Northern Region Long Term Investment Plan

EXECUTIVE SUMMARY – JANUARY 2018

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

Our major acute hospital facilities are already at capacity

1 Data from 2014-16, calculated using population estimates from Statistics NZ and mortality data from the Ministry of Health Mortality Collection
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 5.8 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.

---

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.
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.

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.

**Investment timeline**

<table>
<thead>
<tr>
<th>Year</th>
<th>Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016/17</td>
<td>Short term responses to immediate pressures (402)</td>
</tr>
<tr>
<td></td>
<td>Waitakere Hospital Stage 1 (120)</td>
</tr>
<tr>
<td></td>
<td>Waitakere Hospital Stage 2 (120)</td>
</tr>
<tr>
<td></td>
<td>Waitakere Hospital Stage 3 (60)</td>
</tr>
<tr>
<td></td>
<td>Whangarei Hospital Redevelopment (60)</td>
</tr>
<tr>
<td></td>
<td>North Shore ‘Not Fit for Purpose’ (150)</td>
</tr>
<tr>
<td></td>
<td>Mental Health Stage 1 (92)</td>
</tr>
<tr>
<td></td>
<td>Mental Health Stage 2 (30) &amp; ‘Other’</td>
</tr>
<tr>
<td></td>
<td>New South Site Stage 1 (150)</td>
</tr>
<tr>
<td></td>
<td>New South Site Stage 2 (150)</td>
</tr>
<tr>
<td></td>
<td>New South Site Stage 2 (50)</td>
</tr>
<tr>
<td></td>
<td>Auckland / Greenlane (150)</td>
</tr>
<tr>
<td></td>
<td>NorthShore / Waitakere</td>
</tr>
<tr>
<td></td>
<td>Middlemore &amp; Manukau (100)</td>
</tr>
<tr>
<td></td>
<td>IS/IT (ISSP to 2023/24)</td>
</tr>
<tr>
<td></td>
<td>IS/IT 2024/25 to 2036/37</td>
</tr>
<tr>
<td></td>
<td>Clinical and other equipment, Baseline &amp; ‘Other’</td>
</tr>
<tr>
<td></td>
<td>Community focused, Parking, and ‘Other’</td>
</tr>
<tr>
<td>2021/22</td>
<td>IS/IT 2024/25 to 2036/37</td>
</tr>
<tr>
<td>2026/27</td>
<td>Not yet fully planned</td>
</tr>
<tr>
<td>2031/32</td>
<td></td>
</tr>
<tr>
<td>2036/37</td>
<td></td>
</tr>
</tbody>
</table>

**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 that 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.
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.

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

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 purposes3 provided in July 2017. This growth equates to an increase of about $200m revenue per annum (on current $5.3b Crown revenue).

3 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...
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 funding 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>$149.5</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>$149.5</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>$811.9</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>$811.9</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 smoothed, 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 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.

---

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.
The rising depreciation profile and the fluctuating net requirement for new Crown Funding

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.

Note: DCC = Depreciation plus capital charge

\(^5\) 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 Portfolio, 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.