current sequencing proposal does not identify when we will grow our community sites, rather it is focused on how we will grow to meet acute demand in the next 10 to 15 years. Growth of our community sites will occur in parallel to this but further work is required to identify where these investments should be made.

Figure 27: Investment sequencing timeline
Key things to note from the sequencing proposal

- Short term responses are urgent – All the investments identified in the short term response are required and should be completed by 2021/22. It will be challenging to spread this investment evenly over this time period as a number of initiatives will require the decant of admin staff or services before these areas can be repurposed.

- Whangarei Hospital Redevelopment – Current business case timings have this coming on stream between 2023 and 2026.

- North Shore hospital ‘not fit for purpose’ – Current business case has timing of 2023 to 2026. Although this is a ‘Fix’ business case – this proposal could be moderated so the old tower is made fit for purpose creating 150 beds in the short to medium term.

- The Mason Clinic will be expanded to meet future forensic mental health demand and may grow to include minimum secure services.

- Waitakere Hospital – Development should occur sooner rather than later. A staged development programme would enable the investment that has already been made on the site to be leveraged and could be achieved without any significant impact on the current services being delivered on the site. An initial assessment of the site’s capacity indicates that around 400 beds could potentially be added on to the site. This would also delay the need to develop a major new site in the north and could also relieve pressure on Auckland City Hospital and North Shore Hospital.

- New southern site – Analysis has confirmed that a second acute site is required in the south making this a priority for the Region. The Manukau site is too close to Middlemore Hospital to be a preferred location. Preliminary analysis, based solely on the Northern Region’s population suggest that land should be purchased somewhere around Papakura, or further south, which has sufficient space to support the development of a 400-600 bed hospital. In the 20 year time period of this LTIP it is unlikely we would need to bring all this capacity on, but this site should be future proofed for a further 20 years. Development at the site would be staged and could include additional ambulatory care facilities.

- New northern site – Investment in a second additional site in the north is still under consideration and it is likely we will invest in land in the north in the near future to allow us to build a new site when it is required.

- Decanting acute sites – All DHBs will need, in parallel, with the sequencing outlined above, to consider proposals to decant work from their acute sites that could potentially be done elsewhere. In particular this includes; some elective surgery and AT&R services. This will likely require investment in non-acute sites and enhanced working relationships with Age Related Residential Care (ARRC) and other providers. An indicative scale of 350 beds has been indicated which, with the other investments outlined above, would bring the total additional capacity increment to the medium growth scenario.
6 Financial Implications

6.1 Expected changes to our current financial profile

Key messages:

- The proposed investment path will impact on both the scale and distribution of expenditure. The Region’s expenditure on health service provision will grow, faster than population growth, and the current expenditure distribution will change.
- Operating costs will rise over the 20 year period of our plan from $5bn to about $12.8bn (excluding financing costs).
- Planning for an additional 1600 beds, rather than 2055 beds, by year 20 of the plan will avoid approximately $800m provider arm operational cost in that year. This might release funds required for investment in new models of care and services outside of the hospital setting.
- The opex modelling highlights the particular significance of the health workforce as a component of operational expenditure. DHB expenditure on staff represents approximately 70% of operating expenditure in the hospital setting.

Two distinct financial changes will occur over the next twenty years

The NRLTIP has identified environmental factors and a regional direction of travel that, combined, are expected to result in two distinct financial changes over the next 20 years. The most material financial impacts relating to the regional investment plan will be that:

- The overall scale of expenditure will grow:
  - Total operating costs will grow faster than the underlying rate of population growth. The costs will grow due to increased clinical service activity and unit cost inflation. The activity growth is aligned to demographic weighted demand, particularly influenced by demand associated with our Region’s aging population. In the majority of our service areas, the demand growth rate is expected to be greater than raw population growth.
  - Capital financing costs will grow, due to the need for significant capital investment. In the short term, the increase in expenditure reflects an urgent need for capital investment to address capacity pressures and the consequences of historic deferred expenditure.
- The distribution of expenditure will change.
  - The future operating expenditure profile will display a general shift of expenditure away from DHB Hospital Provider Arm areas into alternative settings and external providers. This change will reflect the Region’s desire to:
    - See more services delivered in different settings and by different mechanisms.
    - Keep the DHB Provider Arm hospital setting for the delivery of specialist care requiring hospital based services.

Likely changes that will influence financial profiles

The types of changes that we expect to impact on our current distribution of operating expenditure, as we implement this NRLTIP over the next 20 years, are highlighted in the table below. This table reflects our current understanding of likely changes expected to influence financial profiles and will continue to be refined as we progress future LTIPs.

---

29 Excluding capital financing costs
The current distribution of operating expenditure by category highlights the particular significance of workforce as a component of DHB Provider Arm expenditure. This Provider Arm expense equates to approximately 70% of DHB Provider Arm expenses and 45% of the Region’s spend on all DHB funded health services across our Region. External provider operating costs are also significantly affected by workforce, however it is not possible to separate out the staff component associated with the external contract costs. In future we expect to see a cost shift from hospital to community although, as indicated in the table below, while services may shift out of the hospital setting it is possible that:

- Some costs may remain in the DHB Provider Arm, should the delivery model be structured on an integrated outreach, or outsourced, model of delivery from a hospital based service provider
- The staff cost mix may also change, proportionately across all settings; if a more ‘expert’ or senior mix is preferred at all stages in the hospital setting and expert-led generalist teams are applied across the community.

Table 33: Current cost profile and potential changes

<table>
<thead>
<tr>
<th>Current Distribution</th>
<th>Overview - Potential Financial Impacts of Plan in Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Most material change on proportion distribution</td>
</tr>
<tr>
<td>Provider arm</td>
<td></td>
</tr>
<tr>
<td>Personnel (inc. Outsourced)</td>
<td>45% ↓</td>
</tr>
<tr>
<td>Clinical Supplies</td>
<td>10% =/↓</td>
</tr>
<tr>
<td>Non -Clinical Supplies and Infrastructure Costs</td>
<td>5% =/↓</td>
</tr>
<tr>
<td>Outouted Services</td>
<td>4% =/↑</td>
</tr>
<tr>
<td>Financing Costs (IDCC)</td>
<td>5% ↑</td>
</tr>
<tr>
<td>Payments to Provider</td>
<td></td>
</tr>
<tr>
<td>Laboratories</td>
<td>2% =</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>7% =/↑</td>
</tr>
<tr>
<td>PHOs</td>
<td>7% ↑</td>
</tr>
<tr>
<td>Personal Health</td>
<td>3% ↑</td>
</tr>
<tr>
<td>Mental Health</td>
<td>2% ↑</td>
</tr>
<tr>
<td>Disability Support, Public and Maori Health (exc Res)</td>
<td>2% ↑</td>
</tr>
<tr>
<td>Residential care</td>
<td>6% ↑</td>
</tr>
<tr>
<td>IDF Outflows out of Region</td>
<td>1% =/↓</td>
</tr>
<tr>
<td>Total Expenditure</td>
<td>100% =/</td>
</tr>
</tbody>
</table>

The potential operating expenditure trajectory

To help provide a perspective on the likely scale of operating expenditure change, we have modelled the potential growth in operating expenditure driven by anticipated volume growth and indicative cost inflation / cost mix changes.

The following Figure illustrates the forecast operating cost growth associated with:

- Provider Arm service delivery growth relating to the utilisation of an additional 1,600 hospital beds
- Non DHB provider (external) delivery growth to meet the scale of volume change driven by population growth expected within the segments of society being served
- Cost inflation factors that can be expected to bear on different cost categories
- A comparison unmoderated demand option; with consequential additional 2,055 bed development.
The Figure represents a ‘snapshot’ comparison of the changes based on current year and 20 years from now. It reflects our current estimates of financial impacts on the operating cost categories (shown in Table 33), and is extrapolated from current spend profiles and current levels of activity with adjustments reflecting elements of the direction of travel as outlined in this NRLTIP document. This financial modelling of future years does not fully reflect an allocated growth in community expenditure for the activity that previously was delivered in hospital settings, although some adjustment assumptions for opex have been applied to start to reflect the NRLTIP future investment intent.

Later, in Section 6.3, we discuss the opex trajectory across each year of this 20 year plan.

Figure 28: Summary of the opex trajectory 2016/17 to 2036/37 (excluding financing costs)

The above Figure illustrates that:

- The Region’s total operating cost (excluding capital financing costs) was about $5.0bn in 2016/17.

- The anticipated effect of just the cost and price inflation on our Region’s base year ‘operating costs excluding capital financing costs’ over the 20 year period of the NRLTIP (i.e. with no volume change in hospital setting and no population growth factors applied to external provider costs) is expected to raise the base year operating costs to $3.67bn. This equates to a 2.7% annual cost inflation compounded over the 20 year period.

- In addition, during the 20 year period:
  - External providers will experience volume growth, and cost growth on those additional volumes. The volume increase combined with the additional volume cost inflation will result in $1.4bn of additional opex across our Region. This is a combined volume and related cost increase of 3.7% per annum, compounded over 20 years.
  - The volume growth and volume related cost growth associated with DHB Provided services is expected to generate $2.6bn of additional opex. This is a combined volume and related cost increase of 2.95% per annum compounded over 20 years (and is...
associated with serving the extra capacity of 1600 beds plus other related hospital services).

- The sum of all these changes is reflected in year 20 as an annual total regional opex of $12.8b (excluding capital financing costs). This equates to a compound annual cost growth of 4.8% comprising both volume and cost inflation components.

The delivery of services in the community is unlikely to provide any cost savings against delivery of similar services in a hospital setting. The avoided annual operating cost of approximately $800m shown for year 20, and achieved by planning to 1,600 rather than 2,055 additional beds, is therefore highly likely to be absorbed in development of new models of care, and funding alternative non-hospital based service delivery not yet fully reflected in this financial modelling. The variance between the opex associated with the two capacity development targets therefore reflects the variance that might be expected in the Provider Arm; but should not be considered a fully avoided requirement for future Northern Region health service overall operational expenditure in future. The availability of this avoided cost as a funding stream for other investment will be dependent upon the future relationship between revenue, opex and capital financing costs.

The above opex view does not quantify the changes to current capital financing costs (interest, depreciation and capital charge [IDCC]). Capital financing costs are further discussed in section 6.3.3 below.
6.2 Key capital investments

6.2.1 Target capacity developments

Key messages:

- The NRLTIP target capacity development plan, together with infrastructure remediation plans, drives our capital investment sequencing.
- We have identified 8 groupings that categorise the infrastructure capital investment requirements to achieve our target hospital capacity of 1600 additional beds over 20 years.
- We have identified a further 6 capital investment groups to account for the required enabling and other asset investments (such as IS/IT and clinical equipment capital investments).

The NRLTIP target capacity plan, together with infrastructure remediation plans, drives our capital investment sequencing as outlined in Section 5.4 at Figure 27. The first priority shown in this investment sequence is to rapidly expand our current sites to meet immediate demand. This ‘Short Term Response to Immediate Pressures’ plan will result in approximately 402 new available hospital beds\(^{30}\) plus other much needed hospital capacity. The specific projects associated with this investment group have already been described in Table 29 and are provided again below with slightly more detail.

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource all physical beds (opex only; ADHB &amp; CMH)</td>
<td>54</td>
</tr>
<tr>
<td>Waitakere prefabs</td>
<td>22</td>
</tr>
<tr>
<td>Auckland DHB level 2 (ED extension)</td>
<td>24</td>
</tr>
<tr>
<td>Auckland DHB level 5 admin decant and repurpose</td>
<td>50</td>
</tr>
<tr>
<td>Auckland DHB support building decant and repurpose (Phase 1)</td>
<td>100</td>
</tr>
<tr>
<td>CMH Galbraith refurbishment (Phase 1)</td>
<td>32</td>
</tr>
<tr>
<td>WDHB Elective capacity and inpatient beds (ECIB)</td>
<td>60</td>
</tr>
<tr>
<td>CMH specialist rehab</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total (Short term responses to immediate pressures)</strong></td>
<td><strong>402</strong></td>
</tr>
</tbody>
</table>

This short term response plan is the first of a number of capital investment groupings used to identify and phase the Region’s infrastructure capital investment requirements in a systematic manner. Each investment grouping contributes to the target capacity development plan (1,600 extra hospital beds over 20 years). Each group comprises a number of specific initiatives which display:

- Investment interdependencies (e.g. a project providing enabling infrastructure remediation needing to be progressed before a capacity development initiative can deliver extra capacity)
- Ongoing planning work inter-dependencies (eg mental health related projects are identified as a cluster due to the planned further NRLTIP related work on some elements of the mental health investment path; as part of the planned Deep Dive into mental health services)

\(^{30}\) Whilst many of the projects identified are likely to provide the capacity identified, the final totals by individual projects will not be clarified until all the business case work is completed. For example, the CMH specialist rehab project is now unlikely to produce 60 new beds as some will be replacement beds e.g. for spinal services. Similarly the ADHB beds may be more than indicated. The final capacity and associated costs will vary from the breakdown shown here but this is unlikely to be material when considering the overall scale of investment indicated by this NRLTIP.
• Responsibility / Accountability dependencies (e.g. identification and grouping by governing entity for key ‘capacity’ development or ‘remediation’ projects identified within this NRLTIP process).

The capital investment sequencing plan identifies 8 groupings that categorise the region’s key infrastructure capital investment requirements. These provide a framework for the financial analysis and are shown in Table 35 below. Each of the capital investment groups listed in this table has a supporting list of capital projects to provide detail of the estimated scale of cost, cost-phasing, and capacity provision to enable the financial, and capacity provision, analysis.

Table 35: Capacity and remediation capital investments

<table>
<thead>
<tr>
<th>Facility Capacity &amp; Remediation Focused Investment Groups</th>
<th>Potential Additional Beds</th>
<th>Timeframe (for Capacity Available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Short Term Responses to immediate pressures</td>
<td>402</td>
<td>All prior to 2023, but a number may be late in this time period</td>
</tr>
<tr>
<td>All proposals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mental Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>92</td>
<td>Pre 2023</td>
</tr>
<tr>
<td>Stage 2</td>
<td>30</td>
<td>2023-2027</td>
</tr>
<tr>
<td>These are indicative and will be further informed by a Mental Health Deep Dive in NRLTIP 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Additional Remediation and Capacity Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auckland City Hospital/Greenlane</td>
<td>150</td>
<td>2028</td>
</tr>
<tr>
<td>North Shore Hospital and Waitakere (also see 4 &amp; 6)</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Middlemore Hospital/ Manukau</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Waitakere Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>40+40</td>
<td>2022-2028</td>
</tr>
<tr>
<td>Stage 2</td>
<td>120</td>
<td>2032</td>
</tr>
<tr>
<td>Stage 3</td>
<td>60</td>
<td>2037</td>
</tr>
<tr>
<td>Further work is required to confirm the preferred staging of beds and the total requirement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Whangarei Hospital Redevelopment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redevelopment case (remediation commencing 2020/21)</td>
<td>60</td>
<td>2027</td>
</tr>
<tr>
<td>Subsequent capacity development</td>
<td>30</td>
<td>2037</td>
</tr>
<tr>
<td>6. North Shore Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The North Shore Hospital 'not fit for purpose’ business case</td>
<td>150</td>
<td>2023</td>
</tr>
<tr>
<td>7. New South Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>150</td>
<td>2026</td>
</tr>
<tr>
<td>Stage 2</td>
<td>150</td>
<td>2032</td>
</tr>
<tr>
<td>Stage 3</td>
<td>50</td>
<td>2037</td>
</tr>
<tr>
<td>8. New North Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eg</td>
<td>TBC</td>
<td>TBC Post 2023</td>
</tr>
<tr>
<td>Stage 1</td>
<td>(150)</td>
<td>(say year 2023,</td>
</tr>
<tr>
<td>Stage 2</td>
<td>(150)</td>
<td>say year 2036/37)</td>
</tr>
<tr>
<td>Timing and staging yet to be defined but look at land options now</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The ‘Potential Additional Beds’ shown in the above table, against groupings 1 to 7, sum to 1,664 new beds.
In addition to the 8 physical infrastructure capital groups listed in the above table, the NRLTIP identifies a further 6 capital investment groups to account for the required enabling and other asset investment (such as IS/IT and clinical equipment). These additional capex categories are shown in Table 36.

Table 36: Enabling assets and other assets capital investments

<table>
<thead>
<tr>
<th>Other Investment Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
</tbody>
</table>

6.2.2 Capital investment plans to achieve the target capacity

Key messages:

- The plans of our DHBs are largely aligned with the capacity development path outlined in this NRLTIP.
- Despite our planning, during this first NRLTIP, we still expect capacity challenges in the short term, and need to further consider how we can create new capacity earlier in our Region’s investment plan.
- New site development concepts will require ongoing work to further reconcile and align plans.

The target capacity development plan, together with infrastructure remediation plans, drives our capital investment sequencing

The physical infrastructure capital investment groups approach has been helpful to provide a framework for analysis of the capital investment requirements. It provides a means to align and review the complex and interdependent capacity development proposals for our Region, against the ‘capacity target plan’ dimension of our NRLTIP investment path.

The NRLTIP work process has involved iterative planning with DHB capital planners to align DHB capacity investment planning to NRLTIP intent during the course of the NRLTIP work. The alignments have been two-way; i.e. both strategic NRLTIP ‘top-down - where are we going’ and operational, tactical ‘bottom-up - how can we get there’. The latter, in particular, paying regard to the short-term responses to immediate pressures and capital project interdependencies.

The Financial impact of the NRLTIP capex investment path incudes consideration of:

- DHB estimates of investment costs that align strongly with the capacity development view outlined in Table 35
- NRLTIP developed ‘placeholder’ estimates of additional costs where capacity ‘gaps’ against Table 35 have been identified in current DHB plans or where NRLTIP outer year plans exceeded DHB planning horizons. In certain cases the DHB to be responsible for developing the gap-capacity has not yet been identified (e.g. some of the mental health inpatient capacity target)
- DHB costs associated with capacity developments that currently exceed the NRLTIP target capacity plan and which will be further clarified as business cases are developed and agreed. The main area that this impacts on is the concept of a new South Site development and CMH capacity development plans (within Group 3). The CMH capital investments currently reflect
development of 205 bed capacity across Middlemore and the Manukau site by year 10 of the plan; against the NRLTIP capacity plan of 100 beds with provision of further beds on the South Site. Endorsement to progress planning for a new South Site, with capacity available from year 2026, would likely impact on aspects of CMH current site development plans.

The current degree of alignment between DHB plans and the NRLTIP target capacity development plan is outlined in Figure 29.

Figure 29: Alignment between DHB capacity development plans and the NRLTIP target capacity

Figure 29 indicates that the Region still has significant capacity challenges in the short term despite the current DHB capacity development plans.

- The regional capacity 'Target' is shown by two curves:
  - The black diagonal line represents the 'current bed utilisation rate', i.e. the unmoderated capacity requirement view which would result in an additional bed requirement of +2,055 beds over the next 20 years
  - The red line, bending from the unmoderated view from year 2021/22, represents our NRLTIP moderated target capacity development path, resulting in an additional bed capacity of +1,600 beds over the next 20 years.

The capital investment capacity development path is shown by three lines:

- The dark purple line is the key line of interest. This shows the current investments in hospital capacity reflected in the NRLTIP financial analysis, including the types of investment defined by Group 1 and Groups 3 to 7 as outlined in Table 35 (i.e. excluding Group 2 Mental Health, and Group 8 new North Site)
- The green line is a cumulative (stacked) representation of the current planned additional bed capacity associated with Mental Health Services
• The tan dotted line is a cumulative (further stacked) representation of the potential additional capacity that would be available should the new North Site be built by the tentative dates suggested in Table 35.

This figure indicates that our Region’s current investment plans will:

• Continue to result in a shortfall against our preferred target capacity plan (+1,600 beds), of approximately 125 beds until about 2021/22. We need to consider how we can bring some capacity development investment forward in our capital plans

• Result in a surplus capacity against our preferred target capacity plan (+1,600 beds) over the period from 2024/5 to 2032/33. This surplus is about 250 beds at its peak. However, further analysis is required, associated with planning for a new South Site which would:
  • Prompt more detailed planning of what would go on that new site
  • Impact on aspects of DHB current site development plans
  • Likely reduce the potential surplus indicated 2027-2030.

Care must be taken when interpreting the groupings and associated indicative capital expenditure implications. Very few of the individual project investments are truly ‘stand-alone’. Tthe interdependencies between individual projects and groups of projects are complex and include factors such as:

• Up front need for physical infrastructure remediation and expansion to support particular capacity developments

• Multiple service decanting sequences that may be required before a particular capacity investment can give rise to additional clinical service capacity. This particularly applies to short term responses to immediate pressures

• Key linkages between bed capacity and clinical support service investments that are required to enable effective and efficient service delivery from a particular investment.

Planning uncertainty requires a flexible and agile approach

The initiatives informing the Region’s capital investment forecasts reduce in certainty over the longer term. As the level of certainty reduces there is increased need for agility and flexibility in later year planning.

Two factors in particular will allow the Region’s metro area to be flexible and agile with regard to capacity development, which in turn will allow some financial investment agility and management of risk across the medium to long term.

• The relationship between the proposed new South Site development and the CMH existing sites development plans will impact upon the capacity development path in the south of our Region. Progressing the required endorsements and approvals of the new South Site strategic direction of travel will enable increasing clarity regarding the operational planning for capacity development and further opportunity to align development plans to the regional capacity requirement view

• The new North Site allows a capacity development plan that can be re-timed if the Region’s efforts to moderate the demand on hospital services are more, or less successful than the Region’s hospital capacity development target requires.
6.2.3 Scale of capital investment

**Key messages:**

- The Region will need to make significant additional investment over a long period of time. This is likely to raise our current average capital expenditure from $190m per annum, (current levels of expenditure 2015/16) to approximately $800m per annum average over the next nine years of the plan.
- Across the full 20 year plan, the NRLTIP details an average capital expenditure requirement of approximately $628m per annum. This annual sum represents 12% of the Region’s revenue in 2016/17.
- This summed investment plan profile reveals a marked peak in forecast capex expenditure in 2020/21.
- There is urgency to this investment and it is apparent that it will raise affordability issues for our Region.

The capital expenditure forecast will drive significant investment requirements as well as increased financing costs

Initial cost estimates have been developed for the phased investment plan set out above. Summing annual expenditure profiles by ‘type’ of capital investment reveals:

- A marked peak in capex expenditure in 2020/21. Note this 20 year view includes the financial impacts of both investment in a South Site and the commencement of a new North Site (phased to reflect the tentative capacity available dates shown in Table 35)
- The impact of the significant ‘other remediation and capacity’ and clinical equipment investment categories in the early years.

Figure 30: The capital investment phasing by capex grouping

![Diagram showing capital investment phasing by capex grouping]

Note: These are all shown as uninflated values and represent best estimates of expenditures at 2018 prices.

Across the full 20 year plan, the NRLTIP details an average capital expenditure requirement of approximately $641m per annum. This annual sum represents 12% of the Region’s revenue in 2016/17.

Over the first nine years of the plan to year 2025/26, the annual capital expenditure is expected to average $813m. This is a significant increase in comparison with the Region’s 2016/17 capital expenditure of approximately $190m per annum.
The indicated level of capital expenditure will incur significant financing costs. If it were to all be new capital, the annual capital charge (at 6%) on a total of $813m of funding will be $49m. The annual depreciation on assets having a total value of $813m would be approximately $33m, assuming a 25 year asset life. Taken together, the annual capital charge and depreciation would represent approximately 10% of the annual capital investment expenditure and would sum to approximately $82m per annum across our Region.

All values outlined in this capital investment profile will be subject to further confirmation and validation by means of subsequent business case development processes.

Various operational factors including staffing, rostering and other workflow arrangements are also expected to have an impact upon capacity commissioning. The workforce costs identified within the opex analysis assumes that the capacity commissioning phasing will be aligned to the NRLTIP target capacity curve. Financial implications related to availability of staff either affecting the phasing of capacity coming on stream, or impacting on the cost of resources have not been factored into this financial analysis.

### 6.3 Overview of impacts on the Region’s overall financial position

**Key messages:**

- Crown Funding requirements relating to the proposed capital investment profile reflect the complex annual inter-relationships between revenue, opex, capex, capital charge and depreciation.
- MoH guidance suggests regional revenue is likely to grow at an average annual rate of 3.75%.
- Planning for a moderated target of 1,600 more beds, rather than 2,055 additional beds, avoids opex costs in the hospital setting from year 5 of the plan, but will require opex investment in non-hospital interventions and care settings. Some ‘Accelerate’ and new model of care initiatives will require released funding to be redirected to other settings. We will continue to focus on service productivity and efficiency gains.
- The Capital Financing Analysis indicates that the increasing value of our Region’s asset base, as a result of capital investment, generates a rising depreciation ‘free cash flow’ profile across the Region.
- The net requirement for Crown Funding, in addition to the depreciation funding, fluctuates over the 20 year plan, rising to a peak requirement for approximately $660m in year 2020/21.
- The capital financing costs associated with the capital investment profile are expected to rise from approximately 5% of total operating expenditure (inclusive of financing charges) to 10% by year 9 of the plan, before reducing to 9% in later years.

**The Crown Funding requirements will reflect complex inter-relationships between revenue, opex, capex, capital charge and depreciation**

The capital investment profile, identifying the scale and phasing of required capital investments, has provided one focus for the financial analysis undertaken in this NRLTIP. A further consideration has been to understand the capital financing costs and the likely regional requirement for Crown Funding to support the investment plan. This requires identification of the likely impact of the preferred direction of travel upon the Region’s operating financial position.

31 The impacts arising from a more detailed analysis of asset depreciation calculations is provided in the capital financing analysis at section 6.3.3

32 Excludes any financing impacts of equity that may be required for any potential deficit support to DHBs.
The Region’s opening financial reference in 2016/17 may be considered as a ‘break even’ position. Future changes to this position will arise due to the relationships between the expected:

- Revenue trajectory
- Operating cost trajectory
- Capital financing cost trajectory

6.3.1 The revenue trajectory

The assumed regional future median DHB revenue growth per annum is approximately 3.75% over the period 2016/17 to 2032/33

This is based on MoH ‘medium’ indicative revenue trajectory guidance for NRLTIP purposes provided to NRLTIP in July 2017. This guidance details indicative revenue assumptions for each DHB.

The NRLTIP modelling has applied the MoH medium indicative revenue trajectory across all revenue sources with the exception of ‘Other Crown Revenue’ which has been assumed at 2.5% per annum.

The MoH revenue assumptions reflect both financial inflation and demographic change adjustments.

The NRLTIP financial analysis applies the ‘medium’ indicative revenue trajectory provided in the MoH guidance, and is modelled at DHB level. The MoH figures have been extrapolated as a 5-year rolling average beyond 2032/33 (the last data point supplied in MoH guidance).

The indicative revenue trajectory by DHB, as applied to the majority of revenue sources in the NRLTIP financial analysis from 2016/17, is outlined in Figure 31 below.

Figure 31: MoH indicative annual revenue growth assumptions, by DHB (‘medium’)

The MoH ‘medium’ level of indicative revenue growth equates to an increase of about $200m per annum (on current $5.3b Crown revenue). If the Region’s average annual capex ($813m) over the first nine years of the plan were funded all as new capital, then the associated annual capital charge and depreciation would be $82m per annum. This amount of capital charge and depreciation would represent approximately 40% of the indicative revenue increase, leaving $118m per annum for operational cost growth across the Region.

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33 The MoH guidance advises that:

- These assumptions are for LTIP purposes only and do not represent an official signal of future DHB funding.
- They represent scenarios for increases in DHB appropriations and do not take into account inter district flows (IDFs), future devolutions, future changes to top slices to fund national services and specific initiatives, minimum and maximum funding increase rules, nor transitional funding. For guidance at this level of detail, DHBs should consult further with the Ministry of Health.
6.3.2 Opex trajectory

The modelled opex cost profile reflects volume growth, plus cost inflation by cost category

In this section we provide a summary view of the expected opex trajectory excluding capital financing costs\(^\text{34}\) for two options:

- ‘Status quo’ based on delivering hospital based services from a hospital capacity increased by 2,055 extra beds by year 20
- ‘Moderated’ based on delivering hospital based services from a hospital capacity increased by 1,600 extra beds by year 20.

For both of these options, the opex cost profile reflects volume growth driven by demographic weighted demand growth, plus cost inflation by cost category. Service mix per unit of demand is assumed largely constant under this financial modelling.

Some key assumptions in the modelling include that:

- Non provider arm service expenditure reflects contract volumes growing at a rate indicated by the population profile served by the particular service
- Cost inflation factors (e.g. staff wage etc.) have been kept constant across both opex trajectory profiles
- The moderated opex trajectory only makes allowance in part for additional funding to new models of care and community services associated with public health and prevention initiatives. While some allowance has been made for new models of care, further work and additional opex allowance is required in the model to reflect the costs associated with moving services from the hospital setting into alternative settings or to alternative community based interventions.

‘Avoided costs’ for potential application to model of care developments

Our DHBs hope to fund any ‘Accelerate’ initiative changes to models of care from savings to be realised across current health service delivery processes. Comparison of the variance between ‘Status Quo’ and the ‘Moderated’ opex trajectories provides a view of the scale of the opex ‘savings’ that will arise from progressing capital developments to the moderated NRLTIP hospital capacity development target (1,600 extra beds). The ‘savings’ variance is therefore assumed to be available to help fund future investment in changes to models of care or services in alternative settings.

The scale of ‘savings’ indicated by the variance between the two opex curves will only be available for alternative service delivery if:

- The revenue trajectory keeps pace with the expected ‘Status Quo’ opex growth, based on the current expectation of cost-growth assumptions underpinning the opex projections.
- The financing costs associated with the proposed capital expenditure profile, not shown in the following Figure but discussed in the following section, does not absorb the majority of the released ‘savings’.

\(^{34}\) Further discussion of the opex implications of capital financing costs are provided under the ‘Capex Trajectory’ section heading below.
Figure 32: Comparison of opex trajectories and Region population growth

The opex comparison figure illustrates that:

- The 'savings' indicated from following a Moderated inpatient capacity curve rise from $25m per annum in year 2022/23 to greater than $400m per annum from 2033/34 onwards
- While these are significant 'savings', they do not represent a large proportion of the Region’s total operating costs (in 2033/24 the savings represent only 3.8% of the same year Moderated operating expenditure)
- No savings arise in years 1-5 due to the assumed time-lag to implement change. This presents challenges in terms of available funding to instigate the change processes
- The raw population curve highlights that the most rapid period of overall population growth occurs prior to year 2020/21. The anticipated opex curve clearly does not follow this raw population trajectory, but rather reflects the increasing demand over time, with a key driver being the proportion of older people in the Region’s population (refer the NRLTIP demand analysis). The shape of the opex profile, showing a gradually increasing cost over time, is typical of any compounding inflation driven curve, and can be expected to be influenced, in part, by the compounding cost inflation assumptions applied to the financial modelling approach.

Note that the above figure does not illustrate the changing profile and opex requirements associated with capital expenditure financing costs.

35 Note that costs and population are plotted on independent axes in this graph. Comparisons of rate of change are appropriate from this view, but no conclusions can be drawn regarding the scale of change from comparison of the financial and population plots.
6.3.3 Capital investment financing cost trajectory

The Region’s planned capital investment profile, as already described, drives the Region’s expected capital expenditure financing costs (interest, depreciation, capital charge).

The Crown Funding requirements will reflect complex inter-relationships between revenue, opex, capex, capital charge and depreciation

The NRLTIP future capital investment profile comprises groupings of asset development projects. Each capital project has a blend of different asset class types, which in turn have different asset life expectancies and drive different depreciation assumptions. For this capital investment financing analysis, the Region’s total year on year depreciation has been modelled based on:

- The Region’s expected total asset value by asset class (at end of year in question)
- The average asset life (by asset class)
- Forecast year end cumulative total new capex spend.

A 6 month lag has been applied within the Region’s annual depreciation calculations.

For the modelling of the Region’s capital financing costs, any additional funding required to provide for the Region’s overall capital envelope has been assumed as equity, after first applying DHB available internal funding from depreciation. The equity balance, after allowance for the depreciation ‘free cash flow’, has been assumed to attract capital charge at 6% per annum. Interest, in this analysis, is largely negligible having been largely replaced by the equity and capital charge provision.

Table 37, below, provides outputs of the Capital Financing Analysis for the first six years of this NRLTIP. The highlighted rows provide information regarding the Region’s base and forecast:

- Depreciation and capital charge profiles
- Estimated new Crown Equity funding requirement associated with the capital investment profile proposed within this NRLTIP.

The view of the Region’s capital investment financing cost trajectory presented in this table, and subsequent figures, is an aggregated regional view of the capital financing impacts that will act on different DHBs. The aggregated regional view presents a smoothed, or net, view of the new Crown Equity requirements arising from the forecast capital expenditure at individual DHBs. Without agreement for regional pooling of free cashflow from depreciation to fund the capital investment forecast, this view will not reflect the ability of each of our DHBs to fund the forecast capital expenditure.

### Table 37: Capital financing impacts year 1 to year 6

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>Total capital investment forecast (inflated at CPI 2%)</td>
<td>$134.4m</td>
<td>$231.5m</td>
<td>$612.0m</td>
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<td>$1,443.3m</td>
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<td>$2,624.0m</td>
<td>$3,086.5m</td>
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<td>$130.2m</td>
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<td>$316.2m</td>
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<tr>
<td>Assumed total internal funding (= prior period depreciation)</td>
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<td>$124.9m</td>
<td>$130.2m</td>
<td>$149.5m</td>
<td>$184.6m</td>
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<tr>
<td>New Crown equity required for capital</td>
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<td>$106.6m</td>
<td>$481.8m</td>
<td>$881.9m</td>
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<td>$1,145.5m</td>
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<td>Opening capital investment related equity position</td>
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<td>$3,794.9m</td>
<td>$5,053.6m</td>
<td>$6,199.1m</td>
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<tr>
<td>New equity for capital investment</td>
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<td>$106.6m</td>
<td>$481.8m</td>
<td>$881.9m</td>
<td>$1,258.7m</td>
<td>$1,145.5m</td>
<td>$831.4m</td>
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<tr>
<td>Closing equity position (capital investment related only)</td>
<td>$2,324.6m</td>
<td>$2,431.2m</td>
<td>$2,913.0m</td>
<td>$3,794.9m</td>
<td>$5,053.6m</td>
<td>$6,199.1m</td>
<td>$7,030.4m</td>
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<td>Capital Charge at 6%</td>
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<td>$227.7m</td>
<td>$303.2m</td>
<td>$371.9m</td>
<td>$421.8m</td>
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</tbody>
</table>

*Note the capital investment forecast values shown in the above figure include cost inflation from base year.*

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36 Interest is assumed negligible from 2017/18 onwards due changes to interest/capital assumption requirements upon DHBs.
The four figures that follow chart the forecast impacts across the full 20 year investment plan. All values reflect cost / price inflation of 2% compounding from base year 2016/17 applied to the Region’s future capital investment profile:

1. Our Region’s total asset value will increase over time from approximately $2.4bn to about $9.2bn by year 20. This change reflects impacts on the Region’s base asset value of the Region capital investment forecast (investements at current prices, inflated for CPI, and assets at value less depreciation impacts).

Figure 33: The forecast increasing value of our Region’s asset base as a result of investment

[Graph showing asset value increasing over time]

Note the capital Investment values shown in the above figure include cost inflation

2. The rising asset value will drive an increasing annual depreciation profile across the Region. This depreciation will be available to fund part of the required capital investment. The balance of funding will require Crown Funding. This results in a fluctuating forecast estimated profile of net requirement for Crown Funding for the proposed regional capital investments. This requirement for Crown Funding peaks in year 2020/21 at over $1.2bn.

Figure 34: The rising depreciation profile and the fluctuating net requirement for new Crown Funding

[Graph showing depreciation and Crown Funding requirements]

37 Value reflects depreciated asset value not reinstatement value
3. The Region’s forecast annual closing equity position (related just to capital investment) will rise as a consequence of capital related Crown funding, from the current base of approximately $2bn to approximately $10bn by year 20.

The capital charge, calculated at 6% of the Region’s annual closing equity position, will display the same rate of change as the annual closing equity position; increasing from the current capital charge base of approximately $150m per annum to approximately $600m per annum by Year 20.

Figure 35: The Region’s forecast annual closing equity position and capital charge calculated at 6%

4. The Region’s forecast total capital financing costs (depreciation and capital charge$^{38}$) as a proportion of the total operating costs$^{39}$ displays a gradual rise and decline. It rises, from approximately 5% of total operating expenditure in base year, to 10% by year 9 of the plan, before reducing to 9% in later years.

Figure 36: Capital related financing costs as a proportion of the operating costs
(Region investment profile also shown for reference)

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$^{38}$ From just the planned capital investment impacts on base year position

$^{39}$ Including capital financing costs
6.4 Modelling sensitivities and financial risks

Key messages:

- The NRLTIP modelling of financial impacts is founded on current state financial profiles and relationships, as well as assumptions of cost profile change as a result of the NRLTIP direction of travel. The financial outcomes will be particularly sensitive to changes in underlying assumptions that impact on:
  - Revenue trajectory
  - Scale and timing of opex and capex
  - Funding assumptions.

Ongoing refinement of these assumptions will be progressed as part of the further clarifying work required to progress:
  - Business cases related to the current capital development plan
  - Regional work required to progress the second NRLTIP.

6.4.1 Financial modelling sensitivities

Certain key assumptions and variables are likely to have a material impact upon the outputs of the NRLTIP financial analysis

The following assumptions are highly relevant and will be revisited as investment plans and financial forecasts are refined as part of subsequent NRLTIP planning. The financial analysis is expected to be particularly sensitive to:

- Revenue Trajectory

  The latest MoH guidance provides 3 revenue assumptions; High, Medium and Low. We can expect an updated revenue forecast to inform planning for the 2018/19 year. We have applied the Medium trajectory in this NRLTIP analysis.

  The choice of revenue assumption applied to determine a regional forecast annual net operating position, impacts on forecasts of operating surplus or deficits and will therefore impact on funding availability to repay debt / equity, or the potential requirement for any deficit funding. These in turn will impact on the requirement for Crown Funding profile and capital financing requirements.

- Opex Trajectory

  The Opex profile will be sensitive to changes in the anticipated volume growth profiles and assumed cost inflation factors. Further modelling should consider impacts such as:

  - Generic changes to overall demand profiles. The non-DHB costs are most sensitive to changes in population assumptions by age band. DHB Provider Arm costs are more sensitive to how population forecasts impact on the demand capacity trajectory as described by the required bed profile. The generic assumptions to monitor and test include, changed timing of growth, e.g.:
    - Monitor changes to growth forecasts and apply updated population projections to drive different volume growth impacts
    - Model population growth with a +/- 3 year phase shift.
  
  - Review different target capacity growth profiles, as plans are revisited and business case progression provides greater clarity of capacity availability
  
  - Staff volume (+/- % productivity /efficiency)
  
  - Staff costs (wage inflation factors)
  
  - Alternative cost price index assumptions.

  - Non-Provider Arm
• Impact of alternative growth weightings based on other proxy measures (e.g. hospital bed growth demand, +/- productivity / efficiency assumptions)
• Specific adjustments for additional services to be moved into community settings.

• Capex Trajectory
The financial impacts of the capex trajectory will be sensitive to the:
  o Scale of cost associated with the capex investments requirement suggesting future work should:
    ▪ Establish estimates of percentage of cost-scale uncertainty by capital project for aggregation to an uncertainty factor for particular programmes of investment
    ▪ Model, say, +/- 20% on cost assumptions
      o Update capital investment profiles to reflect improved cost estimates as business case progression provides greater clarity
  ▪ Vary costs for key enabler e.g. IS/IT initiatives by +/- %
  o Timing of costs associated with the capex investments requirement suggesting assessment of modelling e.g.
    ▪ +/- 2 year against current capex phasing from year 5 of the plan
    ▪ Updated phasing to reflect improved cost timing estimates as business case progression provides greater clarity.

• Alternative Funding Assumptions
  o All the capital funding has been assumed as depreciation or Crown Funding with capital charge at 6%. Any variance to these arrangements could have a significant impact on the Region’s financial position
  o Clarify how to handle ‘near capital’ costs such as ‘As a Service’ solutions.

6.4.2 Financial risks

Various financial risks have been raised as part of the financial analysis:

• The risk of a growing burden of debt across the Region
• The risk associated with the alignment of asset management and financial management systems and the cashflows available to fund a replacement. The relationship between these three perspectives does not always provide sufficient funding in the final year to enable the asset replacement, especially where, say:
  o Equity was received for equipment as part of a new building project
  o The liability will continue on that equity even though the asset has been replaced
  o The gap in cash available e.g. only the cash from the depreciation will be available in the last year to fund the replacement.
  This raises a question of whether DHBs should consider setting up a sinking fund for major equipment that has a defined replacement cycle (e.g. MRI, CTs, boilers, HVAC, lifts, etc.), whereby cash generated by depreciation on those large assets, especially infrastructure items, is placed in a sinking fund using the asset design life as a basis for the term of the fund. For MRIs or CTs, because of their shorter life cycle, the alternative may be to lease, thereby placing the replacement risk with a lease company.
• The currently realised risk from deferred maintenance and the lessons learned from the current position regarding condition of assets. How do we avoid recreating this liability for the future? Should we develop a process for funding our major capital equipment which is separated from the normal baseline funding process?
• The risk that we under-invest in hospital capacity, with the expectation of reduced demand for hospital based services benefits. We expect these benefits to arise from changes to investment and changed models of care and workflow across our Region. CHM has invested in local
initiatives with constrained hospital investment. We know that benefits are hard to realise and take a long time to show gain. Some changes will take a generation to show full effect. We will need to measure carefully to understand impacts of initiatives, noting that attribution to cause can be very challenging.
7 Progressing Regional Work on the Long Term Investment Plan

7.1 Portfolio, programmes and projects

The work required to progress this NRLTIP will cross many organisation boundaries. It will involve a range of subject matter requiring a wide breadth of expertise. The governance and management of the many relationships required to progress the plan will be complex and challenging for our Region, and will require a well-structured management approach.

To manage the complexity and accelerate implementation we will apply the P3M3 frameworks and disciplines

We will draw upon existing DHB project management office approaches and relationships across our Region, to agree an integrated Portfolio, Programme, Project management methodology. This will be applied across the prioritised NRLTIP work detailed in this plan and will ensure a Region-wide consistent approach, aligned to the P3M3\textsuperscript{40} method.

We will manage regional delivery to an agreed scope and sequence of work by providing an appropriate management focus on:

- Doing the right things – a key focus for Portfolio management
- Realising the benefits – a key focus for Programme management
- Doing things in the right way – a key focus for Project management

To progress the NRLTIP, we will structure the ongoing work within three Programmes which will clarify, progress and implement the Region’s investment directions in the coming year. Each Programme will be managed within an overall ‘Northern Region Long Term Planning’ Portfolio of work (as outlined in Figure 37 below).
The 'Northern Region Long Term Planning Portfolio' will collate, align, coordinate and report on the key implementation plans and the key actions being progressed by each Programme in the short, medium and longer term. Communication plans relating to each Programme of work will be coordinated through the Portfolio oversight structure. The Long Term Planning Portfolio will report on the progress of each Programme via the Regional Executives Forum, to the Regional Governance Group.

The three Programmes of work will comprise:

- **Northern Region Health Plan**
- **ISSP related programme of work**
- **Capital investment programme of work.**

The NRLTIP work has highlighted the importance of having a regional health plan that states a clear direction of regional travel and sets development priorities for our Region across the continuum of care to:

- Enable effective and efficient mobilisation and alignment of our Region’s resources
- Progress identified service development priorities
- Align the enablers of service delivery that are required to support new models of care.

Each of the three Programmes will further define and clarify Programme-specific direction of travel, model of care impacts, or enablements, and development priorities. In each case the individual Programme plans will be expected to align to the overall Long Term Plan Portfolio intent, which in turn will reflect and demonstrate alignment to direction of travel outlined in this NRLTIP.

Further detail of the work within each Programme is provided below.
7.1.1 Northern Region Health Plan programme of work

The ‘Northern Region Health Plan’ work will be structured around a number of elements each managed as a Project within this Programme of work

The service planning work is required on two levels to help guide and refine our Region’s investment plan. The service planning needs to provide statements of direction that related to both:

- The broad health-strategy direction across our Region, for example further developing the NRLTIP emphasis placed on regional integration and collaboration
- More detailed ‘operational-strategy’ guidance relating to those areas that have been identified in this NRLTIP as being investment priorities. For example further developing the recommendations arising from the ‘Deep Dive’ analysis and other planning already undertaken as part of this NRLTIP.

Various strategic elements have been identified during this NRLTIP as needing further refinement and ongoing work to support future investment planning, including:

- Maintaining and enhancing the ‘regional directions’ component of the regional plan; with a particular focus on ‘direction gaps’ and, in particular, any community / primary or population health perspectives that need to be reflected in our broader strategic direction thinking
- Implementation of recommendations that have already been agreed as part of this NRLTIP’s Deep Dives into:
  - Cancer
  - Frail Elderly
  - Electives
  - Radiology.

The further planning and implementation associated with these four, completed, Deep Dives will involve:

- Detailing and agreeing the recommendations as a time sequenced implementation plan, with clearly identified roles and responsibilities within and across different entities
- Co-ordinating and monitoring the progression of the implementation projects to achieve the desired outcomes.

- Three, new, work areas to help further clarify our Region’s broad strategic direction and high level model of care impacts. These comprise:
  - Community and Primary Care service development
  - Workforce

- Additional new areas for review have been identified within this NRLTIP to help clarify specific aspects of future service delivery and operational strategy. These new operational strategy Deep Dive areas will include (as a minimum):
  - Mental Health Services
  - Laboratory Services.

The indicative sequencing of the five ‘new’ work areas to be progressed under the Northern Region Health Services Delivery Programme of work is detailed in the following figure. Some interdependencies are expected between these projects, for example ‘Workforce’ links in particular to the ‘Primary Community’ work stream, impacting on the proposed commencement phasing. These interdependencies will be further clarified in the Programme planning to take place early in 2018 and in the ‘Initiate’ (scope and mobilise) phases of each identified project. The intent of the first work phase for these new Deep Dive areas is to ‘Plan’, ‘Agree’ and ‘Report’ upon recommendations that will:

- Inform our Region’s direction of travel
- Detail priorities and actions for implementation.
The NRLTIP has identified a significant physical infrastructure and capacity development schedule, plus an immediate (short-medium term) investment path for IS and IT which crosses all our DHBs.

The creation of two programmes of work, ‘Capital Investment’ and ‘Information Services Strategic Plan (ISSP)’, within the overall portfolio approach recognises the technical expertise and specialism required to progress each of these areas of focus. These two programmes will require close linkages with each other to ensure consistent methods and delivery. Each need to be progressed as a Programme, under regional Portfolio oversight, to ensure:

- Ongoing alignment of DHB and hA plans to the regionally agreed priority investment path requirements
- Timely achievement of regional and national endorsements through business case development processes, including working with stakeholders to identify and agree any opportunities to group and streamline approval processes
- Further refinement of programme related investment plans, particularly as ongoing business case work clarifies any investment barriers and opportunities at approval gateway stages
- Regional planning to identify and agree opportunities to align and streamline infrastructure development project-lifecycle processes, particularly the ‘plan’ / ‘design’ / ‘procure’ / ‘build’ / ‘commission’ components and the associated resource required to manage and deliver each component
- That access to required expertise and skills is supported by appropriate regional arrangements and coordination.

**Progressing capital investment as a Programme of work**

Certain priority capital investment projects have already been identified for progression as a matter of urgency. Early discussions of the NRLTIP with the Ministry of Health’s Capital Investment Committee have raised concerns about the capacity of the Region, and the New Zealand construction industry, to deliver the very large capital programme set out in NRLTIP. A significant change is required to our current working arrangements and a step up in both the capacity and the capability of resourcing available to manage and deliver our regional capital programme.

The following working arrangements provide a focus for the initial phases of this Programme of work:

- We will establish a regional team, that will:
  - Ensure alignment between capital and health services planning
  - Provide a coordination function for business cases and capital returns to central agencies
  - Act as the key point of contact between the Capital Investment Committee and DHBs
  - Coordinate activity with regard to application of common frameworks, tools and resources and, where appropriate, will host tools and resources
  - Apply ‘Portfolio / Programme / Project planning’ disciplines to:
    - Ensure appropriate sequencing and prioritisation of elements of work with regional endorsements
    - Clarify roles and responsibilities for actions to achieve the already identified milestones and deadlines
    - Identify requirements (and facilitate access to) regional ‘resource pools and or panels’ as required to support future work either:
      - Available from within existing DHB employee groups
• Accessible as Subject Matter Experts through Regionally agreed mechanisms.

• DHBs will:
  o Be accountable for the development of business cases and the project management of investments (within a regional oversight framework that reflects regional priorities)
  o Draw on regional “resource pool/panels” as required.

• Regional resource pool/panels and mentoring support will:
  o Be developed in discussion with Ministry and learning from other recent major development programmes in health and elsewhere
  o Be available through delivery options including: in house (regional virtual teams) resourcing, provider panels and ad hoc resourcing
  o Be considered for a range of key activities/resources such as:
    - Programme management
    - Business case writing
    - Design work including health architects and quantity surveyors, construction
    - Procurement expertise in property, construction and engineering
    - Construction management
    - Asset maintenance
    - Financing.

An immediate next step will be to determine how the Region can best position itself to deliver the large capital investment work plan, noting the need for scarce expertise and the need for continuity over an extended period of time.

**Information Services Strategic Plan developments**

The ISSP Programme of work will face similar issues as those set out for the physical infrastructure ‘Capital and Investment’ programme, described above. The specialist nature of the ISSP work indicates that this should be managed as a discrete programme of work within the described overall Portfolio management and governance approach.

The ISSP programme will develop an IS/IT investment framework to describe and prioritise the Region’s IS requirements as they align to the strategic direction outlined in the NRLTIP and the Information Services Strategic Plan. This investment framework will be developed through a regional engagement and prioritisation process and will detail the preferred IS/IT solutions and delivery timelines.

Initial ISSP planning work has already been undertaken as part of a ‘Horizon One – Build Strong Foundations’ workstream. This has flagged a required first suite of business cases to cover an initial tranche of work over the 3 years to 2021. These business cases will address risk, establish foundations and enable initial strategic innovation aligned to the NRLTIP. As a priority, the ISSP programme will progress the first tranche of delivery to:

• Select a replacement Patient Administration Systems (PAS) for ADHB and commence implementation
• Establish core regional technology foundations that simplify the environment, reduce the current infrastructure risk, enhance interoperability and make it more resilient to enable future improvements
• Enable mobile, secure and patient centred clinical workflows
• Simplify and harmonise core applications and data in several domains as determined by the Regional Applications Roadmap.

**7.2 Resources and regional functions**

The NRLTIP ‘Portfolio, Programme and Project’ work will need a mix of regional resources and DHB / other entity resources to progress specific elements of work to an over-arching delivery schedule.

Some of these elements of work will be progressed working as Regional teams, both real (co located) or virtual (using subject matter experts dispersed within DHBs across our Region). These teams are likely to require external, procured, resource skills and expertise; either as part of the team or to progress a particular project or task delivering a discrete outcome.
In some cases the programmes will need to use existing Clinical Networks or Regional Forums to gain insight and to progress specific projects. Other work elements will be progressed as discrete ‘Entity-led’ projects of work agreed via the Programme or Portfolio oversight structure. These Other Entities could be Alliance Partners, NGOs or other organisations that will be required to deliver expert skills.

The portfolio delivery arrangements will require strong intra-regional and interagency linkages and processes to agree any changes that may impact on aspects of Other Entity ‘business as usual’ (BaU) work. This Other Entity-BaU work will, in most cases, be delivered under Entity specific governance. This highlights the need for strong communication and co-design principles across many implementation workstreams. We will also need to ensure appropriate engagement with consumers as part of model of care redesign.

Figure 39: Roles, resources and management relationship matrix

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<thead>
<tr>
<th>NRLTIP - Portfolio, Programme, Project</th>
<th>Entity</th>
</tr>
</thead>
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<td>Regional - Coordination, Prioritisation, Alignment, Support</td>
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7.3 Regional leadership & governance

The collaboration of our regional leadership has been critical to the development of this NRLTIP

The leadership decision to plan the Region’s investment path from one perspective of ‘health outcome improvement, regardless of the location of DHB boundaries within our Region’, has been a key factor in prompting the ‘right’ regional discussions. This ‘DHB agnostic’ approach helps ensure a regional approach and is useful to guide discussions to plans and actions which are focussed on health outcome improvements.

The involvement of our Region’s DHB executive leadership, and the principle of planning for health outcomes, agnostic of organisation boundaries, will continue to play a pivotal role in the ongoing NRLTIP work. This will be true both with regard to the ongoing development of the NRLTIP and with regard to ensuring the NRLTIP’s successful implementation.

We will maintain the clarity of leadership already exhibited in the NRLTP work to date. The ongoing development and delivery of the NRLTIP will have DHB executive sponsors distributed across key component projects and areas of delivery focus. Our DHB CEOs, CMOs and CFOs will continue to play a key role in portfolio oversight. They will continue to have key roles with regard to programmes of work and are named project sponsors for the new Deep Dives, and other specific projects planned for 2018.

Other leaders from across the continuum of our Region’s health service delivery framework will continue to be engaged within three described programmes of work; particularly with regard to broad, and operational-specific, strategic directions under the Health Service Plan Programme.

The overall governance of the Long Term Investment Plan Portfolio of work will be via the Regional Governance Group, comprising our Region’s DHB Chairs, CEOs and CMOs.
The NRLTIP is a “living document”. It will be presented annually to each DHB as a “recommendation” for regional and/or local implementation by the DHB Chair (supported by the CEO). Once the annual plan has been endorsed by the Boards the Regional Governance Group will take overall responsibility for the implementation of the NRLTIP. Each DHB Chair will have delegated authority from their Board to act on the NRLTIP:

- An obligation to regularly report progress against the plan
- An obligation to take any matters arising for discussion and debate to their Board within an agreed timeframe (usually the next Board meeting following agreement to a Governance Group recommendation and to report back to the Governance Group within the agreed timeframe (usually the next bi-monthly Governance Group meeting following the Board meeting).
- Act as an escalation point for matters that are of strategic importance

- RGG decisions in relation to the plan will be made by mutual agreement for the collective good of the Northern Region population.