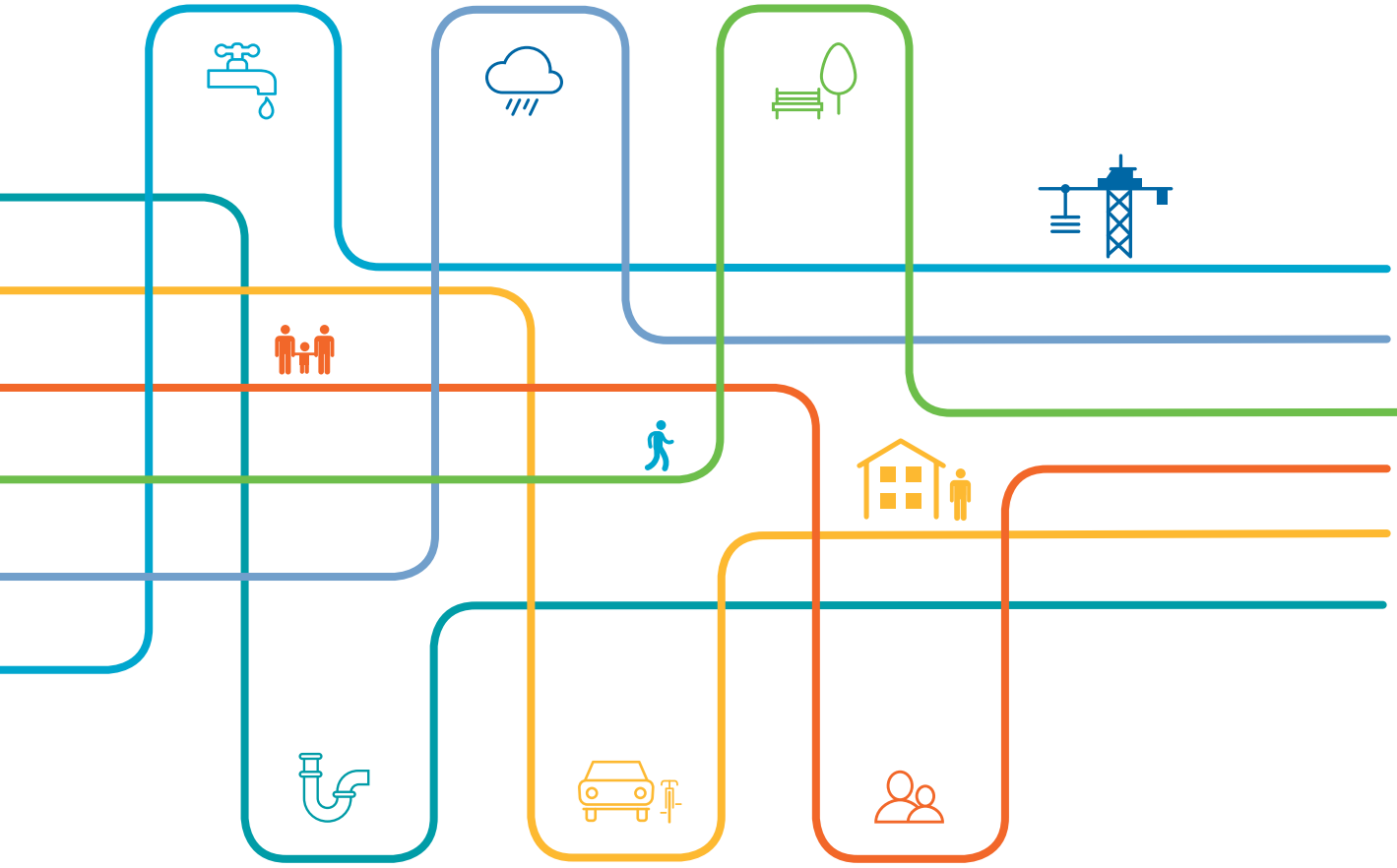
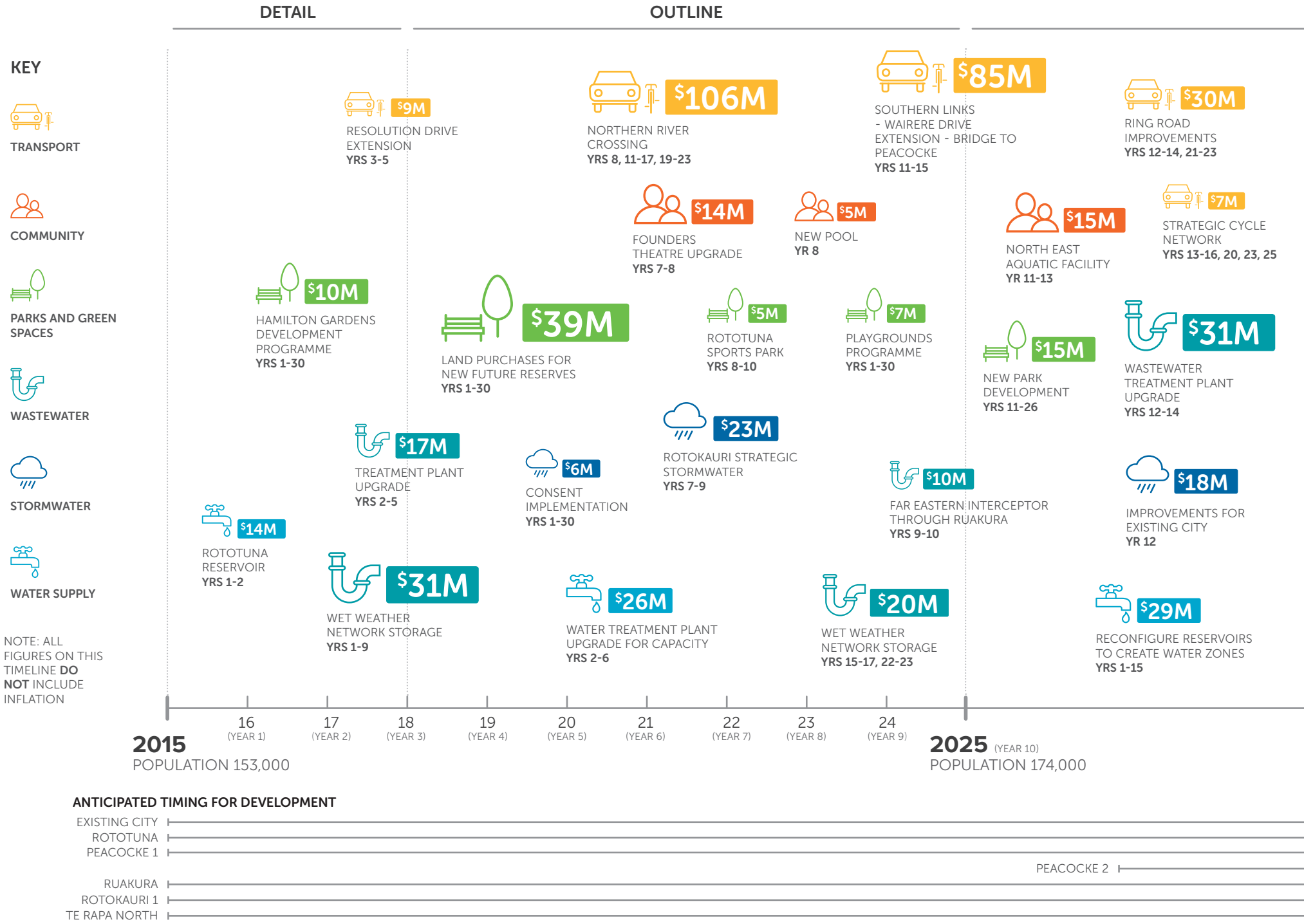
2015-2025
10-YEAR PLAN
VOLUME II



LONG-TERM INFRASTRUCTURE STRATEGY

2015-2045

Hamilton City Council
Te kaunihera o Kirikiriroa


DETAIL
OUTLINE
KEY
TRANSPORT
COMMUNITY
PARKS AND GREEN SPACES
WASTEWATER
STORMWATER
WATER SUPPLY
NOTE: ALL FIGURES ON THIS TIMELINE DO NOT INCLUDE INFLATION
$9M
RESOLUTION DRIVE EXTENSION
YRS 3-5
$106M
NORTHERN RIVER CROSSING
YRS 8, 11-17, 19-23
$85M
SOUTHERN LINKS - WAIRERE DRIVE EXTENSION - BRIDGE TO PEACOCKE
YRS 11-15
$30M
RING ROAD IMPROVEMENTS
YRS 12-14, 21-23
$14M
FOUNDERS THEATRE UPGRADE
YRS 7-8
$5M
NEW POOL
YR 8
$15M
NORTH EAST AQUATIC FACILITY
YR 11-13
$7M
STRATEGIC CYCLE NETWORK
YRS 13-16, 20, 23, 25
$10M
HAMILTON GARDENS DEVELOPMENT PROGRAMME
YRS 1-30
$39M
LAND PURCHASES FOR NEW FUTURE RESERVES
YRS 1-30
$5M
ROTOTUNA SPORTS PARK
YRS 8-10
$7M
PLAYGROUNDS PROGRAMME
YRS 1-30
$15M
NEW PARK DEVELOPMENT
YRS 11-26
$31M
WASTEWATER TREATMENT PLANT UPGRADE
YRS 12-14
$17M
TREATMENT PLANT UPGRADE
YRS 2-5
$6M
CONSENT IMPLEMENTATION
YRS 1-30
$23M
ROTOKAURI STRATEGIC STORMWATER
YRS 7-9
$10M
FAR EASTERN INTERCEPTOR THROUGH RUAKURA
YRS 9-10
$18M
IMPROVEMENTS FOR EXISTING CITY
YR 12
$14M
ROTOTUNA RESERVOIR
YRS 1-2
$31M
WET WEATHER NETWORK STORAGE
YRS 1-9
$26M
WATER TREATMENT PLANT UPGRADE FOR CAPACITY
YRS 2-6
$20M
WET WEATHER NETWORK STORAGE
YRS 15-17, 22-23
$29M
RECONFIGURE RESERVOIRS TO CREATE WATER ZONES
YRS 1-15
16 (YEAR 1)
17 (YEAR 2)
18 (YEAR 3)
19 (YEAR 4)
20 (YEAR 5)
21 (YEAR 6)
22 (YEAR 7)
23 (YEAR 8)
24 (YEAR 9)
2015
POPULATION 153,000
2025 (YEAR 10)
POPULATION 174,000
ANTICIPATED TIMING FOR DEVELOPMENT
EXISTING CITY
ROTOTUNA
PEACOCKE 1
PEACOCKE 2
RUAKURA
ROTOKAURI 1
TE RAPA NORTH

ESTIMATE

$62M
CROSS CITY CONNECTOR CAPACITY UPGRADE
YRS 5-26

$38M
UPGRADE BRIDGES CAPACITY & STRENGTH
YRS 11-21

$30M
CENTRAL CITY TRANSPORT IMPROVEMENTS
YRS 12-18, 26

$9M
RAIL AND PASSENGER TRANSPORT INTERCHANGE DEVELOPMENT
YRS 14-24

$9M
TRANSPORT CENTRE REDEVELOPMENT
YRS 20-22

$87M
SOUTHERN LINKS - ARTERIAL ROADS IN PEACOCKE
YRS 26-30

$12M
FOUNDERS THEATRE IMPROVEMENTS
YRS 11-13, 24

$21M
WASTEWATER TREATMENT PLANT (WET WEATHER TREATMENT)
YRS 16-17

$12M
NORTH EAST LIBRARY
YRS 14-15

$29M
ZOO MASTERPLAN
YRS 11-30

$80M
SOUTHERN LINKS - ARTERIAL ROADS IN PEACOCKE
YRS 19-25

$100M
SECOND WATER TREATMENT PLANT
YRS 30+

$18M
IMPROVEMENTS FOR EXISTING CITY
YR 17

$16M
ROTOKAURI RESERVOIR
YRS 19-21

$10M
WATER TREATMENT PLANT UPGRADE FOR CAPACITY
YRS 16-17

$26M
NEW TREATMENT PLANT INTAKE STRUCTURE
YR 19

$18M
IMPROVEMENTS FOR EXISTING CITY
YR 22

$8M
CEMETERIES DEVELOPMENT
YRS 1-30

$31M
WASTEWATER TREATMENT PLANT UPGRADE (CAPACITY & QUALITY)
YRS 28-30

$14M
FAIRFIELD RESERVOIR ADDITIONAL CAPACITY
YRS 14-16

$59M
FAR EASTERN INTERCEPTOR (PEACOCKE SECTION)
YRS 12-15, 23-25, 29-30

$26M
SIGNIFICANT WATER DEMAND MANAGEMENT INTERVENTION
YR 19

$18M
IMPROVEMENTS FOR EXISTING CITY
YR 27

30
(YEAR 15)

2035 (YEAR 20)
POPULATION 194,000

40
(YEAR 25)

(YEAR 30) **2045**
POPULATION 210,000

PROJECTS SHOWN AS ICONS ARE THE MAJOR PROJECTS THAT PROVIDE NEW OR UPGRADE EXISTING INFRASTRUCTURE. RENEWAL PROJECTS OR GROWTH RELATED PROJECTS THAT ARE FOR LOCAL INFRASTRUCTURE. ONLY KEY CONSTRUCTION PERIODS AND COSTS FOR PROJECTS ARE SHOWN.

ROTOKAURI 2, YRS 30+

CONTENTS

KEY TERMS

Asset management plan (AMP)

A plan developed for the management of one or more infrastructure assets that combines technical, financial and other techniques over the whole life of the asset in the most cost-effective manner to provide a specific level of service.

Service level

The amount or quality of a service or activity that is provided to the community. Also referred to as 'level of service'.

Renewal

A replacement of an existing asset at the end of its useful economic life.

Core network infrastructure

Infrastructure that relates to the water, wastewater, stormwater or transportation networks.

Financial strategy

Council's agreed long term approach to financial management as contained in the 10-Year Plan.

Strategic infrastructure

Infrastructure that is required to provide services to the edge of a large area (usually the developable growth cell) and is generally provided by Council.

Local infrastructure

Infrastructure that is required to provide services within a development, generally provided by developers. This can be either public infrastructure vested in Council or private infrastructure.

Public infrastructure

Infrastructure that is owned and managed by Council or another public entity. Public infrastructure may be constructed by developers and vested in Council.

Private infrastructure

Infrastructure that is not owned or managed by Council or another public entity.

INTRODUCTION

Hamilton is located in the upper North Island which is experiencing sustained business and population growth. This requires the city to plan well and to make sure that cost effective and productive infrastructure is available to enable it to function and prosper.

This strategy is Council's 30-Year Infrastructure Strategy for the city and it aligns infrastructure delivery with the Hamilton Plan and in particular its goals of:

- providing outstanding infrastructure
- becoming the third economy in New Zealand
- having an active, strong commercial city with distinctive urban villages
- being accessible with affordable housing.

The Infrastructure Strategy is based on realistic growth forecasts over 30 years and identifies proposed approaches and estimated infrastructure requirements for the following groups of activities:

- Water
- Wastewater
- Stormwater
- Transport
- Parks and Green Spaces
- Community and Event Facilities.

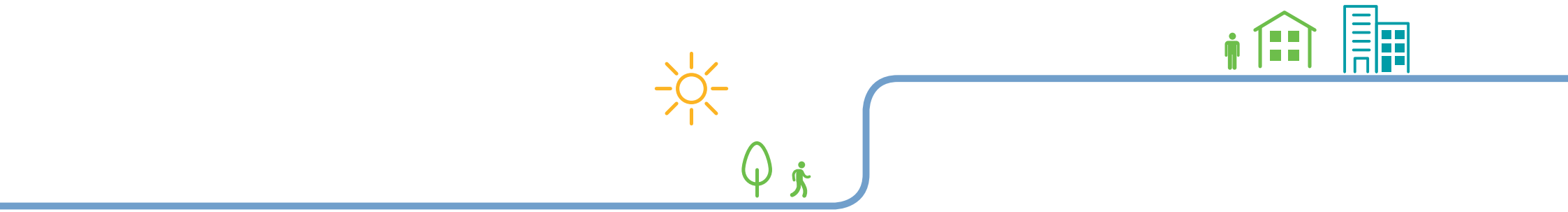
An overview of major infrastructure projects and programmes that make up these estimates can be found as a fold out inside the front cover of this strategy.

The strategy also provides information on Hamilton's key growth areas, including the existing city, Rototuna, Rotokauri, Peacocke and Ruakura.

The Infrastructure Strategy outlines Council's responsible management of its infrastructure assets. The Strategy:

- shows what infrastructure is needed to deliver Hamilton's longer term economic, social and environmental goals
- identifies significant infrastructure issues Council may face over the next 30 years and the principal options and proposals for managing these issues
- provides a reference for the private sector and other government agencies to consider their complementary role in contributing to Hamilton's infrastructure and growth.

The Infrastructure Strategy is an indicative estimate of the Council's future infrastructure needs. It is not a budget and by itself does not commit Council to any future project, cost or timing. It is a statement of



current assumptions and thinking on what infrastructure issues Council is likely to face in the future and how Council is currently planning to address these issues.

The Strategy provides estimates of what infrastructure may be required beyond the 10-Year Plan – Council's long-term budget. This information helps to make sure that today's decision-makers have good information to make decisions that keep Council's infrastructure and finances sustainable over the long term.

The Strategy identifies the current plans and approaches for the management of Council's infrastructure assets over the next 30 years. The options highlighted in bold text for each infrastructure issue throughout the Strategy should be regarded at this time as the 'most likely scenario' for addressing known issues.

The Strategy will be useful for:

- interested Hamilton residents
- Hamilton's development community
- other government agencies – both central and local government
- other providers of infrastructure – such as energy and telecommunications companies.

The Strategy provides the developers with information on how Council currently sees the city will grow and the strategic investments needed to support ongoing growth. It will give indications of Council's latest programme for its investments so developers can plan with more certainty.

Other infrastructure providers and government agencies will use the plan to understand Council's current long-term infrastructure plans for Hamilton.

They can use this information for their own planning processes to ensure that they can align their investments to help support the future infrastructure needs of Hamilton.

The Infrastructure Strategy has been prepared using the following overall assumptions which are consistent with the significant forecasting assumptions used in the 2015-25 10-Year Plan.

TABLE 1: OVERALL ASSUMPTIONS

Assumption	Level of uncertainty and potential impact
Financial information in this Strategy includes inflation unless stated otherwise. Financial information on individual projects (timeline graphics and Appendix 1) are not inflated.	High degree of uncertainty as based on long-term inflation forecasts that are likely to change. Increased or decreased inflation could have a material impact on the accuracy of financial forecasts. This would result in the need to either decrease or increase funding in order to continue to deliver the same service levels and programme.
Graphs of forecast capital expenditure are based on a gross (total project) costs	Medium level of uncertainty. Some projects may attract funding from other sources. These sources may include subsidies, grants or be part funded by developers. This could have a significant impact on the final cost of projects to Council.
Graphs of forecast operational expenditure are based on anticipated net cost to Council and include indirect costs of providing the service (including depreciation, interest and overheads).	Medium level of uncertainty as revenue from operational activities is difficult to forecast a long term. The potential impact of this uncertainty is relatively low, as adjustments can be made to budgets as trends in revenue are monitored and can be predicted over the shorter term.
Hamilton is anticipated to grow in size by around 60,000 people (from 150,000 to 210,000) over the next 30 years.	Medium level of uncertainty as based on independent demographic projections. These could be materially impacted by unforeseen changes to migration patterns – both international and domestic. This would alter infrastructure required to support growth.
NZ Transport Agency subsidies continue as currently provided at a rate of 51% subsidy for eligible projects.	Medium level of uncertainty as based on new subsidy rates. Changes to rates or project eligibility criteria would have a large impact on the net cost of transport projects for Council. This would be particularly significant in the period beyond Year 11 as there is a large amount of forecast expenditure on transport beyond the 2015-25 10-Year Plan.
There will be no significant changes to legislation that would impact on the need for and nature of infrastructure.	Medium level of uncertainty as some legislative change is probable over the 30 years of the Strategy. The potential impact of future changes could be high if legislation results in additional expenditure to comply with new standards or if it requires Council to deliver higher service levels than planned at this point.
There will be no significant changes to technology that would alter how services are delivered or what infrastructure is required.	High degree of uncertainty as technological advancement is highly likely over the next 30 years. This could have a major impact on the scope, timing and costs of anticipated projects as new technologies may deliver services in different ways through different types of infrastructure
New resource consents for three waters activities and the Waikato River are renewed and with similar conditions.	High degree of uncertainty as the impact of the Vision for the Waikato River is new and was not in place when current consents were gained. If there was a requirement for significantly higher discharge standards, this may result in the need for additional unplanned expenditure.
There will not be any natural disasters resulting in widespread damage or remedial work to Councils infrastructure.	Medium level of uncertainty as natural disasters cannot be foreseen and can have a significant impact on infrastructure and financial requirements for remedial works. While Council is insured for natural hazards, this would not fully cover the costs of a highly-damaging event.

ASSUMPTIONS RELATING TO EACH INFRASTRUCTURE ACTIVITY AREA ARE PROVIDED IN APPENDICES 2 TO 5 OF THIS STRATEGY

BACKGROUND

Located in the heart of the North Island, Hamilton is at the centre of the economic triangle connecting Auckland and Tauranga. This area contains a large proportion of New Zealand's population (around 40 per cent of New Zealand's total population live within a 150 kilometre radius of the Waikato district). This area generates the bulk of the nation's economic activity.

Hamilton's close proximity to Auckland and strategic position at the junction of critical regional and national infrastructure make it well placed to keep benefiting from sustained growth. These strong cross-boundary linkages throughout the region and beyond have led to growing demand on city services and infrastructure – the basis on which the city functions and flourishes.

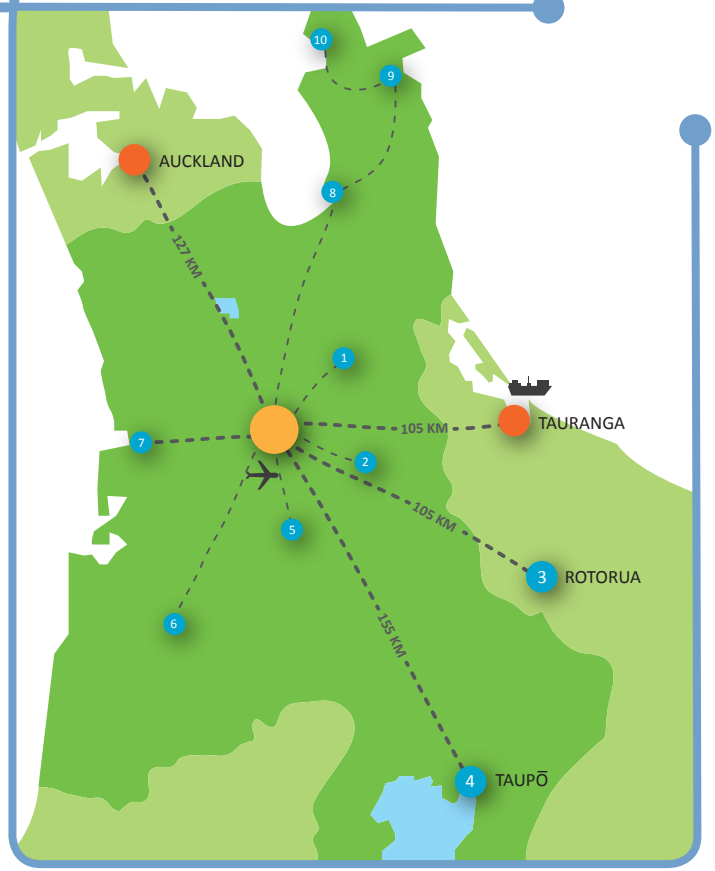


FIGURE 1: HAMILTON CITY IN THE WAIKATO REGION

CITY PROFILE

Hamilton City in the Waikato Region

- North Island
- Waikato Region
- Hamilton
- Key Cities
- Airport
- Port

Regional Centers

1. Morrinsville
2. Cambridge
3. Rotorua
4. Taupo
5. Te Awamutu
6. Waitomo
7. Raglan
8. Thames
9. Whitianga
10. Coromandel

History of infrastructure development

Hamilton is a relatively young city as much of its development has taken place in the last 50 years. This means that its infrastructure is aging but still comparatively young when compared to other large New Zealand cities. While there is a still lot of life remaining in much of the city's infrastructure, there is always a need to keep maintaining and replacing parts of infrastructure that wear out. Over the next 30 years there is likely to be a need to replace many assets as they reach the end of their useful life.

Growth of the city

In recent decades Hamilton has experienced sustained economic and population growth. Migration to Hamilton has been strong to support the city's broad-based economy and the large regional health and tertiary education services based here.

Hamilton provides employment and a wide range of services, facilities and amenities for the use and enjoyment of the wider region. With further growth projected, Hamilton will ensure that good quality infrastructure is available to support this growth. However this growth will come at considerable financial cost to the city. Council needs to spread the cost of this infrastructure fairly over both those who cause the need for and those who benefit from the infrastructure, now and in the future.

Regional infrastructure and assets

Hamilton's infrastructure provides services to the broader sub region. The city's core infrastructure supports businesses and household catchments well beyond the city boundary. Similarly, the city's cultural, community and recreational assets (e.g. libraries, theatres, sports stadia, parks and gardens) provide a diverse cluster of accessible services, attracting people from across the region.

While Hamilton benefits from these regional assets, they often come at a cost to city ratepayers. Long-term and sustainable infrastructure delivery and funding services (particularly for community facilities and water) should be investigated.

Planning and investing for growth

Hamilton manages its growth responsibly. This has ensured that there is zoned land supply for the next 40 years as well as land supply that is adequately serviced by strategic infrastructure for around 10 years' proposed growth.

Council manages future growth through:

- its Hamilton Urban Growth Strategy which sets out the future growth of the city
- the Hamilton City District Plan is Council's urban planning response that locks in our growth strategy through the Resource Management Act 1991
- the Growth Funding Policy to enable developers to provide infrastructure ahead of that provided for in the 10-Year Plan, or to provide infrastructure that is not in the 10-Year Plan. The policy exists to ensure that Council's inability to debt fund infrastructure does not unduly restrict development
- the 10-Year Plan which provides the budget and clarity on what and when projects that enable growth of the city will be funded by Council

The sub-regional partnership in the Future Proof Strategy was adopted in 2009 to achieve coordination of urban growth in the wider area covering Hamilton, Waikato District Council and Waipa District Council areas. The Future Proof Strategy and Councils policies help to make sure the city grows in a logical and planned way to allow infrastructure to be available in the right place and time for growth.

Council investments need to be done within Council's Financial Strategy to ensure that rates and debt levels are sustainable over the long term. Although there is not a shortage of zoned land in Hamilton, there is always a challenge with funding strategic infrastructure to allow growth in new areas. Council is not in a position to forward-fund growth-related infrastructure in all identified growth areas of the city.

Hamilton is New Zealand's largest inland city, and fourth largest urban area, with a population of around 150,000 people in 2015.

SIGNIFICANT INFRASTRUCTURE THEMES

Seven significant infrastructure themes have been identified through the development of this Infrastructure Strategy and the underlying Asset Management Plans (AMPs). These themes often relate to more than one group of infrastructure.

1. Hamilton's infrastructure provides services to the sub-region

Hamilton covers a relatively small geographic area within the Waikato Region. While Hamilton is recognised as the urban area within the region, there is a lot of residential activity outside of the city in the form of lifestyle blocks and in villages and towns close to the city. This means there are a lot of people and freight movements between the city and its surrounds. Hamilton is supported by, and provides services to, the residents and business activity located outside the city.

While there is a common issue in other parts of New Zealand, the Council boundaries around Hamilton make this particularly challenging for the city.

Council's community infrastructure and events facilities are largely sub-regional in function – providing services and experiences that are used by many from outside Hamilton. While this relationship can provide an economic benefit to the city, this also comes at considerable cost to city ratepayers who predominately fund these facilities.

A sub-regional infrastructure model has been investigated for the delivery of water and wastewater. The Waikato Spatial Plan project will also look at infrastructure issues that might be common across the region and if there are opportunities to deliver infrastructure more efficiently. Other funding models for sub-regional and regional facilities should be a priority for the future.

2. Council has given priority to looking after what it has before building new assets

Council has over $3.2 billion of assets. Unless Council decides that it will no longer provide some services, these assets need to be maintained and replaced as they wear out. This is why Council has given priority funding in its 2015-25 10-Year Plan to operating, maintaining and renewing these assets.

Council is also committed to improving its Asset Management Plans and takes its asset management processes and systems seriously. Further investment on improving asset management will be made in the future to make sure Council has the right information to make the best possible decisions on its assets.

Council has been working on developing emergency response plans for its infrastructure

3. More planning is being done to be ready for a natural disaster and unexpected events

While Hamilton has a relatively low risk of natural hazards - when compared to some New Zealand cities - this should not be taken for granted. Events over recent years in other parts of the country have shown the need to have plans in place to help deal with large unexpected events. Council has been working on developing emergency response plans for its infrastructure and more work still needs to be done. Focus has been placed on making sure that improved response plans are in place first for the critical services that council provides. A lot of work is also going into understanding the natural hazards that are likely to affect Hamilton and the sub-region and the potential consequences of events on the Council's above and below-ground infrastructure.

4. More investment is planned to improve critical infrastructure resilience

While Council's current strategic infrastructure performs well, in some areas there is not a lot of spare capacity or resilience to deal with significant unexpected events or failures of critical assets. This is consistent with Council's 'just in time' approach to investment in infrastructure.

The water and wastewater treatment plants are the only infrastructure that the city has for treating water for use and its wastewater before discharging back into the Waikato River. This means that they need to be operating all the time. Further investment is now required to improve resilience and capacity in the plants and the associated pipe networks to deal with unexpected events. Council is investing more in critical core network infrastructure in its 2015-25 10-Year Plan to lessen the risk associated with these services.

5. There is difficulty in getting new growth infrastructure to the right place at the right time

As the city grows, new infrastructure is built to connect new developments to the existing core networks. Developers provide the new infrastructure in their development, but Council also has to do work to make sure that the networks can respond to the demand from the wider development area.

The city has more than 30 years' supply of land zoned for future development, but it is uneconomic to have all the necessary strategic infrastructure in all zoned areas ahead of development occurring. In order to plan its infrastructure spending, Council has had to anticipate where and when new development will occur. Council has to prioritise its spending on growth infrastructure and will not deliver all of the infrastructure wanted by developers in the timeframe ideally wanted. In these cases if developments are to progress ahead of Council's programme, then this will need to be at the developers' cost.

"In order to plan its infrastructure spending, Council has had to anticipate where and when new development will occur."

6. Managing demand for infrastructure will limit the need to build new or upgrade existing infrastructure

Building new infrastructure is only one way to deal with the demands of a growing city. Building more capacity is usually the most expensive option and often results in an increasing number of costly infrastructure projects and maintenance over time. A key strategy for all infrastructure is to manage demand for the service that is requiring the construction of new assets. Managing demand for transport has been a focus for many years and more recently, demand management for water infrastructure has gained focus. Over time the need for demand management will become more important as expensive infrastructure decisions to increase capacity is required. Demand management is also an important tool for recreational infrastructure such as sports fields and aquatic facilities. As a matter of course, Council will look at all options for managing demand before investing in growing capacity through new infrastructure

7. Infrastructure needs to be delivered through partnerships

Council cannot provide all of Hamilton's infrastructure needs by itself. For core network growth projects, Council needs to focus investment on projects that it is reasonable for only it to provide due to the projects scale or because the infrastructure services a large area or multiple developments. The majority of other core network infrastructure will be provided by developers. Beyond Hamilton there may be opportunities to grow the capacity and resilience of water and wastewater infrastructure through projects that service the sub-region, rather than just the city or a single district. Before any councils in the area invest in new infrastructure capacity, the benefits of shared projects and investment should be explored.

Over recent years, central government and Council have partnered on constructing the Ring Road in anticipation of the Hamilton section of the Waikato Expressway project. The Hamilton section of the Waikato Expressway is scheduled for completion in 2019/20. Council will work with central government on this project and in some cases, co-invest in the final parts of the strategic transport network to connect the city network with this piece of key national infrastructure.

Council will also work pro-actively with other potential joint funders of necessary community infrastructure. These partners could include philanthropic groups helping to fund development at Hamilton Gardens or educational groups wanting to building recreational facilities and (with support from Council) increase capacity and provide community access. Council sees these as efficient ways to provide public infrastructure and are now considered common practice.

LEGISLATIVE AND POLICY FRAMEWORK

This document meets the requirement of the Local Government Act 2002 (LGA) for Council to prepare a 30-year Infrastructure Strategy alongside its 2015-2025 10-Year Plan.

This Infrastructure Strategy describes how Council intends to manage its infrastructure assets taking into account the need to:

- renew or replace existing assets
- respond to growth or decline in the demand for services reliant on those assets
- allow for planned increases or decreases in levels of service provided through those assets
- maintain or improve public health and environmental outcomes or mitigate adverse effects on them
- provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks.

Council has an Asset Management Policy that has guided the development of comprehensive asset management plans (AMPs) for each of the Council's activities included in this Infrastructure Strategy.

While management of assets is an ongoing process that requires continued adjustment, AMPs document the planning and assumptions used to prepare financial forecasts for providing services that require assets, at a point in time. The preparation of AMPs is a key early step in Council's long-term budget planning process, are updated regularly and have substantive reviews as part of each 10-Year Plan.

The AMPs contain the strategies and approaches (both financial and technical) used over the whole life of assets to manage them in the most cost-effective manner to provide a specific level of service.

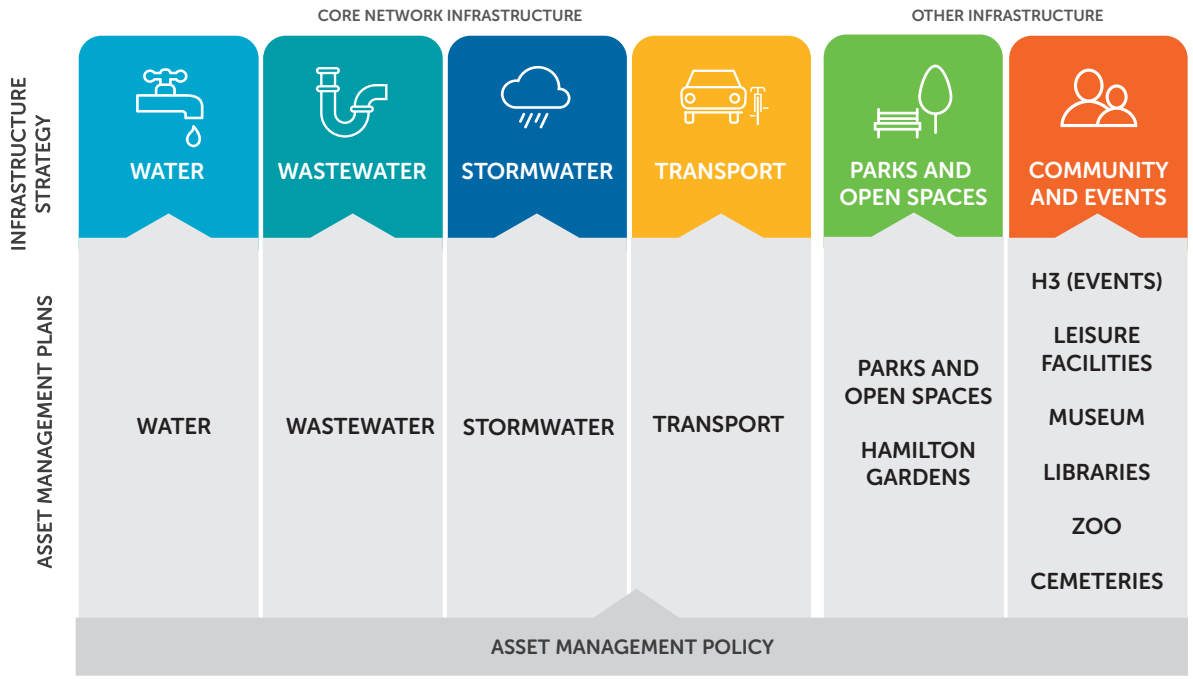
The AMPs help to ensure that asset management decisions meet the intent of the Local Government Act (LGA) and provide for good quality local infrastructure and local public services that are:

- efficient
- effective
- appropriate to present and anticipated future circumstances.

The combination of Council's AMPs and this Infrastructure Strategy provide key documents that have informed the 2015-2025 10-Year Plan.

While initial financial forecasts from AMPs are a key input, the 10-Year Plan needs to balance the forecasted spending needs with the affordability of Council's Financial Strategy. This affordability is determined by Council imposed limits on rates and debt levels. It's usual that not all of the forecasted expenditure requirements for assets can be afforded within funding availability. In these cases, the budgeting process prioritises expenditure on existing assets rather than creating new ones.

FIGURE 2: ALIGNING THE INFRASTRUCTURE STRATEGY TO ASSET MANAGEMENT PLANS



FUTURE SETTLEMENT PATTERN

There are currently many opportunities for new development in Hamilton. Council has rezoned land to allow growth in different areas of the city. While there is enough strategic infrastructure in place to allow the private sector to develop and bring to market around 10 years' worth of projected demand, strategic infrastructure is not yet available in all of the future growth areas to support development.

Council's 10-Year Plan shows what infrastructure projects Council will do to help grow the city. To decide this programme, assumptions were made on the sequence and timing of development across the city's growth areas. The assumptions on the sequence and timing of development in Hamilton has resulted the following infrastructure investment provisions for the next 10 years.

TABLE 2: SEQUENCE AND TIMING OF GROWTH AREAS

Land use Assumption for sequence and timing	Infrastructure response in 2015-25 10-year plan
Existing city areas: Up to 50% of Hamilton's new dwellings will be in the existing city. This will be around key nodes of higher density or throughout the city as infill subdivision and developments.	
Greenfield or new growth areas: **Priority 1** - Development will first occur in: • Rototuna and Peacocke Stage 1 – continuing development already taking place • Rotokauri Stage 1 –continuing residential and industrial development • Ruakura –beginning residential, industrial, logistics, knowledge and innovation, and inland port development.	• These remain the city's primary growth areas with most strategic infrastructure already in place. • Investment in strategic infrastructure particularly waste water to be advanced as soon as possible. • Council role limited to investment in strategic wastewater and transport infrastructure with private investment largely enabling development.
Priority 2 - Development will then occur in: • Peacocke Stage 2 – the major focus area of growth following priority 1 areas.	• Key strategic wastewater infrastructure being progressed during next 10 years.
Priority 3 - Long-term development will occur in: • Rotokauri Stage 2 – Council focus following Peacocke Stage 2 • Te Rapa North • Templeview	• Any investment is planned outside the next 10 years. • Infrastructure investment being developer-led. • Council investment limited to investigating a Structure Plan for this area.

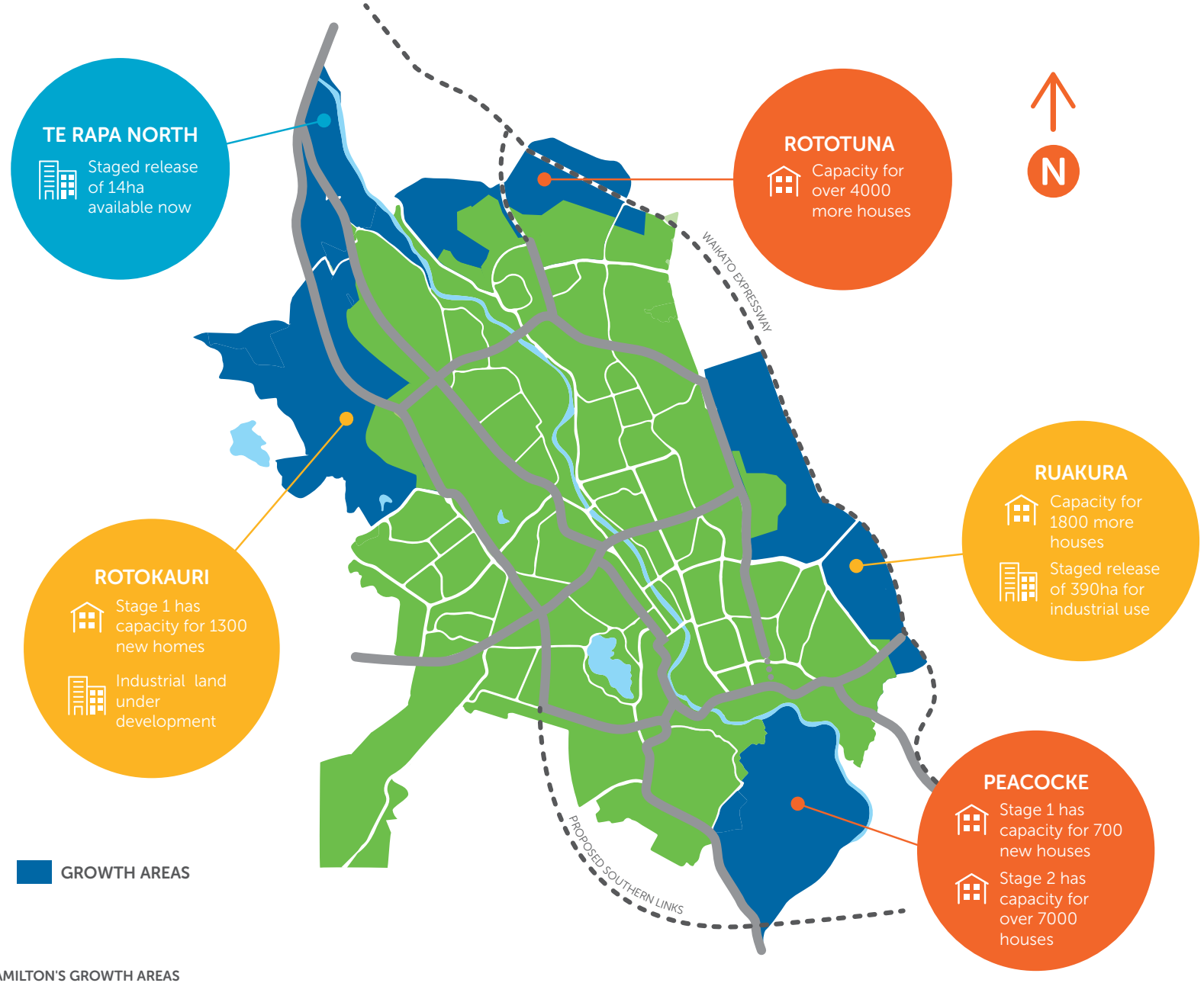


FIGURE 3: HAMILTON'S GROWTH AREAS

GROWTH FORECASTS

Population projections

Population projections are used to forcast how fast Hamilton will grow and when new growth areas will be required for development.

The National Institute of Demographic and Economic Analysis (University of Waikato) has projected that the population of Hamilton, under medium series assumptions, will grow from 147,290 in 2013 to around 210,000 by 2045.

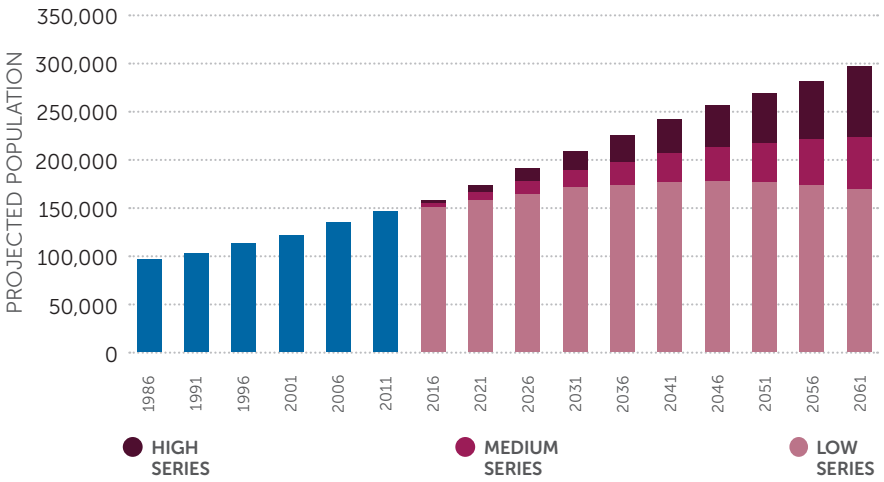
The high and low series projections have different assumptions:

- high series : lower mortality, higher fertility and higher net migration
- low series : higher mortality, lower fertility and lower net migration.

While the population of Hamilton is projected to continue growing in the future, this growth will not be the same across all age groups.

Growth will be most significant in the number and proportion of people over 65 years old. The projections suggest that in 2045 there will be the same number of people in Hamilton below the age of 40, despite the total population increasing by around 60,000 between now and then.

FIGURE 4: HAMILTON'S POPULATION FORECASTS 2015- 2045



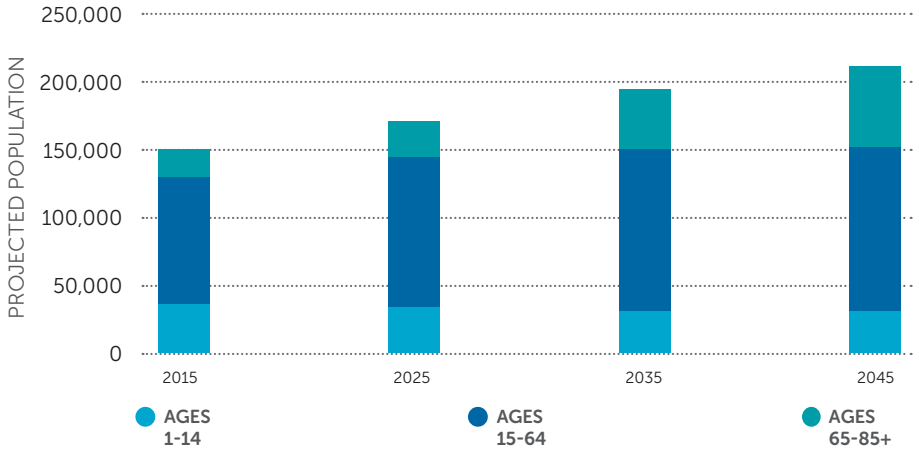
Employment and economic projections

Population projections are not necessarily accurate forecasts of growth and decline by themselves. Council also uses economic and employment projections alongside population data to develop a growth forecast for its long-term planning.

Hamilton's economy is projected to grow in value by an average of around 1.6 per cent per annum over the next 10 years, slowing to average of 1.3 per cent after 30 years. The major contributors to this growth are expected to be construction, electricity supply, health care and social services, transport and wholesale trade, manufacturing and dairy processing sectors. The biggest gains are expected in industries that are more capital-intensive than labour-intensive. This will likely require investment in new plant and premises and drive the need for more industrial land and related infrastructure.

Because of this type of growth, employment is expected to grow at a slower pace of 1 per cent per annum for the first 10 years, slowing to average just 0.7 per cent by 2045. Business support services, education, accommodation and food services, and government administration sectors will contribute to the growth that is caused by the more capital intensive sectors listed above.

FIGURE 5: HAMILTON'S PROJECTED POPULATION COMPOSITION 2015- 2045



INFRASTRUCTURE FORECASTS

Population projections, employment forecasts and information on future trends have been used to generate demand forecasts for each of Council's activities and related infrastructure. Examples of these forecasts and the resulting implications for the management of the infrastructure is below.

Water

- Peak water consumption is expected to rise from 89 megalitres per day in 2014 to 126 megalitres per day when population reaches 210,000.
- Reservoir storage will also need to increase from the current 86 megalitres to 130 megalitres to support a population of 210,000 and maintain storage for emergency purposes.

Wastewater

- The Pukete Treatment Plant currently has a primary treatment capacity of about 2,000 litres per second which was exceeded briefly in 2014, and a secondary treatment capacity of 600 litres per second which is expected to be exceeded by about 2020.
- Investment in both network and treatment capacity is required to service city growth and to reduce existing overflows.

Stormwater

- Climate change and the regulatory requirement to manage stormwater for 'one in 100' year rainfall events and improve stormwater quality will require catchment management plans for all new development areas.
- Infrastructure in existing city areas is not suitable for '1 in 100' year events and catchment management plans or flood hazard maps will be required for these areas.

Transport

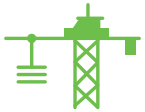
- The number of motor vehicles owned by Hamilton residents is projected to grow by 66 per cent by 2045.
- The transport network will have to accommodate an estimated 130,000 additional daily journeys to work or to drop children at school by 2045.

Parks and Green Spaces

- Future projections for organised sport show that by 2021 the city will not be able to meet the projected demand for the winter sports codes. At least four new fields need to be developed by 2020.
- Investment in future parks is required to service growth.

Community and Event Facilities

- Many of Council's community and event facilities are sub-regional infrastructure.
- The sub-regional population is projected to increase from 265,000 to over 365,000 in 2045.
- The population is aging and more facilities will need to cater for the needs and preferences of an older population.



HOW WE MANAGE OUR ASSETS

Asset management plans have been prepared for Council's activities that have a high reliance on assets to deliver services.

These plans have been prepared based on standard industry practice and have been used to forecast the expenditure needed to operate, maintain and renew worn out assets.

Council uses its asset management plans as an initial basis for its 10-Year Plan.

The financial forecasts in AMPs are a result of analysing the asset requirements based on two key assumptions:

- the future service level being delivered to the community
- the future demand for the service.

The 10-Year Plan balances the forecasted spending needs with Council and ratepayer affordability. This affordability has been determined by projected rates and other income and prudent debt levels. It is usual that not all the identified spending needs in AMPs can be afforded within funding available. In these cases the budgeting process prioritises expenditure on maintaining and renewing existing assets before creating new ones.

"Council uses its asset management plans as an initial basis for its 10-Year Plan."

Levels of service

Service levels for each of Council's activities are agreed through the development of 10-Year Plans. Changes to service levels can have significant effect on the community and range from ceasing to provide a whole or part of a service, through to small technical changes such as the frequency of maintenance of non-critical assets.

The 10-Year Plan also sets any charges that users have to pay for a service. Feedback from the community on service levels is gained through a number of sources including:

- customer feedback and complaints
- Annual Plan and 10-Year Plan submissions
- residents' surveys
- consultation on specific strategies, plans and policies.

Assumptions about future service levels are made in asset management plans based on:

- the current service level
- Council plans or strategies that would require a changed service level
- known changes to standards, consents, legislation or other requirements.

In general, this Infrastructure Strategy has been prepared based on the assumption of continuing to provide the current service levels to the community.

Further detail on service level assumptions is provided in Appendix 3.

Changes in demand/growth

Demand for services changes over time. For some services such as core network infrastructure, new housing and commercial development creates additional demand. Demand for other services is more influenced by human decisions whether or not to use a service.

The physical growth of the city is placing significant demand for new infrastructure in Hamilton. Infrastructure that is required to provide for new areas of the city can either be:

- private infrastructure - where it is operated, maintained and renewed by property owners
- public infrastructure – where it is operated, maintained and renewed by Council.

The vast majority of core network infrastructure in the city is public infrastructure. This has either been constructed by Council or built by a developer to Council's standards and then vested in Council for on-going operation. Council sets the required standards for infrastructure in a technical manual – 'Hamilton City Infrastructure Specifications'.

Developers are required to provide the local infrastructure that is needed to service their development. Local roads, pipes and parks for new developments are provided on this basis.

Council provides infrastructure for growth areas where Council is the only entity that can realistically provide the infrastructure required, as it is strategic infrastructure and it services more than one development. This is particularly the case for capacity upgrades to Council's treatment plants and infrastructure that provides a city-wide function such as major arterial roads. Council also contributes to infrastructure within developments when local infrastructure is being constructed to ensure that it is built to the right size to be able to support future downstream developments that may also need to use it. This is referred to as 'up-sizing' and is common practice in growth areas across Hamilton.

TABLE 3: EXAMPLES OF STRATEGIC AND LOCAL INFRASTRUCTURE

Council-provided infrastructure (strategic infrastructure)	Developer-provided infrastructure (local infrastructure)
• Water and wastewater treatment plant upgrades • Water reservoirs and connecting bulk mains • Wastewater interceptor pipes • Major arterial roads • Major pump stations • Sports parks and large destination parks • Community and events infrastructure – libraries, pools, stadiums etc	• Local water and wastewater pipes (sometimes upsized by Council) • Stormwater infrastructure for the development (sometimes up-sized by Council) • Local roads and footpaths and street lighting (sometimes up-sized by Council) • Local reserves

Where justified and Council is legally able to, the costs associated with providing infrastructure to support growth are recovered through development contributions charges. However, revenue from development contributions never fully fund growth-related projects and some funding from ratepayers is always required.

Council forecasts the future growth of the city by using a range of external information to produce a likely development sequence and timing. These demand forecasts are used in asset management plans to identify what the future infrastructure requirements are likely to be.

The growth assumptions and capital investment forecasts are revised thoroughly through the development of each 10-Year Plan and amended if required more frequently through Annual Plans.

Appendix 5 contains more detailed information on assumptions relating to growth in demand.

Renewals

Council's assets are renewed or rehabilitated when they reach the end of their useful life. An asset's theoretical useful life is first assumed when constructed. It is then updated periodically based on:

- Deterioration in the physical condition of the asset
- the on-going cost to continue to maintain the current asset or replace it
- when technology that the asset is based on becomes obsolete
- when the asset can no longer carry out the function that it was intended to do.

Council uses updated condition assessment data with relevant asset life expectancy rates to forecast an asset's likely end of life.

Appendix 4 contains information specific to the infrastructure groups on how renewal forecasts are prepared.

These forecasts are optimised and used to develop a 30-year renewals forecast. These forecasts are contained in Council's asset management plans and form the underlying information for Council's Infrastructure Strategy and 10-Year Plan development.

In its 2015-25 10-Year Plan, Council prioritises asset renewals above other types of capital expenditure. Priority has been given to renewals of assets for core network infrastructure (water, wastewater, stormwater and transport).

Public health and environmental outcomes

A number of Council services provide important public health benefits to the community.

Delivering services can impact the natural environment. Council is often also required to meet specific environmental outcomes in the delivery of the service to the community. Activities such water, wastewater and stormwater have specific resource consent conditions that need to be met while delivering the service to the community. These conditions are monitored and reported to the relevant regulatory body. In relation to infrastructure, this is often the Waikato Regional Council.

Any relevant and required standards such as consent conditions are included as key drivers in asset management planning processes.

Often if these requirements are a major aspect of the activity, compliance with standards or consent conditions are separately identified as a key level of service and performance against these is measured and reported regularly as part of the 10-Year Plan monitoring.

TABLE 4: PUBLIC HEALTH BENEFITS PROVIDED BY SERVICES

Activity	Benefit
Water Supply	• Safe drinking water provided to residents and businesses.
Wastewater	• Sewage and trade wastes are removed from properties and safely treated before being returned to the environment.
Stormwater	• Rain water is efficiently removed from property and public spaces. Open water courses are managed.
Cemeteries and Crematoria	• Burials and cremations are efficiently and safely managed.

Resilience and management of risks relating to natural hazards and financial provisions

Hamilton has a relatively safe and predictable natural environment when compared to other parts of New Zealand. The risk of a significant seismic event is low. Recent records show little seismic activity in and around Hamilton.

While the Waikato River flows through the city, the risk of widespread flooding from it is low as the river is contained in a large river channel and most of the city is significantly higher than historic high river water levels. The river level and flow is moderated by the Karapiro Dam and this reduces sharp changes in the river level.

Climate change is considered as part of Council's long-term asset management planning processes. Current computer models indicate that the climate in Hamilton is predicting storms of greater frequency and intensity in the future. This will have particular impact on Council's water, wastewater and stormwater assets. Council uses guidance from the Ministry for the Environment to plan for the effect of climate change in its asset management planning processes.

A lot of work is also going into understanding the natural hazards that are likely to affect Hamilton and the sub-region, and the consequences to our above and below-ground infrastructure.

Identifying and managing our critical assets helps ensure Council services are reliable and resilient and able to recover in the event of a natural disaster.

Knowledge on what services and assets are critical is used to prioritise work on condition assessments, preventative maintenance and renewal programmes. If a disaster were to strike, this information will also help us to prioritise our infrastructure programme to return to normal levels of service.

Council insures its above and below ground assets and has insurance cover of over $1.3 billion for replacement of assets and business interruption for damage from natural disasters including:

- Earthquake
- Natural landslip
- Flood
- Tsunami
- Tornado / windstorm
- Volcanic eruption
- Geothermal activity
- Subterranean fire.

Insurance cover for underground infrastructure is currently purchased for up to 40 per cent of the asset value as there is an assumption, in the event of a disaster, that central government would provide assistance with 60 per cent of the costs. However, this is not guaranteed and is a risk for funding any recovery.

LONG-TERM FINANCIAL ESTIMATES

The Strategy contains financial estimates for infrastructure over the next 30-years. As described earlier these are estimates and they are based on many and broad assumptions.

More detailed estimates for capital and operational expenditure are provided in the individual infrastructure sections of this Strategy.

An overview of the significant infrastructure investments that make up these estimates is found as a fold out inside the front cover of this Strategy.

Forecasted operational expenditure for the 30 years has also been prepared. The forecasts for the first 10 years are from the 2015-25 10-Year Plan and longer term estimates have been based on applying inflation and estimated growth factors.

The development of indicative estimated expenditure on assets for the next 30 years has allowed Council to gain a preliminary view of the long-term sustainability of its finances and infrastructure.

The estimated expenditure profile has been developed based on:

- 30-year asset management plans (AMPs)
- the draft 2015-25 10-Year Plan budget.

FIGURE 6: TOTAL INFRASTRUCTURE FORECASTED CAPITAL EXPENDITURE EACH YEAR, 2015-25 10-YEAR PLAN

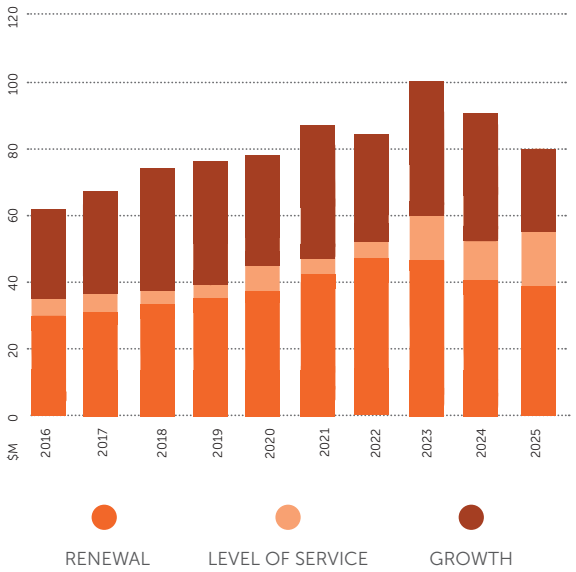
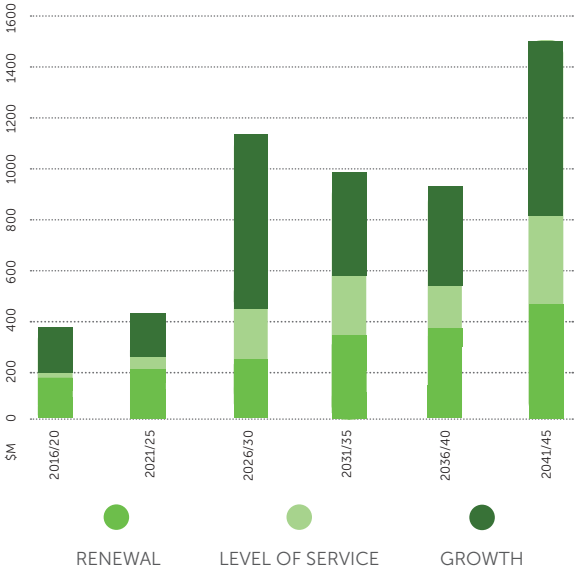


FIGURE 7: TOTAL INFRASTRUCTURE FORECASTED CAPITAL EXPENDITURE, FIVE YEARLY PERIODS - 2015-45



The initial expenditure profile was prepared as part of AMP development. Years 1-10 were then moderated based on affordability parameters contained in the 10-Year Plan Financial Strategy (debt to revenue ratio of no more than 200 per cent and rates increases as forecast in the 10-Year Plan).

Projects that are unable to fit within these limits in the 10-year period of the plan (years 2015-25), and that are still required, have been rephased into years 11-20 and beyond.

There is a high likelihood that over time the indicative estimates beyond 10 years in this Infrastructure Strategy will need to change to reflect:

- changes in assumed growth rates
- changes to standards and compliance requirements
- new technologies and infrastructure options
- greater certainty about the nature and timing of the projects that are required
- affordability and ability for Council to deliver the programme.

This moderation is expected to occur and will do so as Council considers future 10-Year Plans. This uncertainty and need for this moderation is acknowledged in the tiered framework for forecast expenditure contained in the Local Government Act.

FIGURE 8: TOTAL INFRASTRUCTURE FORECASTED OPERATIONAL EXPENDITURE EACH YEAR, 2015-25 10-YEAR PLAN

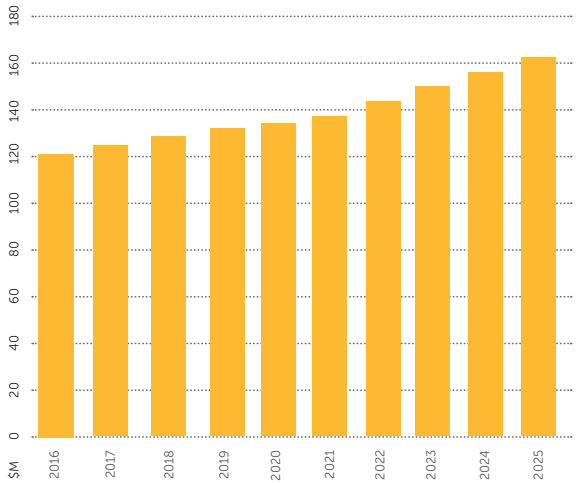
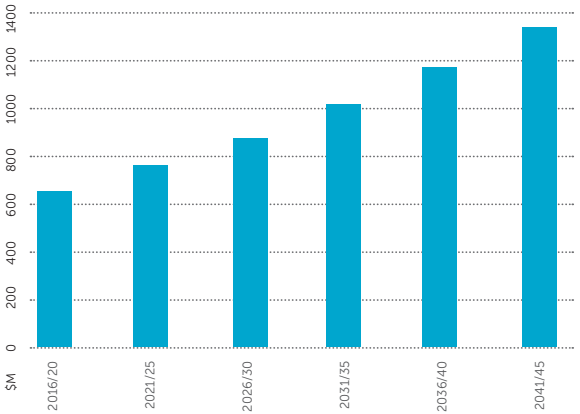


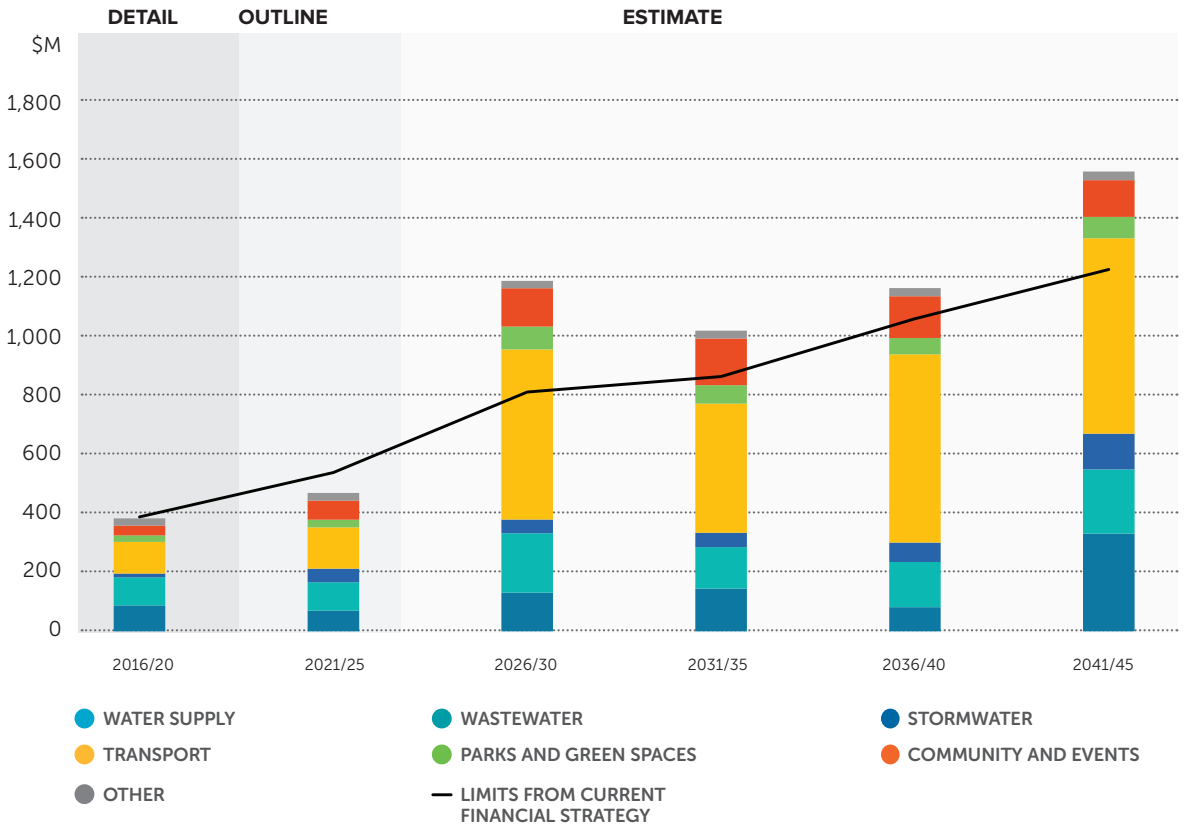
FIGURE 9: TOTAL INFRASTRUCTURE FORECASTED OPERATIONAL EXPENDITURE , FIVE YEARLY PERIODS - 2015-45



The indicative estimates show a significant increase in capital expenditure in the periods beyond year 10. The large increases in estimates for these periods (particularly years 11-15) is because it is assumed that a number of significant infrastructure projects will require decisions and investments during this period:

- development of Peacocke growth cell and need for related strategic infrastructure
- treatment plant upgrades (both water and wastewater)
- strategic wastewater capacity projects (interceptors and in-line storage facilities)
- parks and reserves development for growth cells not funded in the 10-Year Plan
- restarting investment in strategic transport network after a lull in the 10-Year Plan period.
- other deferred level of service and growth works from the 10-Year Plan period.

FIGURE 10: FORECASTED CAPITAL EXPENDITURE AND CURRENT FINANCIAL STRATEGY LIMITS , FIVE YEARLY PERIODS



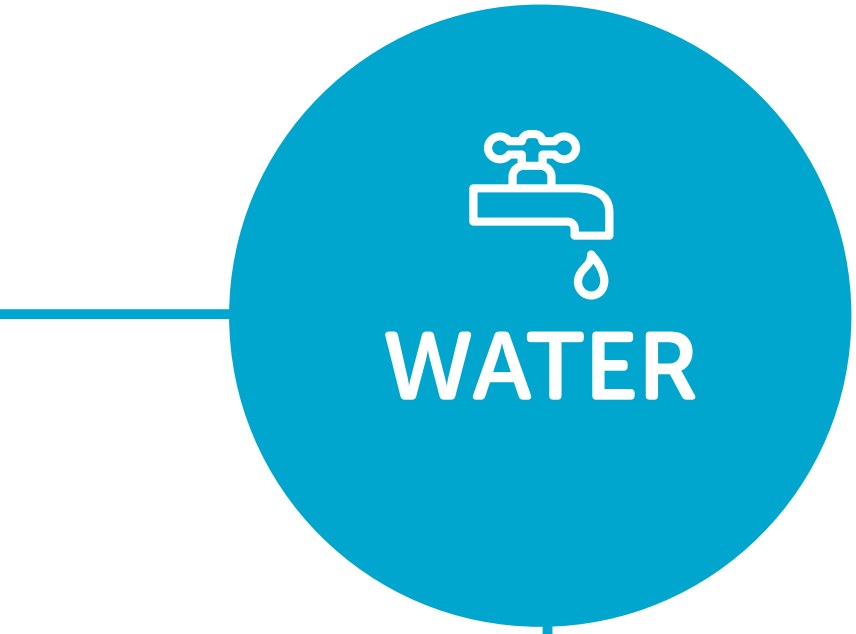
The estimated expenditure is shown in relation to a projection of 'Current financial strategy limits'. This has been prepared on the basis of the following assumptions:

- Capital and operating expenditure in years 1-10 as included in the draft 10-Year Plan budget
- Debt to revenue ratio decreasing to 200 per cent by 2019 (as in the draft 10-Year Plan budget) and remaining at 200 per cent into the future

Rates increases as in the draft 10-Year Plan budget (3.8 per cent each year to existing ratepayers) and from 2025 (year 11) decreasing to match the estimated inflation rate of 2.8 per cent (this is the average projected LGCI inflation over the 2015-25 period).

The 'Current financial strategy limit' line indicates a gap between potential future spending and funding constraints for Council. The Council's strategies to manage this gap include:

- Receiving capital subsidies for eligible projects (the capital expenditure forecasts do not assume subsidies).
- Reviewing timing and scope as more information becomes available. This reduces uncertainty.
- Investigating options and new technology as this develops and becomes available.
- Continuing to improve asset management planning to ensure the best possible programme for managing timing of large projects.
- Working with other agencies to ensure efficient infrastructure delivery.
- Moderation through future 10-Year Plan and Annual Plan processes.



WATER

Council is responsible for the treatment, storage, distribution and management of the city's water supply.

The water treatment plant sources raw water from the Waikato River and treats it to provide a high standard of drinking water.

The treated water is pumped to reservoirs from where it is distributed through a network to meet the needs of residential and commercial/industrial properties.

INTRODUCTION

Context

The city's water supply system is made up of a single treatment plant, eight reservoirs (seven of which are currently operational) and over 1000 kilometres (km) of associated pipe network.

Water Treatment

The treatment plant relies on the Waikato River as a single water source. The plant is capable of drawing up to 105 million litres of water per day from the river. Between 2.5 and 5.0 per cent of all water is returned to the river as part of the treatment process. The sustainable peak treatment capability of the plant is about 78 million litres per day. During summer, peak demand has reached up to 90 million litres per day and in the evenings a large portion of the demand for water is met from reservoir storage.

Water Storage

The city has eight reservoirs, seven of which are in operational service providing a total of 89 million litres storage. Water storage equivalent to peak demand per day is required for emergency purposes. However, as the city grows, additional reservoir storage will be required for emergency purposes and water supply during peak periods.

Water Distribution

Treated water is pumped from the treatment plant to the reservoirs and users through approximately 1100km of pipe network. As is expected in any urban centre, the network is made up of various pipe materials of different ages, which results in some water loss through leakages. The leakage in Hamilton is currently about 16 per cent.

OVERVIEW OF ASSETS

TABLE 5: OVERVIEW OF WATER ASSETS

Asset Group	Asset Type	Purpose and description	Number/ length	Value $000s
Water treatment	Civil, structural, mechanical, electrical and automation	Treatment plant that treats river water for human use.	1	60,688
Storage	Reservoirs	Used to store treated water. To meet drinking water standards we must be able to store enough water to met 24 hours of average water demand.	7 in working order, 1 out of service.	32,633
Network	Service connections	Pipe that connects the private water pipe within a property to the water network	49,195	24,512
	Bulk watermains	Bulk watermains carry treated water from the treatment plant to the reservoirs.	1,136 km	352,122
	Reticulation pipes	Pipes of decreasing sizes that carry treated water from treatment plant or reservoirs to properties.		
	Valves	Devices to control the flow of water from one pipe to the next.	9,737	17,039
	Hydrants	Above-ground connection that provides access to a water supply for the purpose of fighting fires or for flushing.	6,425	13,226
	Meters	Measure water use for our commercials and industrial customers and bulk water flows within the network.	3,867	2,185
Total Value				**502,405**

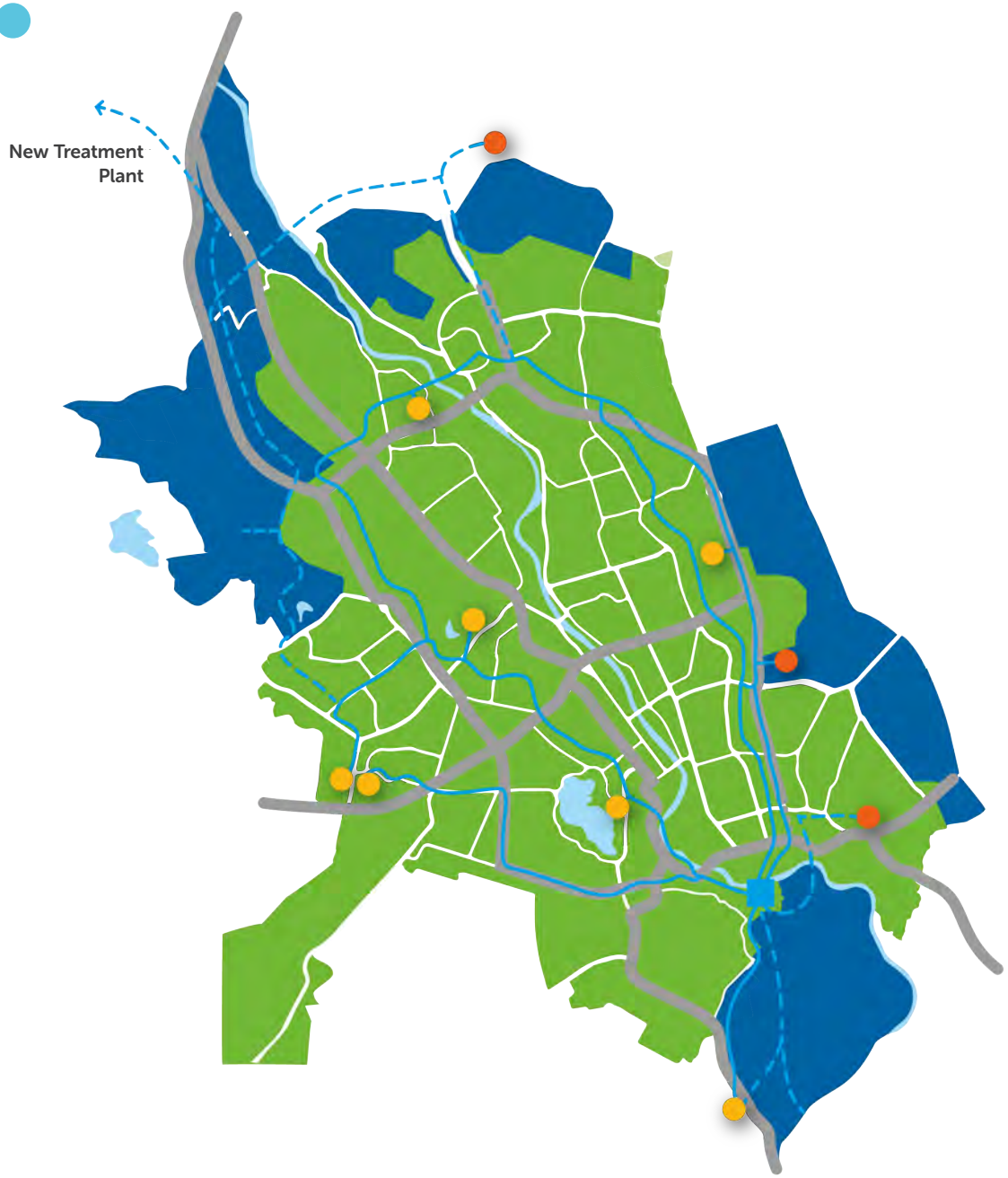


FIGURE 11: BULKWATER NETWORK

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted option is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Issue: Improving resilience in the water treatment, storage and distribution networks

TABLE 6

Principal options	Implications of options
Continue current approach to management of distribution network	• Places strain on water treatment plant and pipe network. Difficult to provide consistent pressures to users, maintain fire fighting flow/pressures and meet requirements of growth.
Reconfigure bulk mains connecting reservoirs to create a dedicated treatment plant/reservoir network	• The water treatment plant will be able to be operated at a consistent level of production and place less stress on assets, and better manage water loss and water pressure.

Issue: Reliance on a single raw water source

TABLE 7

Principal options	Implications of options
Maintain single water treatment plant	• No alternative supply source if water from Waikato River cannot be treated by plant.
Increase water storage	• Ability to maintain supply from reservoirs for short periods while treatment plant is shut down.
Provide a second treatment plant using a second water source	• Provides a second water source, security of supply and additional capacity.

Issue: Meeting the city growth needs for water demand

TABLE 8

Principal options	Implications of options
Managing demand through: • further education campaigns • extending existing consumption based charging	• A reduction in water demand. • Universal Water Metering: estimated cost $26M capital and 20% reduction in water demand. • Education campaigns: relatively low cost but limited reduction in water demand. • A fully metered network will assist leak detection on the public and private pipes.
Provide a second water treatment plant ideally using a different water source	• Significant cost of capital project - estimated $100M to provide additional treatment capacity and to reduce the risks of only having one source of water for the city. It is estimated that on current demand projections this would be required late in the next 30 years with or without universal water meters.
Reducing water loss	• Reduced water loss means more water is available to service the city's growth needs.
Reconfiguring the bulk mains connecting reservoirs to reduce load on the treatment plant, and better manage the network	• Some reservoirs currently only have one bulk main connection, which means that they can not be filled at the same time as being emptied. Also, many bulkmains provide water directly to the customer which places additional demand on the treatment plant.

Issue: Meeting water flow and pressure requirements for domestic, industrial and fire fighting uses

TABLE 9

Principal options	Implications of options
Reconfigure bulk mains connecting reservoirs to create dedicated water zones	• Reduce water loss and more consistent level of service for customers.
Responding to development and making sure infrastructure is built at the right time and place	• Consent and regulatory conditions continue to be met. • Service levels in the existing city continue to be met.

Issue: Ensure that water can be obtained from the Waikato River in periods of low river flows

TABLE 10

Principal options	Implications of options
Rebuild the existing intake structure so the water intake is lower in the river	• Capital project of estimated $26M.
Maintain a temporary pumping arrangement on a barge or pontoon for use as a contingency during periods of low river flows	• Difficult construction and consenting process to rebuild within river.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the water supply activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 12: FORECASTED YEARLY CAPITAL EXPENDITURE FOR WATER, 2015-25 10-YEAR PLAN

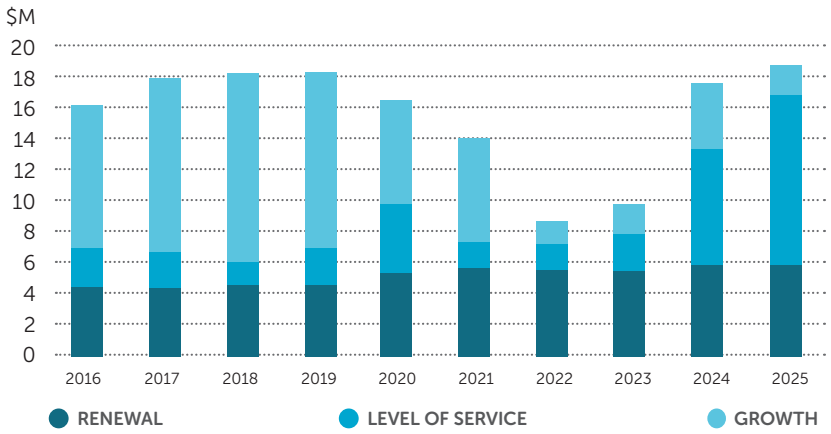
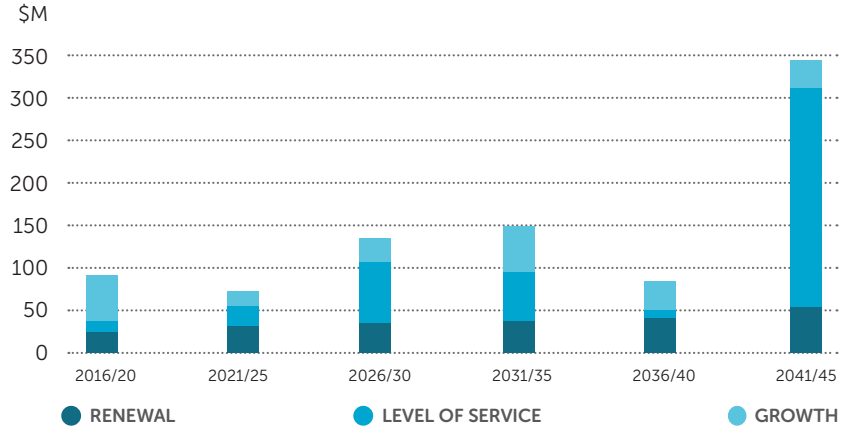


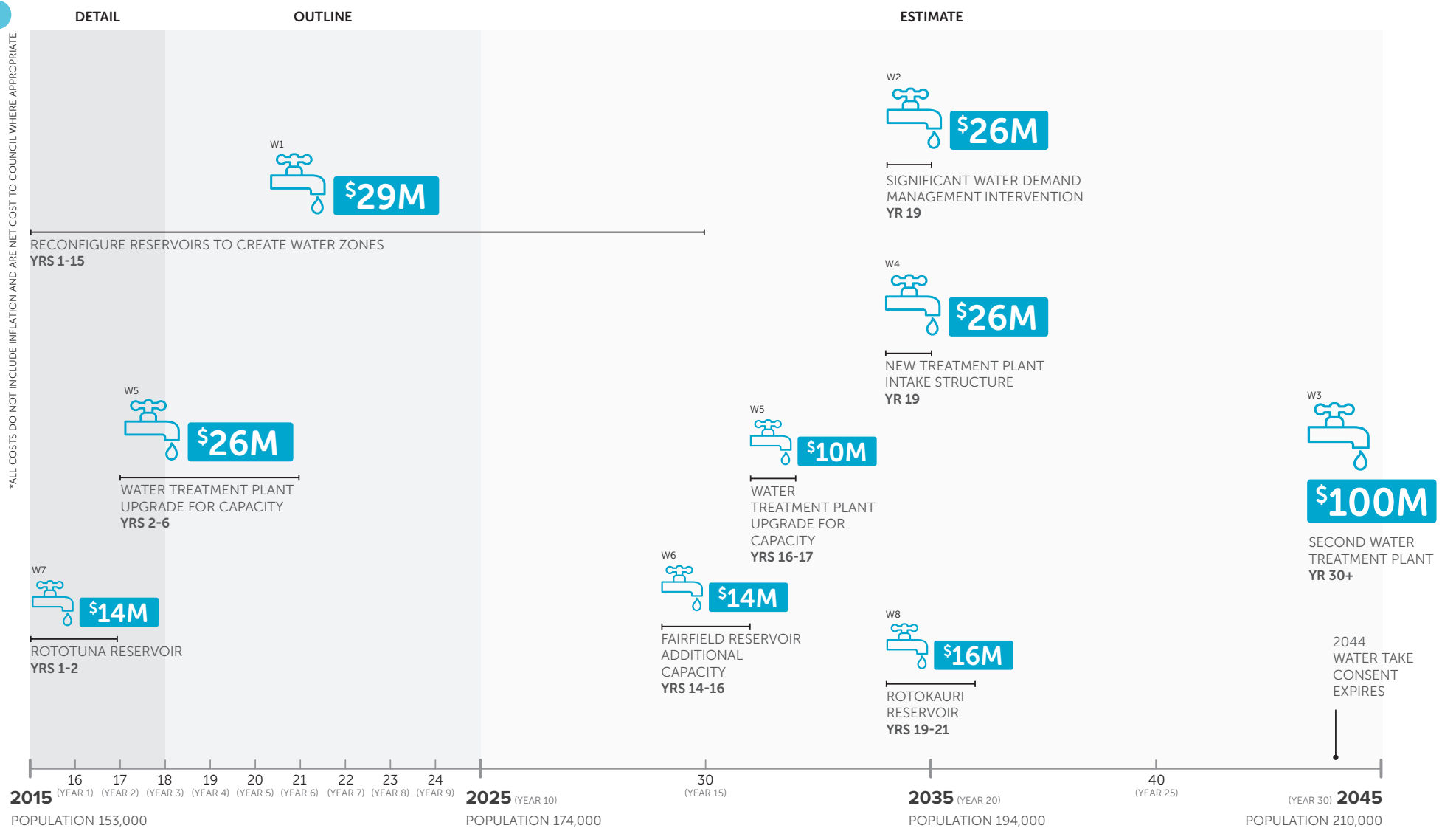
FIGURE 13: FORECASTED CAPITAL EXPENDITURE FOR WATER , FIVE YEARLY PERIODS - 2015-45



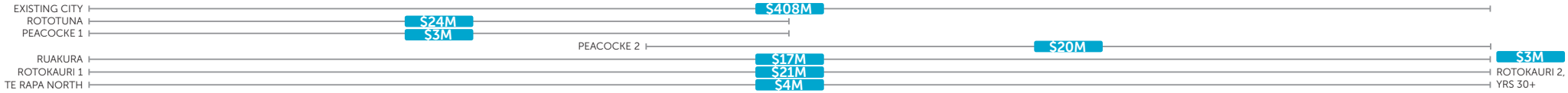
The following significant infrastructure decisions are required and the following projects have been included in the forecasted capital expenditure.

WATER

*ALL COSTS DO NOT INCLUDE INFLATION AND ARE NET COST TO COUNCIL WHERE APPROPRIATE.



TOTAL CAPITAL COSTS BY AREA



Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure.
Only key construction periods and costs for projects are shown. All costs are shown on timelines 'total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 14: FORECASTED YEARLY OPERATIONAL EXPENDITURE FOR WATER , 2015-25 10-YEAR PLAN

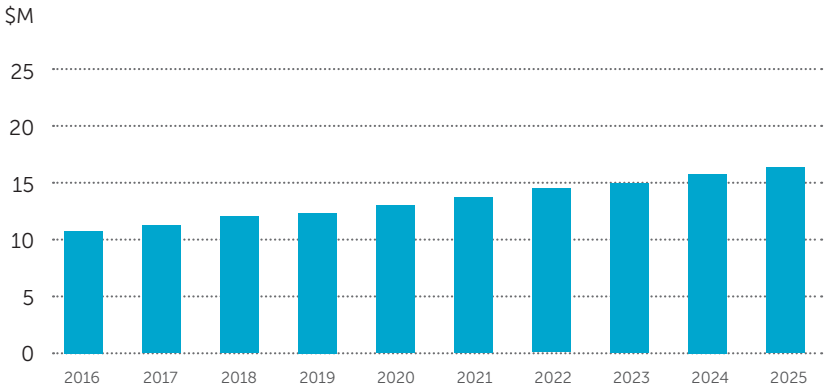
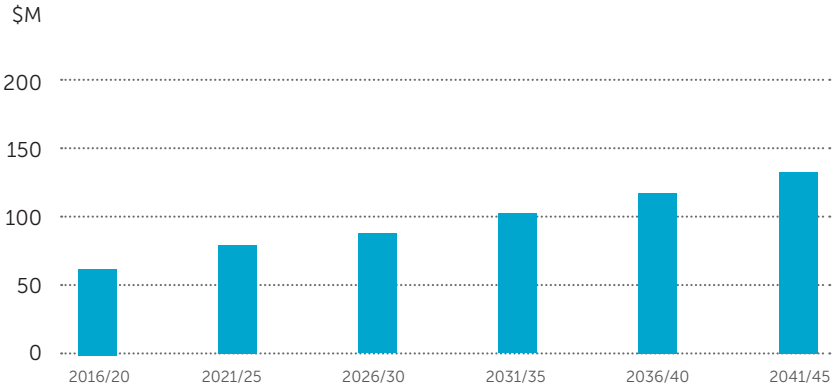


FIGURE 15: FORECASTED OPERATIONAL EXPENDITURE FOR WATER, FIVE YEARLY PERIODS- 2015-45



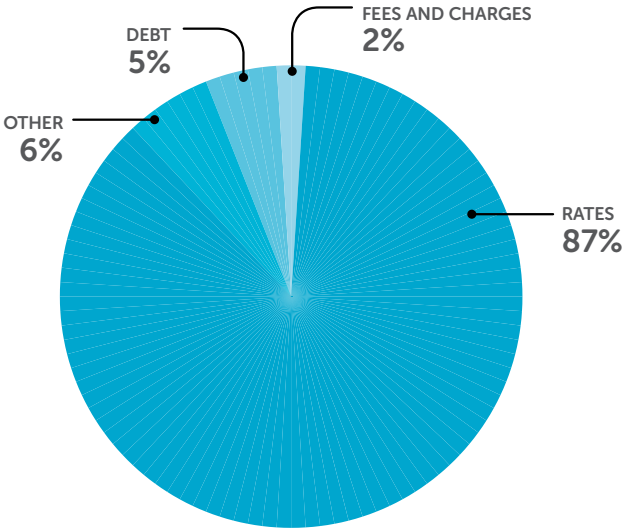
Funding of Activity

The Water Supply activity is currently funded through a mixture of:

- rates collected in the year of expenditure
- rates to repay loans raised for capital works
- user charges for commercial / industrial and out of city water users, including metered water for non-domestic customers, metered water for tanker use and new connections.

Capital projects that are caused by (and provide benefits to) growth areas of the city are part funded by development contributions.

FIGURE 16: WATER SUPPLY ACTIVITY FUNDING



WASTEWATER

Council is responsible for the collection, transfer, treatment and disposal of Hamilton's wastewater and trade waste.

Wastewater and trade waste are discharged from properties into a network of gravity and pressure pipelines, which take the wastewater to the treatment plant.

At the treatment plant, wastewater is treated before being discharged into the Waikato River.

Solids, removed as part of the treatment process, are currently composted off site and reused.

INTRODUCTION

Context

The city's wastewater system is comprised of a single centralised wastewater treatment plant, 132 pump stations and 800km of connecting pipework. The system services over 50,000 households, and provides trade waste services to 4,000 commercial and industrial premises.

Wastewater Reticulation

Wastewater is removed from commercial, industrial and residential properties via various pumping station and pipe networks to the wastewater treatment plant. As is expected in any urban centre, the network is made up of various pipe materials and ages, which results in some water infiltration.

Wastewater Pump Stations

The city has 132 pump stations which are controlled through a centralised computer system. The city has commenced an upgrade programme to achieve a six hour storage standard for all wastewater pump stations to provide improved environmental performance in the event of power or pump failure.

Wastewater Treatment

The treatment plant is a biological plant that is capable of receiving and providing primary treatment for up to 2,000 litres per second of wastewater and up to 600 litres per second for secondary treatment (nitrogen removal etc.).

Our wastewater treatment plant relies on the Waikato River as the receiving environment for final treated effluent. The quality of final discharge has improved over time as capital improvements have occurred on site. There are two principle challenges. Firstly, peak flow into the plant, which is typically experienced during high rainfall events. Secondly, the health of the biology at the plant, which can be impacted by external events.

Changes to the National Freshwater Policy Statement will target improvements in the quality of discharges to water bodies. The Waikato River vision and strategy sets a range of expectations, one of which is to develop and implement a programme of action to improve the health and wellbeing of the Waikato River.

The existing resource consent for the wastewater treatment plant expires in 2027 and a high focus on discharge quality can be expected for any future new consents.

OVERVIEW OF ASSETS

TABLE 13: OVERVIEW OF WASTEWATER ASSETS

Asset Group	Purpose and description	Number/ length	Value $000s
Service connections	A pipe that connects the private sewer within a property to the wastewater network.	53,200	56,881
Interceptor pipes	Large diameter pipes (typically larger than 525mm diameter) that provides conveyance from each area of the city to the treatment plant.	797 km	303,932
Pipes	Once the wastewater leaves a property it travels in pipes to the interceptors. There are a number of different types of pipes within our network including: • Gravity pipes, with an internal diameter of 150mm to 450mm depending on the flows that they are expected to manage. • A rising main is a pressure main through which wastewater is pumped. It is required where ground levels do not allow for gravity flow. • Interceptors are large gravity wastewater pipes with an external diameter of 525mm up to 1800mm. • Bridges are used to cross gullies, streams and the Waikato River.		
Manholes	Service opening which allows access for inspection, cleaning or maintenance of the public wastewater network.	15,074	63,692
Pump stations	Pump stations are installed at low points in the network so that wastewater flowing from these areas can be lifted to a higher point and continue its journey to the treatment plant under gravity.	132	40,776
Treatment plant	The treatment plant converts wastewater and trade waste into a disposable effluent and solids.	1	77,359
Total Value			**542,640**

BULK WASTEWATER NETWORK

Hamilton City

- Already Developed
- Growth Area
- Main Roads
- Watewater Treatment Plant
- Wastewater Interceptor
- Proposed Wastewater Interceptor
- Interceptor Pipes
  1. Northern Interceptor
  2. Far Western Interceptor
  3. Western Interceptor
  4. Central Interceptor
  5. Eastern Interceptor
  6. Far Eastern Interceptor
  7. Southern Interceptor

FIGURE 17: BULK WASTEWATER NETWORK

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted option is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Issue: Meeting the city's growth needs for wastewater collection, treatment and disposal

TABLE 11

Principal options	Implications of options
Increase treatment capacity at the current wastewater treatment plant.	• Compliance with the existing consent.
Additional / decentralise wastewater treatment plants including associated network extensions	• Unlikely to gain resource consent for a new plant with discharges to a water body. • The whole of life cost of a second treatment plant will be high. The opportunity cost is high in relation to the existing investment in the interceptor network.
Continue to reduce ground/ stormwater inflow and infiltration.	• Increases available capacity in existing pipes and reduces wastewater spills in existing city. However, this option will not provide sufficient capacity for growth.

Issue: Continuing to meet the current and future environmental compliance standards for the wastewater network and treated discharges into the Waikato River

TABLE 12

Principal options	Implications of options
Ongoing upgrades to the wastewater treatment plant to cater for domestic and industrial discharges.	• A reduction in water demand. • Universal Water Metering: estimated cost $26M capital and 20% reduction in water demand. • Education campaigns: relatively low cost but limited reduction in water demand. • A fully metered network will assist leak detection on the public and private pipes.
Installation of large storage tanks or technology throughout network to manage network flows in wet weather events.	• Reduces sewage spills in existing city.
Upgrade pipe network to be able to cope with larger volumes of wastewater.	• Reduces sewage spills in existing city.
Continue to reduce ground/ stormwater inflow and infiltration to the pipe network.	• Increases available capacity in existing pipes and reduces sewage spills in existing city.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the wastewater activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 18: FORECASTED CAPITAL EXPENDITURE FOR WASTEWATER EACH YEAR, 2015-25 10-YEAR PLAN

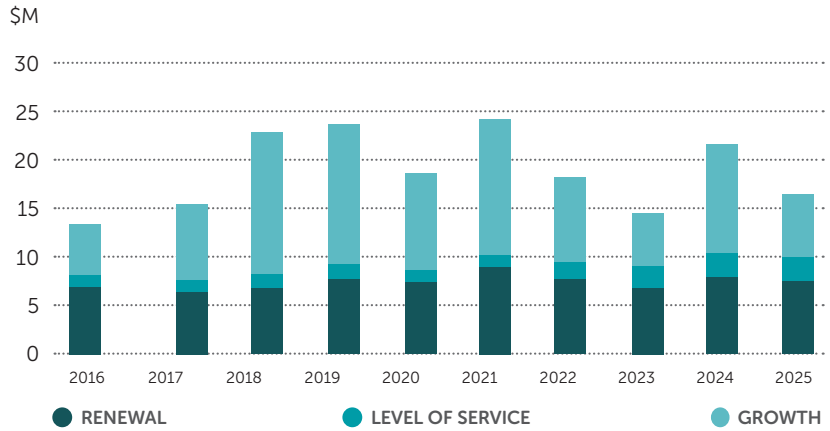
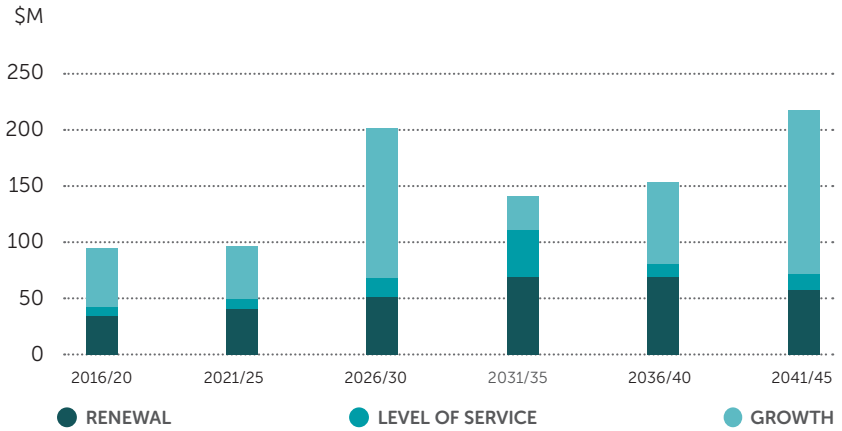


FIGURE 19: FORECASTED CAPITAL EXPENDITURE FOR WASTEWATER, FIVE YEARLY PERIODS - 2015-45

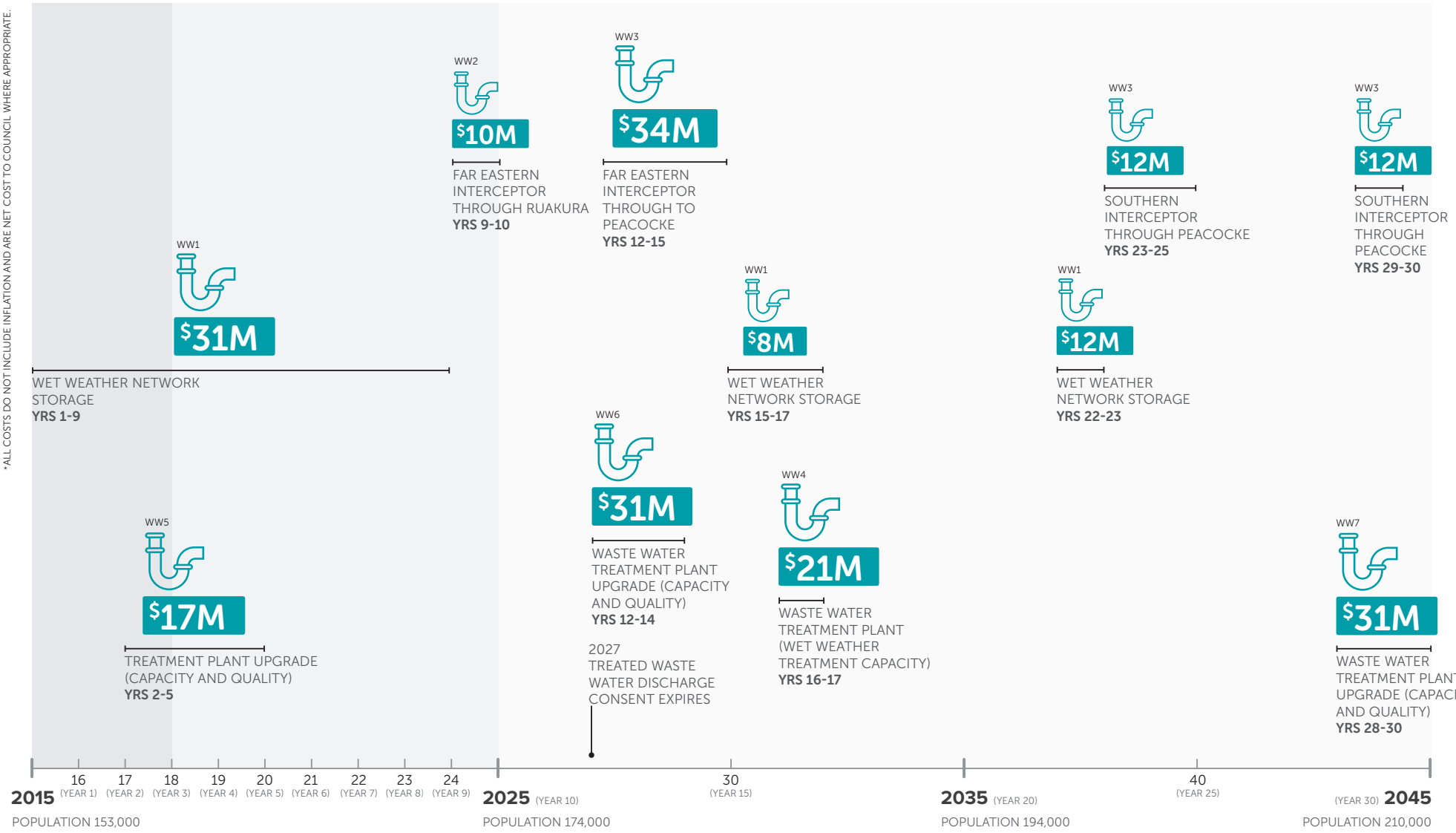


The following significant infrastructure decisions are required and the following projects have been included in the forecasted capital expenditure.

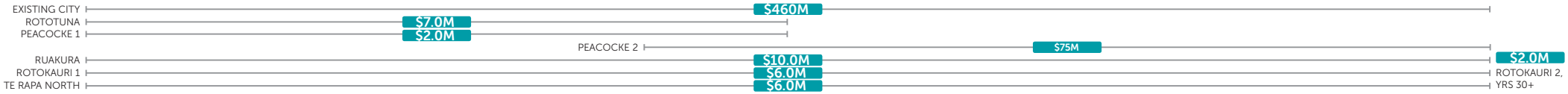
WASTE WATER

DETAIL | OUTLINE | ESTIMATE

*ALL COSTS DO NOT INCLUDE INFLATION AND ARE NET COST TO COUNCIL WHERE APPROPRIATE.



TOTAL CAPITAL COSTS BY AREA



Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure. Only key construction periods and costs for projects are shown. All costs are shown on timelines 'Total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 20: FORECASTED OPERATIONAL EXPENDITURE FOR WASTEWATER EACH YEAR, 2015-25 10-YEAR PLAN

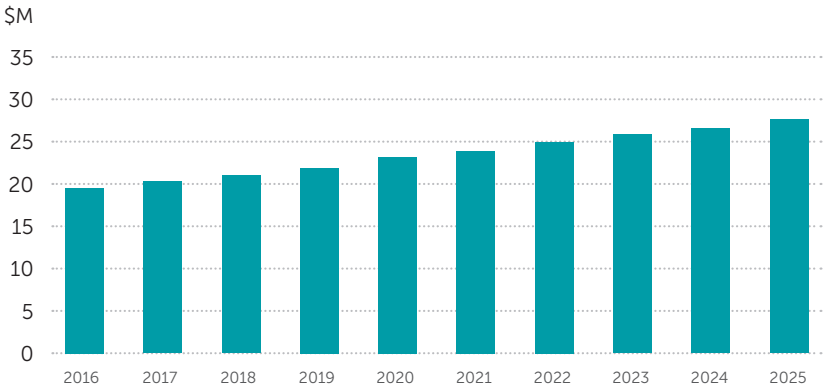
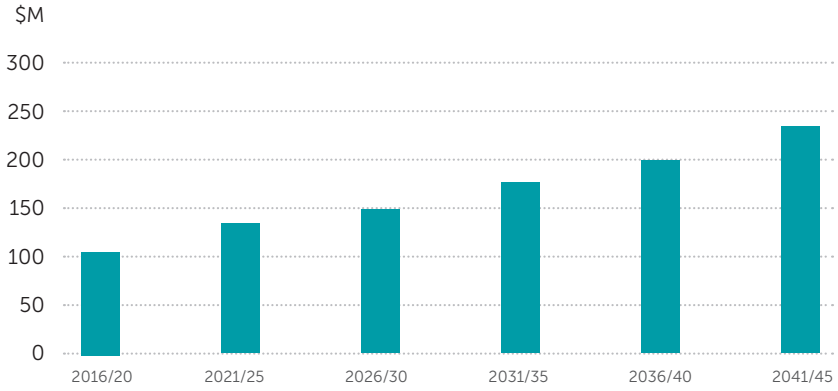


FIGURE 21: FORECASTED OPERATIONAL EXPENDITURE FOR WASTEWATER, FIVE YEARLY PERIODS - 2015-45



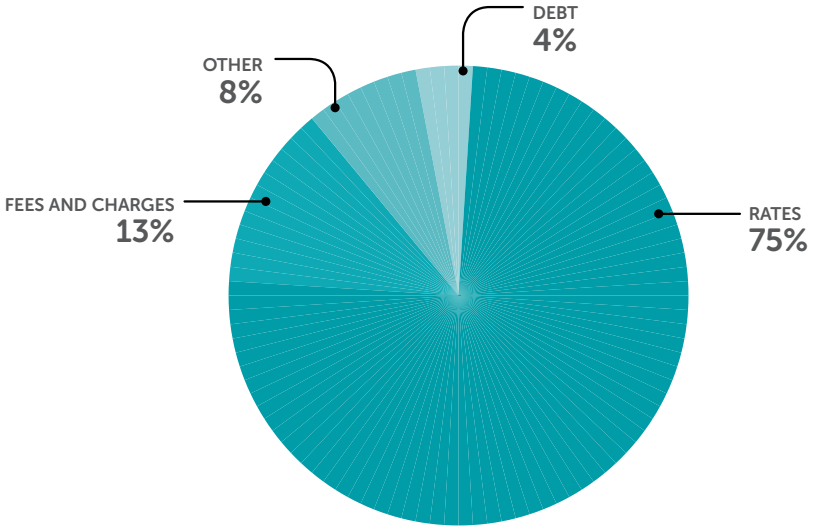
Funding of Activity

The Wastewater activity is currently funded through a mixture of:

- Rates collected in the year of expenditure
- rates to repay loans raised for capital works
- user charges for disposal of trade waste through the wastewater network

Capital projects that are caused by (and provide benefits to) growth areas of the city are part funded by development contributions.

FIGURE 22: WASTEWATER ACTIVITY FUNDING



STORMWATER

Council is responsible for the collection, transfer and treatment of Hamilton's stormwater.

Rainwater that flows from houses and buildings roofs, footpaths, roads, etc is called stormwater and is directed to either the ground or the stormwater system.

The stormwater system consists of pipes, channels, treatment devices and open watercourses, which release water into the city's streams, lakes and the Waikato River.

INTRODUCTION

Context

Stormwater is drained from Hamilton's urban area and is discharged to open drains, streams, lakes and to the Waikato River.

The system drains an urban catchment of approximately 9,000 hectares (ha). However the total catchment area draining to the city reach of the Waikato River is much larger at approximately 30,000ha. The impervious area of the city is estimated to be 34 per cent.

Hamilton's stormwater network services a variety of land uses including:

- residential land uses (e.g. private homes and driveways)
- industrial and commercial land uses (e.g. wholesale and retail outlets, depots, manufacturing sites, warehouses, workshops)
- roads and car parks
- community facilities (e.g. Hamilton Lake, Claudelands Event Centre, parks and sports areas, Waikato Hospital, schools, and tertiary educational institutions)
- runoff from undeveloped catchments.

The stormwater network is also used to dispose of potable water during the maintenance of reservoirs, and from flushing and testing of fire hydrants.

Stormwater discharge activities require assessment under the Waikato Regional Plan. Council has a 'city-wide' comprehensive stormwater discharge consent from Waikato Regional Council (granted in 2011) to divert and discharge stormwater to receiving environments from its existing urban network for a period of 25 years. The consent also provides a mechanism for allowing discharges from 'developing' catchments through catchment management plans.

OVERVIEW OF ASSETS

TABLE 13: OVERVIEW OF STORMWATER ASSETS

Asset Group	Asset Type	Purpose and description	Number/ length	Value $000s
Network	Service connections	A pipe that connects the private stormwater pipe within a premise to the stormwater network.	39,000	44,303
	Reticulation pipes	Once stormwater leaves a property it can travel in pipes to an open watercourse.	653km	423,653
	Manholes	Service opening which allows assess for inspection, cleaning or maintenance of the public stormwater piped network.	12,453	53,951
Treatment	Treatment / detention / flood management	Ponds, wetlands and bunded areas that treat stormwater and or detain stormwater during high rainfall events to protect down stream properties from flooding.	37	2,018
Assets within streams and rivers	Lined open watercourses	Drains and streams that transport water to other streams or the Waikato River. Some of these are described as channels as they have been lined with concrete or other materials. We have approximately 88km of open watercourses within the city, of which 60 km run through private land. 8.3 km of these watercourses are lined.	8.3km	655
	Outlets and Inlets	Located at the end of the pipe, outlets and inlets prevent erosion and scouring of the open watercourse to which stormwater is discharged.	870	845
	Other	We have a number of other devices within the network including soakage trenches, soakage pits, fish passage devices, and erosion control devices.		902
				526,336

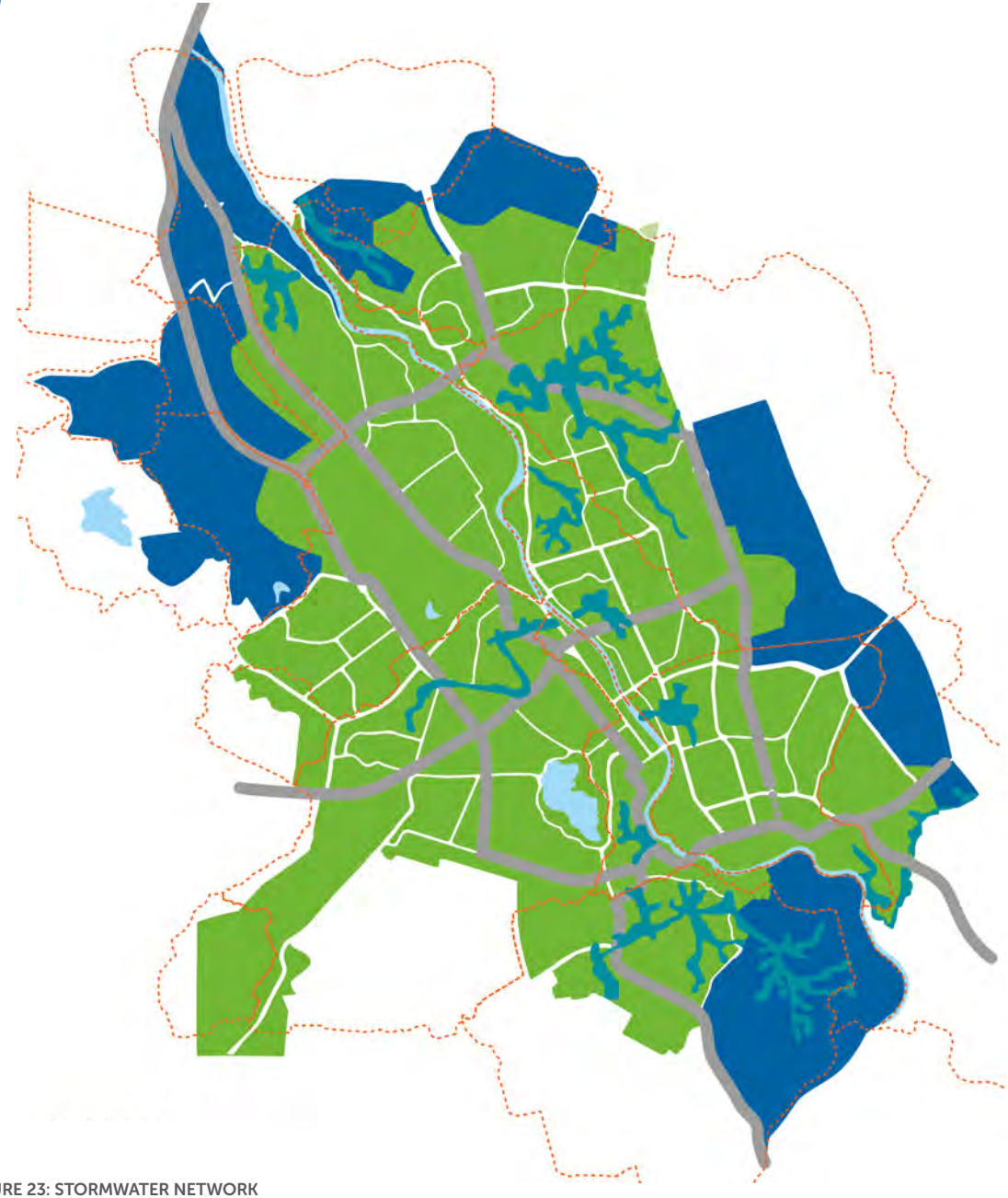


FIGURE 23: STORMWATER NETWORK

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted options is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Issue: Dealing with predicted climate change of warmer temperatures and greater rainfall

TABLE 14

Principal options	Implications of options
Upgrade/retrofit assets in existing areas to accommodate a 1 in 100 year storm event.	• Very difficult and costly in existing city due to built environment.
Integrated catchment management plans to be developed for the existing city.	• Will improve stormwater management in existing areas but will not mitigate a 1 in 100 year storm event.

Issue: Complying with resource consent conditions for discharging stormwater into the Waikato River

TABLE 15

Principal options	Implications of options
Maintain current approach of stormwater management relying on education and community awareness.	• Interventions to large events are reactive.
Retrospective installation of stormwater treatment in the older areas of the city.	• Very difficult and costly due to existing property and land use.
Introduction of a bylaw to manage discharge from private properties.	• Gives clarity to residents and industry on the acceptable use of the stormwater system.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the wastewater activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 24: FORECASTED CAPITAL EXPENDITURE FOR STORMWATER EACH YEAR – 2015-25 10-YEAR PLAN

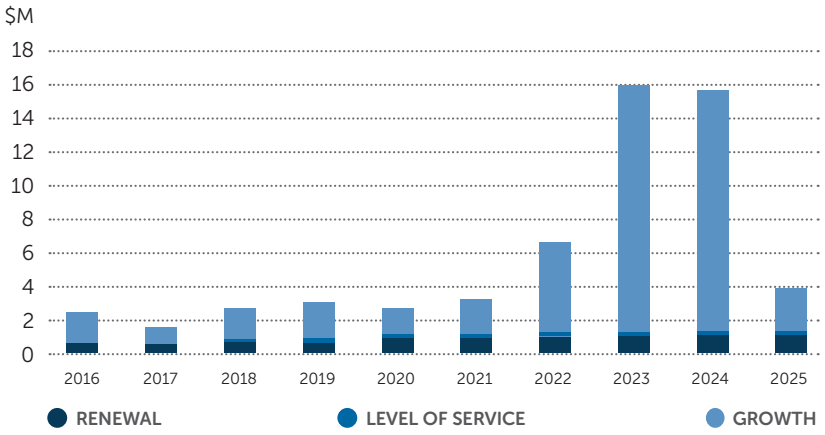
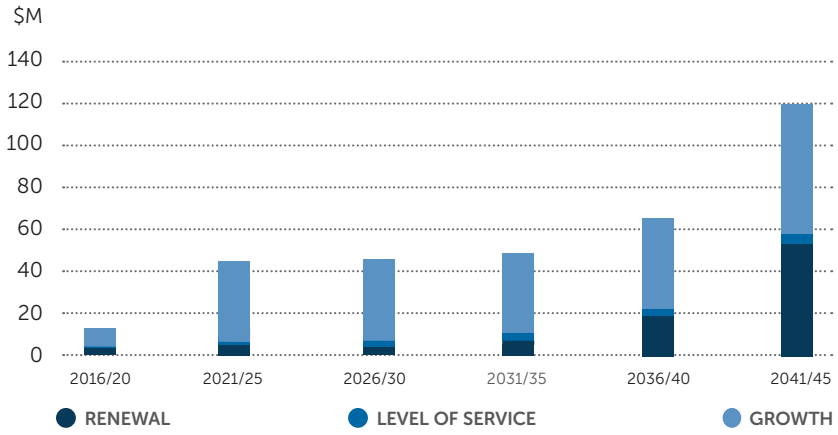
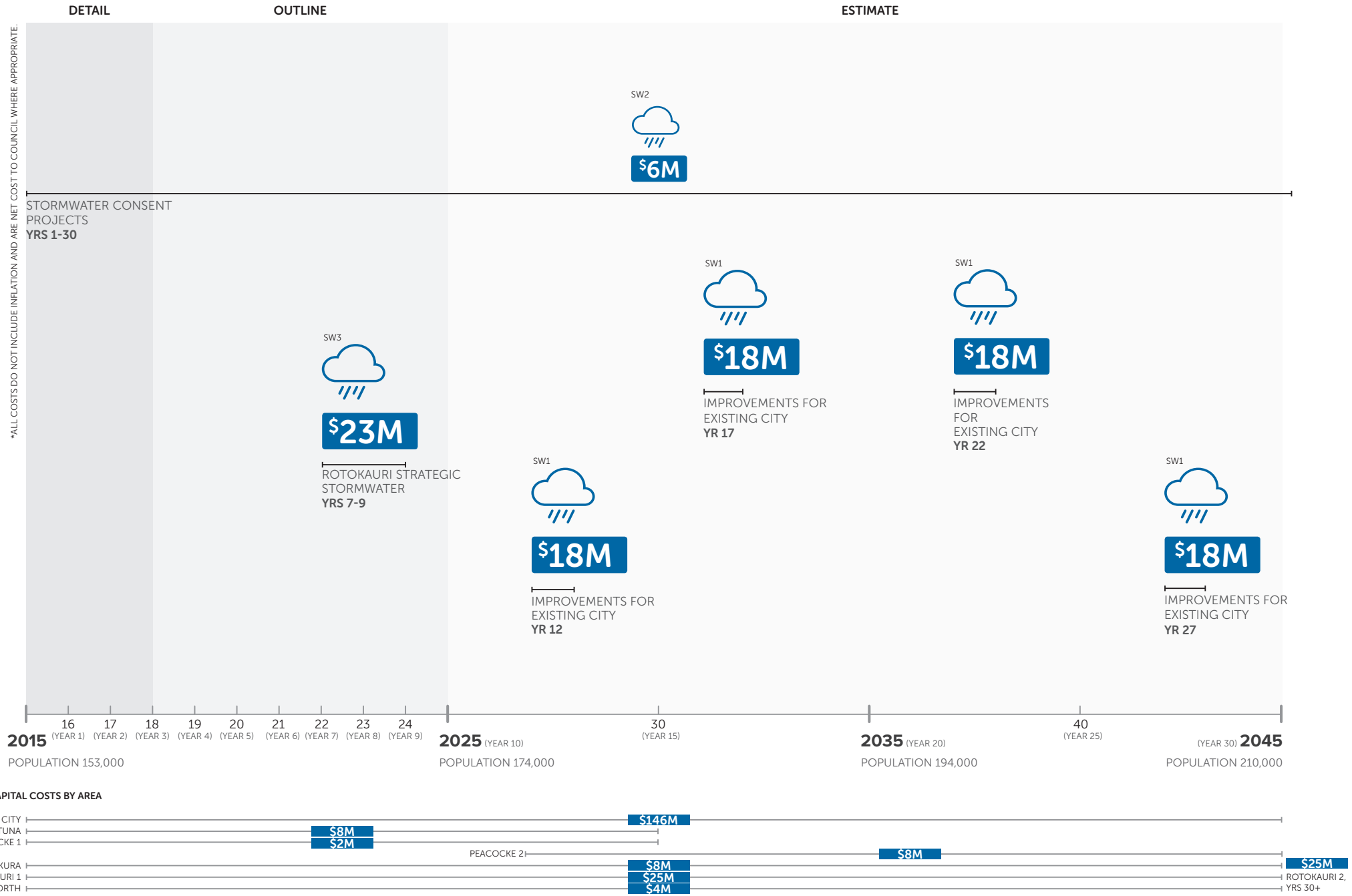


FIGURE 24: FORECASTED CAPITAL EXPENDITURE FOR WASTEWATER - FIVE YEARLY PERIODS - 2015-45



The following significant infrastructure decisions are required and projects have been included in the estimated capital expenditure.

STORM WATER



TOTAL CAPITAL COSTS BY AREA

Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure. Only key construction periods and costs for projects are shown. All costs are shown on timelines 'Total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 26: FORECASTED OPERATIONAL EXPENDITURE FOR STORMWATER EACH YEAR, 2015-25 10-YEAR PLAN

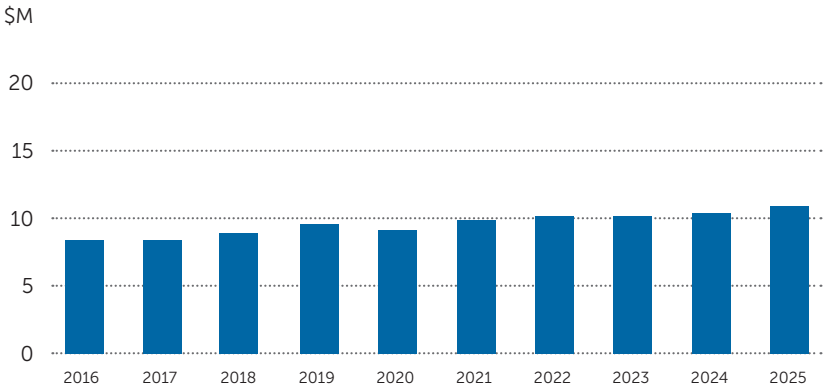
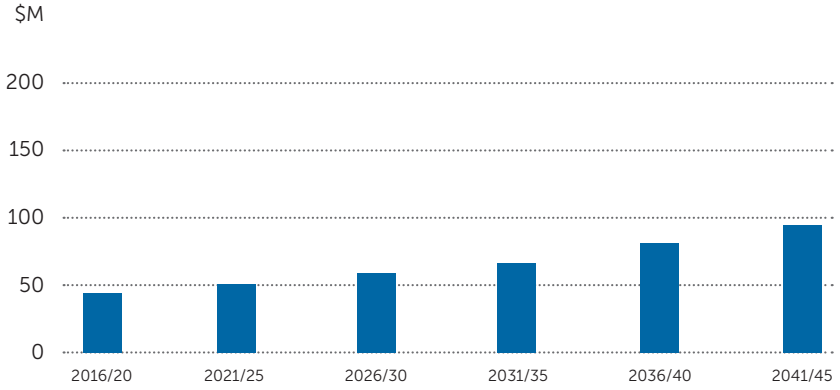


FIGURE 27: FORECASTED OPERATIONAL EXPENDITURE FOR STORMWATER , FIVE YEARLY PERIODS - 2015-45



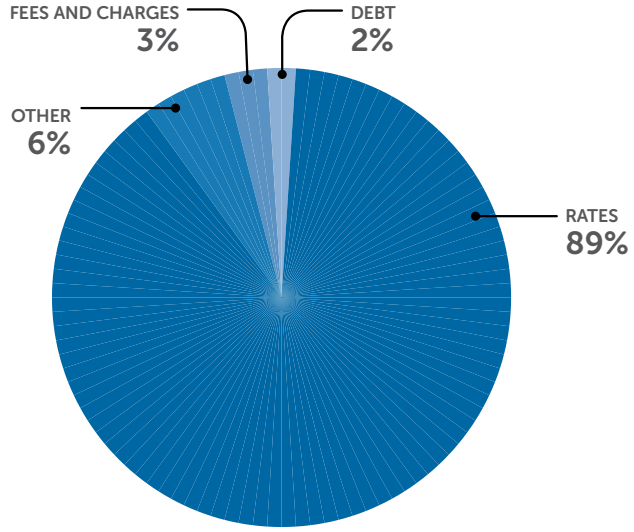
Funding of Activity

The Stormwater activity is currently funded through a mixture of:

- rates collected in the year of expenditure
- rates to repay loans raised for capital works
- subsidies for capital works from Waikato Regional Council through Project Watershed.

Capital projects that are caused by (and provide benefits to) growth areas of the city are part funded by development contributions.

FIGURE 28: STORMWATER ACTIVITY FUNDING



TRANSPORT

Council provides and manages a safe and efficient transport network for Hamilton which integrates walking, cycling, buses, private vehicles and freight.

We also manage on-street parking, clearways and Council-owned parking buildings and car-parks.

Our services include operation and maintenance of the existing network and planning for future development

We work with the community to raise awareness of travel options and influence safe travel behaviour.

INTRODUCTION

Context

Council provides, maintains and operates a transportation network comprising:

- 650km of sealed roads
- 1000km of footpaths and walkways
- 49 bridges and large culverts
- 8 off-street carparks
- Carparking facilities.

Hamilton currently experiences congestion for short periods of the day which is expected to increase as it continues to grow. The road network also struggles with competing demands of different users such as pedestrians, cyclists, cars, buses and trucks. Before resorting to new infrastructure, one of the key approaches is to manage the demand and to 'make best use of existing capacity'.

Over recent years there has been significant investment in Hamilton's strategic transport infrastructure. The focus has been on the completion of the city's Ring Road and the Te Rapa Bypass. Over the next few years, connections to the central government funded Waikato Expressway will be a focus.

Over the longer term, investment is required for extending the transport network in new growth areas and providing additional river crossings in the north and south of the city.

The New Zealand Government through the New Zealand Transport Agency (NZTA) partners with Council by operating the state highways that run through Hamilton and co-investing with Council in transport infrastructure and services. The bus service is provided and managed by the Waikato Regional Council through a partnership with the city.

OVERVIEW OF ASSETS

TABLE 16: OVERVIEW OF TRANSPORT ASSETS

Asset Group	Asset Type	Purpose and description	Number/ length	Value $000s
Pavements	Roads	Roads owned and maintained by Council, for use by motor vehicles and cycles.	650 km	579,204
	Footpaths	Footpaths for use by pedestrians and selected low speed vehicles such as mobility scooters. Some are 'shared use' with cyclists.	1,000km	153,358
	Carparks	Off street carparks owned and managed by Council to provide parking facility for vehicles.	8	2,655
Road drainage	Stormwater channel and drainage features	Kerb and channel and features used to drain water from the roads into the city's stormwater system.	1,100 km	101,757
Structures	Bridges and culverts	Bridges and large culverts allow for roads to continue across waterways, railways and other roads.	49	86,318
	Minor structures	Guard railing, barriers, retaining walls, bus shelters, fences, underpasses and other minor structures.	776	18,147
Traffic control devices	Traffic signals and information technology systems (ITS)	Traffic signals and Intelligent transport systems are used at road intersections and pedestrian crossing locations to provide safe movement opportunity for conflicting traffic.	65 signalised intersections	6,090
	Signs	Regulatory and informational signs to warn, inform and guide all road users.	13,929	3,133
	Street lights	Council owned and maintained street lights to improve road safety and personal security.	10,980	24,723
Streetscapes	Features	Assets that add to the amenity value of the road network, e.g. bollards, bins, and parking meters.	2,048	998
	Landscaping	Planted areas and grassed areas in traffic islands, carriageway medians and kerb extensions.	793,000m2	N/A
Buildings	Buildings	Various properties owned by Council for transportation purposes.	8 each	7,587
TOTAL VALUE				**983,971**

TRANSPORT INFRASTRUCTURE

Hamilton City

- Already Developed
- Growth Area
- Main Roads
- Future Main Roads
  1. Te Rapa Bypass
  2. Hamilton Ring Road
  3. Resolution Drive
  4. Northern River Crossing
  5. Greenhill Interchange
  6. Southern Links
  7. Cross City Connector
  8. Ruakura Road Extension
  9. Waikato Expressway

FIGURE 29: TRANSPORT INFRASTRUCTURE

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted options is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Issue: Hamilton bridges are unable to meet the growing freight demands

TABLE 17

Principal options	Implications of options
Strengthen key structures to enable them to accommodate both HPMV and 50MAX vehicles.	• Accommodates increasing demand for freight to move around city's strategic transport network between industrial areas and inland ports (Crawford Street and Ruakura Inland Port).
Maintain current service levels for bridges.	• Freight movement and economic development is limited on key routes.

Issue: Improving Hamilton's safety record

TABLE 18

Principal options	Implications of options
Undertake minor improvements to the existing network infrastructure.	• Reduction in crashes and therefore deaths and serious injuries. • Able to respond to community requests for safety management and improvements of a minor nature, e.g. pedestrian islands, low cost intersection upgrades
Introduce safer speeds to the existing network.	• Reduction in the number and severity of crashes. • Achieves consistency with national guidance/best practice. • Improved amenity for walking and cycling where speeds are lowered. • Improved efficiency for freight and general traffic where speeds are raised.
Undertake major to the existing network infrastructure.	• Reduction in crashes there severity and therefore deaths and serious injuries. • Able to undertake safety transformation project improvements, e.g. high cost intersection upgrades (generally on key arterials) via traffic signal or large roundabout installations. • Improves resilience and reliability of key transport routes.
Promote safe use of the network.	• Safer use of the transport network resulting in fewer crashes. • Supports the physical works undertaken and supports use of alternative modes by reducing the perception that they are unsafe.

Issue: Providing a resilient transport network that meets needs of a growing city

TABLE 19

Principal options	
Providing new strategic transport infrastructure.	• Projects including provision of new bridges and arterial routes to service growth areas and enable economic development.
More investment in projects to increase capacity and efficiency of existing road network.	• To address decreasing levels of service including travel times and congestion at peak times. • Provides options to protect for Public Transport network and facilities, e.g. T2 lanes, to provide fast and efficient public transport.
Promotion of alternative travel choices.	• Greater use of public transport, walking and cycling and less single occupancy vehicles resulting in less demand on network at peak times. Enables the deferral of major infrastructure investment. • Improved health and environmental benefits from less vehicle emissions.
Minor improvements to optimise operation of existing network.	• Traffic flows proactively managed to ensure congestion is minimised. Enables the deferral of major infrastructure investment.
Influence future land use patterns.	• Traffic flows proactively managed to ensure congestion is minimised. Enables the deferral of major infrastructure investment.
Securing corridors and sites for future arterial roads and transport facilities	• Investment in planning designation processes and future land purchases will be required to ensure that future transport networks are protected and secured.
Improvements to, and completion of, the biking network.	• Greater use of bikes as a means of transport around the city resulting in less demand on the transport network.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the Transport activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 30: FORECASTED CAPITAL EXPENDITURE FOR TRANSPORT EACH YEAR , 2015-25 10-YEAR PLAN

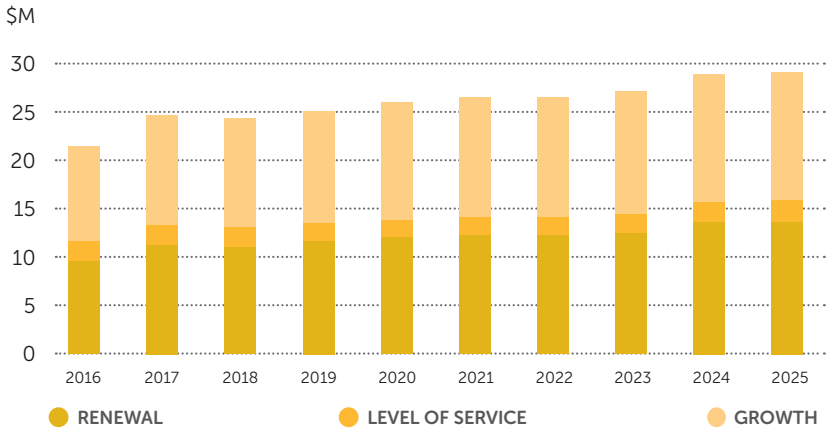
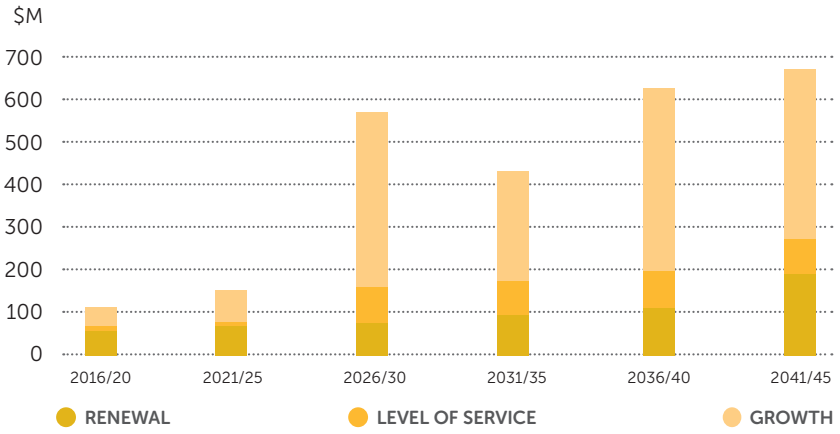


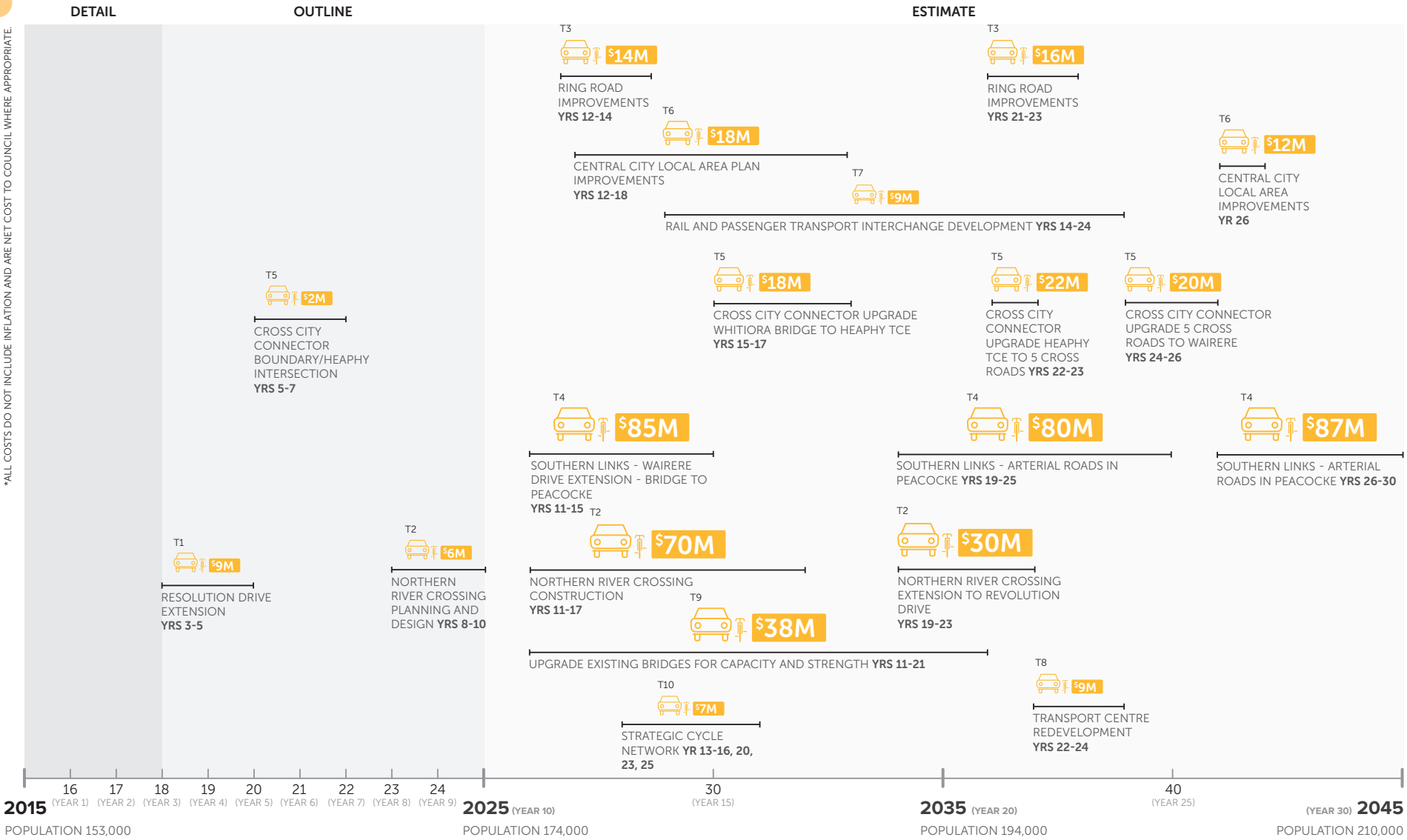
FIGURE 31: FORECASTED CAPITAL EXPENDITURE FOR TRANSPORT, FIVE YEARLY PERIODS - 2015-45



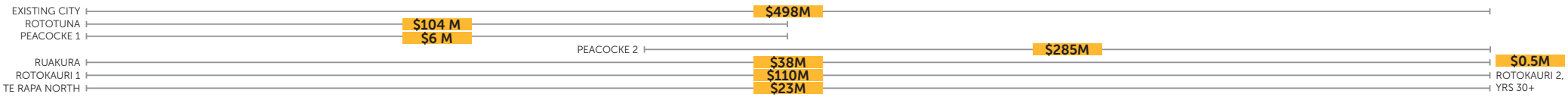
The following significant infrastructure decisions are required and projects have been included in the estimated capital expenditure.

TRANSPORT

*ALL COSTS DO NOT INCLUDE INFLATION AND ARE NET COST TO COUNCIL WHERE APPROPRIATE.



TOTAL CAPITAL COSTS BY AREA



Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure. Only key construction periods and costs for projects are shown. All costs are shown on timelines 'Total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 32: FORECASTED OPERATIONAL EXPENDITURE FOR TRANSPORT EACH YEAR, 2015-25 10-YEAR PLAN

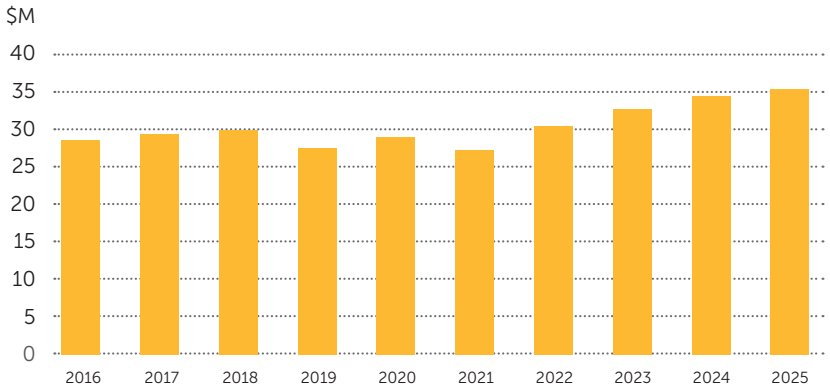
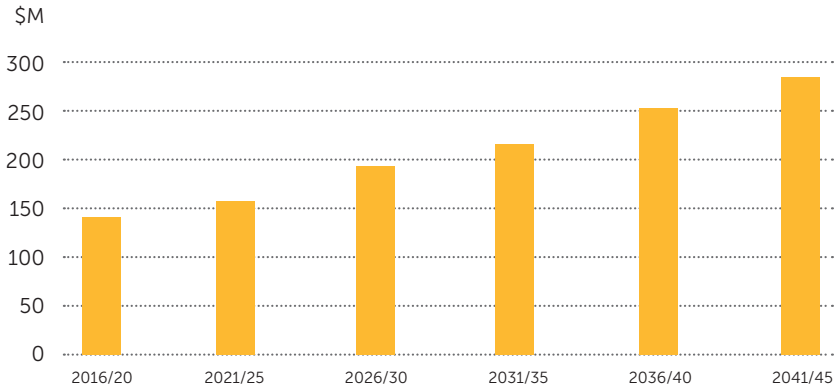


FIGURE 33: FORECASTED OPERATIONAL EXPENDITURE FOR TRANSPORT, FIVE YEARLY PERIODS - 2015-45T



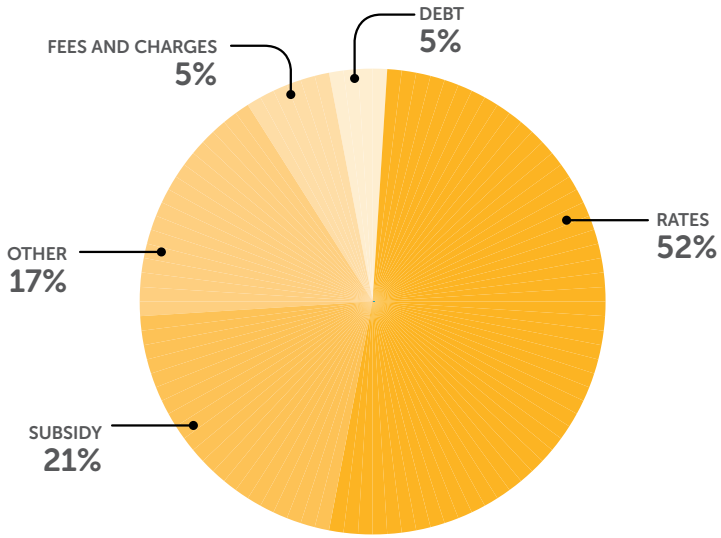
Funding of Activity

The Transport activity is currently funded through a mixture of:

- rates collected in the year of expenditure
- rates to repay loans raised for capital works
- subsidies from central government through the New Zealand Transport Agency for:
  - operating and maintenance
  - renewals
  - other capital

The current subsidy from NZ Transport Agency for eligible projects and programmes is at a rate of 51 per cent. Capital projects that are caused by (and provide benefits to) growth areas of the city are part funded by development contributions.

FIGURE 34: TRANSPORT ACTIVITY FUNDING



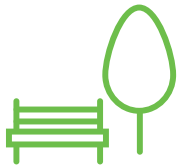
PARKS AND GREEN SPACES

The Parks and Green Spaces activity provides the community with an opportunity to access open space and be involved in active or passive recreation.

It also allows them to enjoy the visual appeal of the city, utilise public toilets when out and about and use off-road connections provided by walkways and cycleways.

Hamilton Gardens provides an important visitor attraction for the city and amenity value to the community.

INTRODUCTION



Context

Within the Parks and Green Spaces activity, Council owns and manages over 900 hectares of open space. This includes 88 amenity parks, 45 natural environments and 48 sports parks. Fifty-four hectares at Hamilton Gardens provides a key tourist and local visitor attraction.

Council has an Open Space Plan which sets the long-term direction for open space in Hamilton.

Hamilton Gardens aspires to provide a world class garden that enhances the city's identity, prosperity and quality of life. Council has based its future planning for Hamilton Gardens on the following objectives:

- A key tourist and local visitor attraction, attracting over a million visitors each year
- An amenity park
- An events and community activities venue
- An educational resource
- A production nursery, supplying plants for Council parks and facilities.

To achieve these objectives, Council will focus on the development of Hamilton Gardens' themed gardens and enhancement of visitor facilities.

For Parks and Green Spaces, the objective is to provide passive and active recreation areas which meet the needs and expectations of the growing city. This will be achieved through the provision of popular, diverse playgrounds and increasing the quality and capacity of sports fields.

OVERVIEW OF ASSETS

TABLE 20: OVERVIEW OF PARKS AND OPEN SPACES ASSETS

Asset Group	Asset Type	Purpose and description	Quantity
Land	Amenity parks, sports parks, natural areas, the streetscape and Hamilton Gardens	Land provided for active or passive recreation, visual appeal and off road connections. Includes 54 hectares at Hamilton Gardens.	986ha
Buildings	Toilets, changing rooms and other buildings on parks	Publicly accessible toilets, changing facilities for sporting groups and other buildings on parks including houses and work sheds.	115
Park infrastructure	Playgrounds	Playgrounds accessible to the public. Council currently provides destination playgrounds and neighbourhood playgrounds	85
	Park furniture	Includes seats, picnic tables, rubbish bins, signs, plaques, lights.	2,712
	Car parks, roads, entry points, paths and paved areas, fences	Assets to allow walking, cycling and vehicle access to parks.	1,086 76km paths 60km fences
	Sports fields, drainage and courts	Sports fields and assets that provide useable space for informal and organised sport.	186
	Structures	Structures (rotunda, pergolas, viewing platforms, etc.) Retaining walls/memorial walls, river structures (bridges, boat ramps, jetties) stormwater, water features.	1,517
	Trees	Measure water use for our commercials and industrial customers and bulk water flows within the network.	71,033

PARKS AND GREEN SPACES

Hamilton City

- Already Developed
- Growth Area
- Main Roads
- Major Parks/ Green Spaces
- Growth Area Playgrounds
  1. Peacocke
  2. Rotokauri
  3. Rototuna
  4. Ruakura
- Exsiting Destination Playgrounds
  1. Hamilton Lake Domain
  2. Parana Park
  3. Claudelands
  4. Tauhara Park
- Future Destination Playgrounds
  1. Glenview Park
  2. Bremworth Park
  3. Minogue Park
  4. Dominion Park
  5. Ashurst Park
  6. Moonlight Reserve
  7. Te Manatu Park
  8. Porrit Stadium
  9. Hillcrest Park
  10. Hamilton Gardens

FIGURE 35: PARKS AND GREEN SPACES

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted options is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Issue: Making sure the cities playgrounds are high quality and easy to access

TABLE21

Principal options	Implications of options
Don't maintain and upgrade the current number and type of playgrounds to the standard the community expect.	• Community expectations will not be met and the current playground network will continue to deteriorate.
Implement playground plan: • **Development of twelve destination playgrounds that provide high quality and creative play experience over 30 years.** • **Upgrade of neighbourhood playgrounds over 30 years**	• Deliver playground programme set out in 'Playgrounds of the Future' playground policy. Better match of infrastructure to community expectations.
Part-fund playground plan by seeking external funding (one third contribution) for new destination playgrounds.	• Increased community ownership of playgrounds. Pace of development reliant on securing third party funding.

Issue: Having enough sports fields of suitable quality for organised sport

TABLE 22

Principal options	Implications of options
Maintain the current sports fields but provide no further development.	• Quality and capacity of sports fields will continue to decrease and expectations not met.
Manage demand by limiting bookings.	• Quality would increase but demand would not be met, not meeting need for organised sport.
Further develop high priority sports fields and facilities through improved drainage and installation of irrigation.	• Quality and capacity of current sports fields will increase but at a high capital cost. Community expectations and demand will be met.
Develop Rototuna Sports Park.	• Increase capacity in northern area of the city. Community expectations and demand will be met.

Issue: Make sure large open space areas are provided in new areas of the city

TABLE 23

Principal options	Implications of options
Ensure future reserve land is identified and protected	• Land is protected for future purchase and development by Council for reserves. Community expectations and demand will be met.
Purchase and develop reserve land for public use.	• Community expectations and demand will be met, a range of well-connected functional public open space provided.
Development of new reserve land into usable parks including Mangaiti, Te Manatu, Rotokauri and Rototuna West reserve land.	• Current community expectations for development and demand will be met.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the Parks and Green Spaces activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 36: FORECASTED CAPITAL EXPENDITURE FOR PARKS AND GREEN SPACES EACH YEAR , 2015-25 10-YEAR PLAN

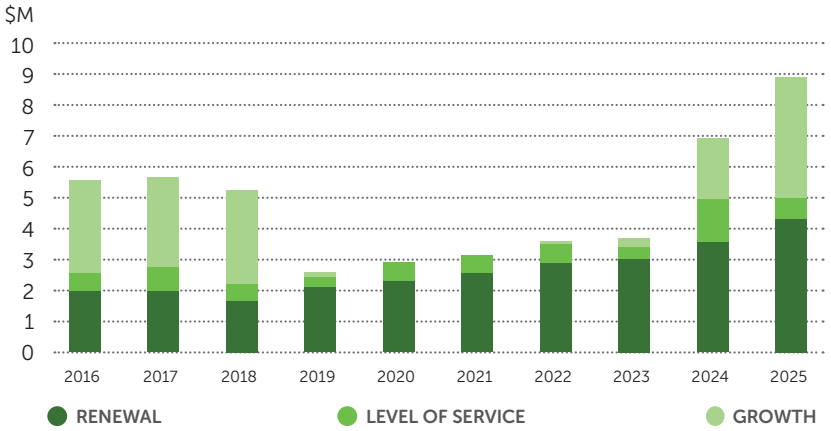
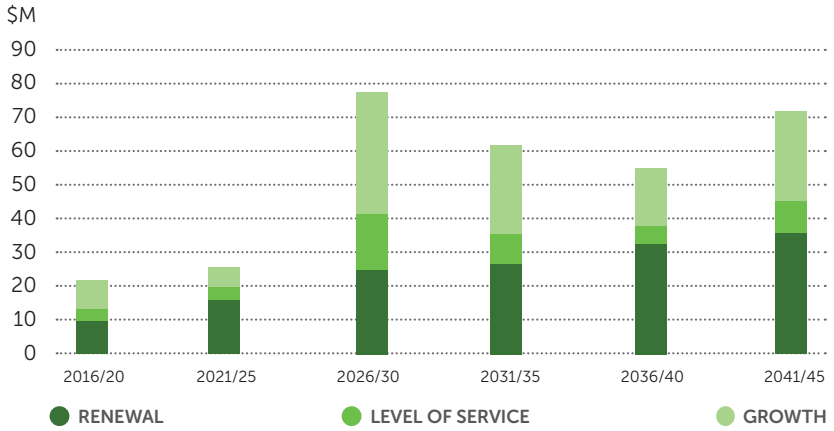


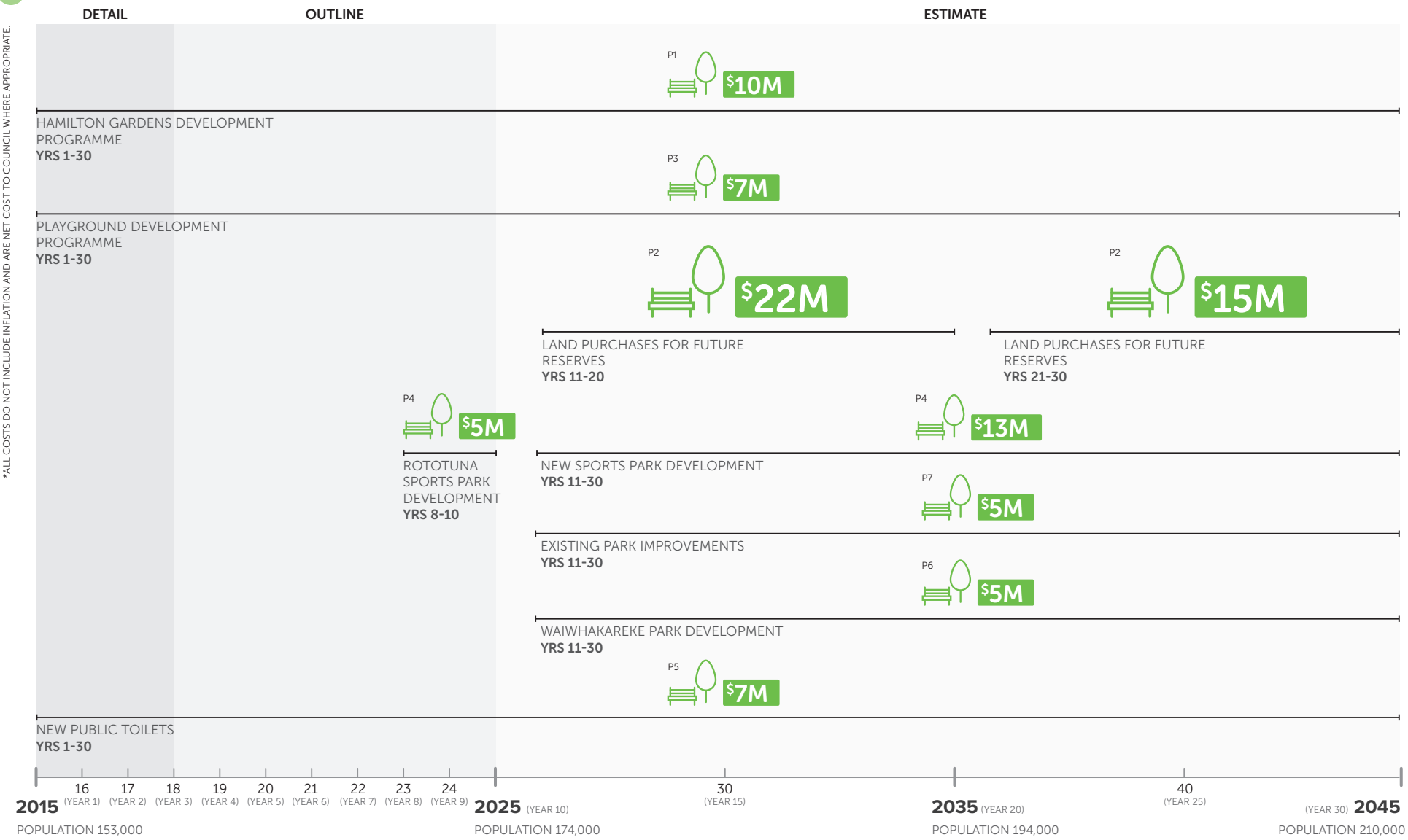
FIGURE 37: FORECASTED CAPITAL EXPENDITURE FOR PARKS AND GREEN SPACES, FIVE YEARLY PERIODS - 2015-45



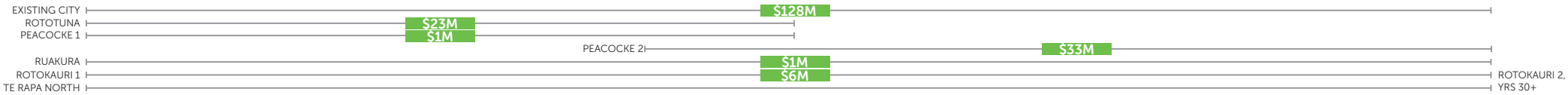
The following significant infrastructure decisions are required and projects have been included in the estimated capital expenditure.

PARKS AND GREEN SPACES

*ALL COSTS DO NOT INCLUDE INFLATION AND ARE NET COST TO COUNCIL WHERE APPROPRIATE.



TOTAL CAPITAL COSTS BY AREA



Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure. Only key construction periods and costs for projects are shown. All costs are shown on timelines 'Total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 38: FORECASTED OPERATIONAL EXPENDITURE FOR PARKS AND GREEN SPACES EACH YEAR, 2015-25 10-YEAR PLAN

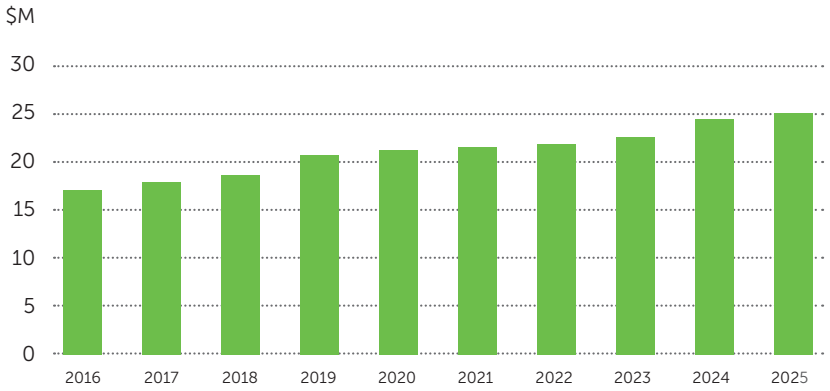
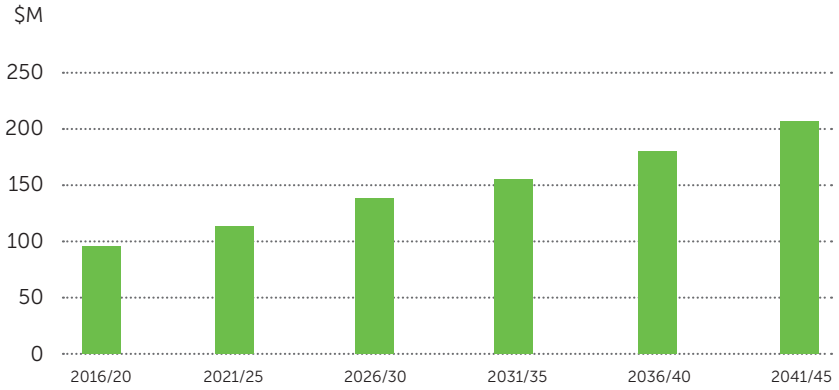


FIGURE 39: FORECASTED OPERATIONAL EXPENDITURE FOR PARKS AND GREEN SPACES, FIVE YEARLY PERIODS – 2015-45



Funding of Activity

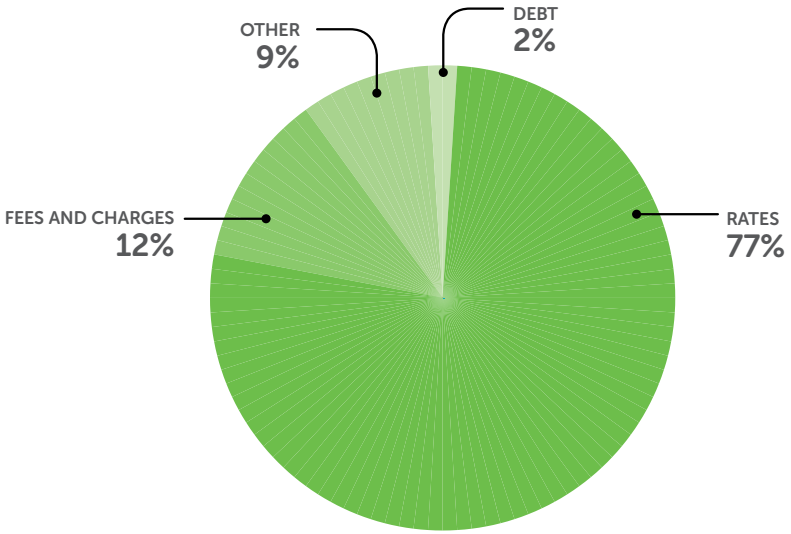
The Parks and Green Spaces activity is currently funded through a mixture of:

- rates collected in the year of expenditure
- rates to repay loans raised for capital works
- user charges for organised sports.

The funding model for Hamilton Gardens to complete an additional five themed gardens and infrastructure capital investment is:

- One-third from rates funded through a targeted rate of $10 per rateable property for four years from 2014/15 to 2018/19
- Two-thirds from external funding – community and central government grants, philanthropists and corporate sponsorship.

FIGURE 40: PARKS AND GREEN SPACES ACTIVITY FUNDING



COMMUNITY AND EVENTS FACILITIES

Council owns and operates community and events facilities. These facilities support and strengthen the community and encourage an active lifestyle.

They also promote economic growth through attracting events and visitors to the city. These facilities help to make Hamilton a modern liveable city.

Hamilton's residents are able to access library and leisure opportunities and experience local and international sporting events and performances.

INTRODUCTION

Indoor recreation and pools

Hamilton is the regional hub for many of the aquatic and indoor sporting codes. As such the city requires facilities to provide for regional and sub-regional competitions and training facilities. Pools and indoor recreation facilities are included in the Waikato Regional Sports Facility Plan 2014, which Council adopted in September 2014. The sports facility plan recommends increasing capacity for both pools and indoor recreation facilities within Hamilton.

Council owns and operates one indoor recreation facility at Te Rapa Sportsdrome. The Sportsdrome is the regional base for volleyball, and it also supports local sports and community users.

Waterworld in Te Rapa, is the Waikato regional centre for swimming and hosts local and national competitions. Waterworld is also a major facility for local residents and visitors to Hamilton. Gallagher Aquatic Centre in Melville, is a smaller community pool.

Libraries

In 2014 Council adopted a strategic plan for the future of libraries in Hamilton. A libraries facilities plan is being prepared to determine the necessary library infrastructure required to deliver on the libraries strategic plan.

Council currently operates six libraries, visited by a total of over one million users each year. Membership across the libraries is over 75,000. Close to 1.5 million items are issued, 272,000 internet and wifi sessions conducted and 1300 events are hosted or facilitated by Hamilton's libraries each year.

Cemeteries and Crematorium

Council operates and maintains one operational cemetery and two heritage cemeteries:

- Hamilton Park Cemetery, including the crematorium and chapel facilities. It operates on 18 hectares, with a further 14 hectares available for future development. A development plan for Hamilton Park Cemetery was developed in 2014.
- Hamilton West Cemetery opened in 1869 and was closed in 1975.

Hamilton East Cemetery, opened in 1866, remains open for reserved plot burials and ash interments.

Waikato Museum

The Waikato Museum cares for, preserves and shares the stories about the objects and taonga of the Waikato region and beyond. The museum provides exhibitions, public programmes and education programmes about social history, visual arts, tangata whenua and science. It delivers its services from three sites:

- The museum building in Grantham Street which houses collections, and offers public exhibitions, education and public programmes.
- ArtsPost, a retail and community gallery space.
- Beale Cottage, a 'Category 1' Historic Place, open for public tours.

Hamilton Zoo

The Hamilton Zoo Master Plan has been worked on during 2014 and will provide a 'green-print for the future of the zoo' for the next 25 years. It will contain a high level development programme. The zoo covers 21 hectares of landscaped grounds with another 7 hectares available for future use. It is home to more than 600 exotic and native New Zealand animals. The unique experience at Hamilton Zoo allows residents and visitors to enjoy wildlife in a natural setting and encourage support for wildlife conservation and sustainability of natural resources.

H3

H3 delivers a diverse range of quality events within Council owned event facilities across the following event categories:

- Meet – Meetings, conferences, functions and exhibitions.
- Compete – Sporting events.
- Perform – Performance events such as music, dance, comedy.

Events are delivered from the following facilities:

- Theatres (Founders Theatre and Clarence Street Theatre).
- Stadiums (Waikato Stadium and Seddon Park).
- Claudelands (Arena, Conference and Exhibition Centre, The Grandstand, Holman Stand).

OVERVIEW OF ASSETS

TABLE 24 OVERVIEW OF COMMUNITY AND EVENTS ASSETS

Asset Group	Asset Type	Purpose and description	Quantity
Property and buildings	Pools	Waterworld and Gallagher Aquatic Centre with ancillary buildings. The Municipal Pool has been permanently closed.	
	Indoor recreation	Te Rapa Sportsdrome.	
	Cemeteries	Crematorium, chapel, and ancillary buildings.	
	Libraries	Central library and five suburban branches.	
	Museum	Waikato Museum building, ArtsPost, Beale Cottage.	
	Zoo	Main Zoo reception/shop, ancillary buildings, significant animal houses.	
	H3 - Claudelands	Conference Centre, Exhibition Centre and Arena under one roof, the Grandstand and ancillary buildings.	
	H3 - Waikato Stadium	Grandstands and ticket booths.	
	H3 - Seddon Park	Pavilion and ancillary buildings.	
	H3 - Founders Theatre	Theatrical venue for performing arts and entertainment.	
Operational assets	Pools equipment	Furniture, water treatment equipment, and pool, gym, play and aqua education equipment.	3,000
	Library collection	Lending collections of books, serial items, DVDs, CDs, recordings and heritage collections.	Over 900,000 items
	Library equipment	Furniture, technology and library equipment.	15,000
	Cemetery equipment	Burial and crematorium equipment, park furniture, signs, carparks and roads.	2,150
	Museum collection	Collections of artwork, taonga and objects.	24,900
	H3 Claudelands equipment	Specialist equipment for conferences, exhibitions and arena events.	14,500
	H3 Waikato Stadium equipment	Specialist equipment for sporting events and conferences at Waikato Stadium and Seddon Park.	18,800
	H3 Founders equipment	Specialist Theatre Production equipment.	1,500

COMMUNITY AND EVENTS FACILITIES

Hamilton City

Already Developed

Growth Area

Main Roads

Libraries

1. Central Library
2. Dinsdale Library
3. St. Andrews Library
4. Chartwell Library
5. Hillcrest Library
6. Glenview Library
7. Future Library

Aquatic Centres

1. Gallagher Aquatic Centre
2. Waterworld
3. Future Aquatic Centre

Event Venues

1. Seddon Park
2. Founders Theatre
3. Waiakto Stadium
4. Claudelands

Other Attractions

1. Waikato Museum
2. Hamilton Zoo

FIGURE 41: COMMUNITY AND EVENTS INFRASTRUCTURE

SIGNIFICANT INFRASTRUCTURE ISSUES AND OPTIONS

The highlighted options is the preferred approach for addressing this issue and these options have been factored into the capital and operational planning and indicative estimates in this Strategy.

Many of the services contained in this infrastructure group have funding gaps between requirements to deliver on future plans for the service and available funding in the 10-Year Plan. Particular challenges exist for implementation of the following plans:

- Waikato Regional Sports Facility Plan 2014
- Hamilton Libraries Strategic Plan 2014
- Hamilton Cemeteries Draft Management Plan 2014
- Hamilton Gardens Management Plan 2013
- Hamilton Zoo Master Plan 2014
- Hamilton City Council Theatre Review 2013
- Waikato Creative Infrastructure Plan 2014.

Issue: Funding important regional, community and event infrastructure over the longer term

TABLE 25

Principal options	Implications of options
Hamilton City Council continues existing funding model with little or no wider regional contributions.	• Hamilton ratepayers continue to subsidise users from outside the city.
Introduce tiered pricing for Hamilton residents and non-residents.	• Administrative complexity in identifying residents and likely to encounter work-arounds.
Implement sub-regional funding models for services that are sub-regional in nature.	• Difficult to implement as will require agreement from other decision-making and funding organisations.

INDICATIVE ESTIMATES

Capital expenditure

The estimated capital needs for the Community and Events activity have been prepared for the next 30 years. The forecasted capital expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan.

FIGURE 42: FORECASTED CAPITAL EXPENDITURE FOR COMMUNITY AND EVENTS EACH YEAR, 2015-25 10-YEAR PLAN

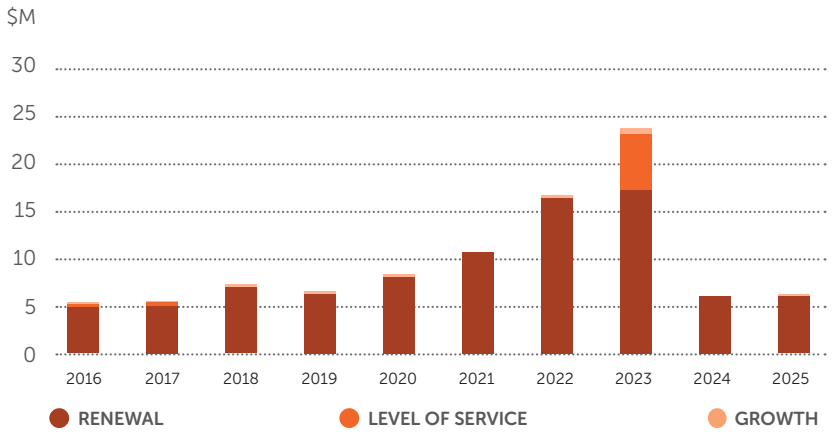
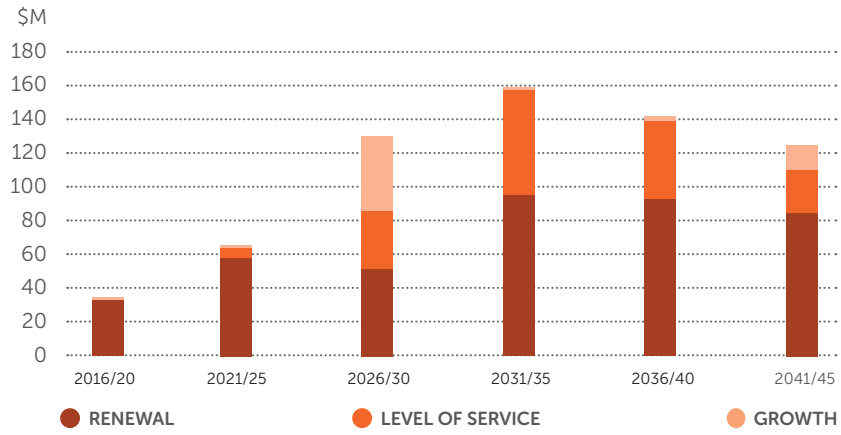
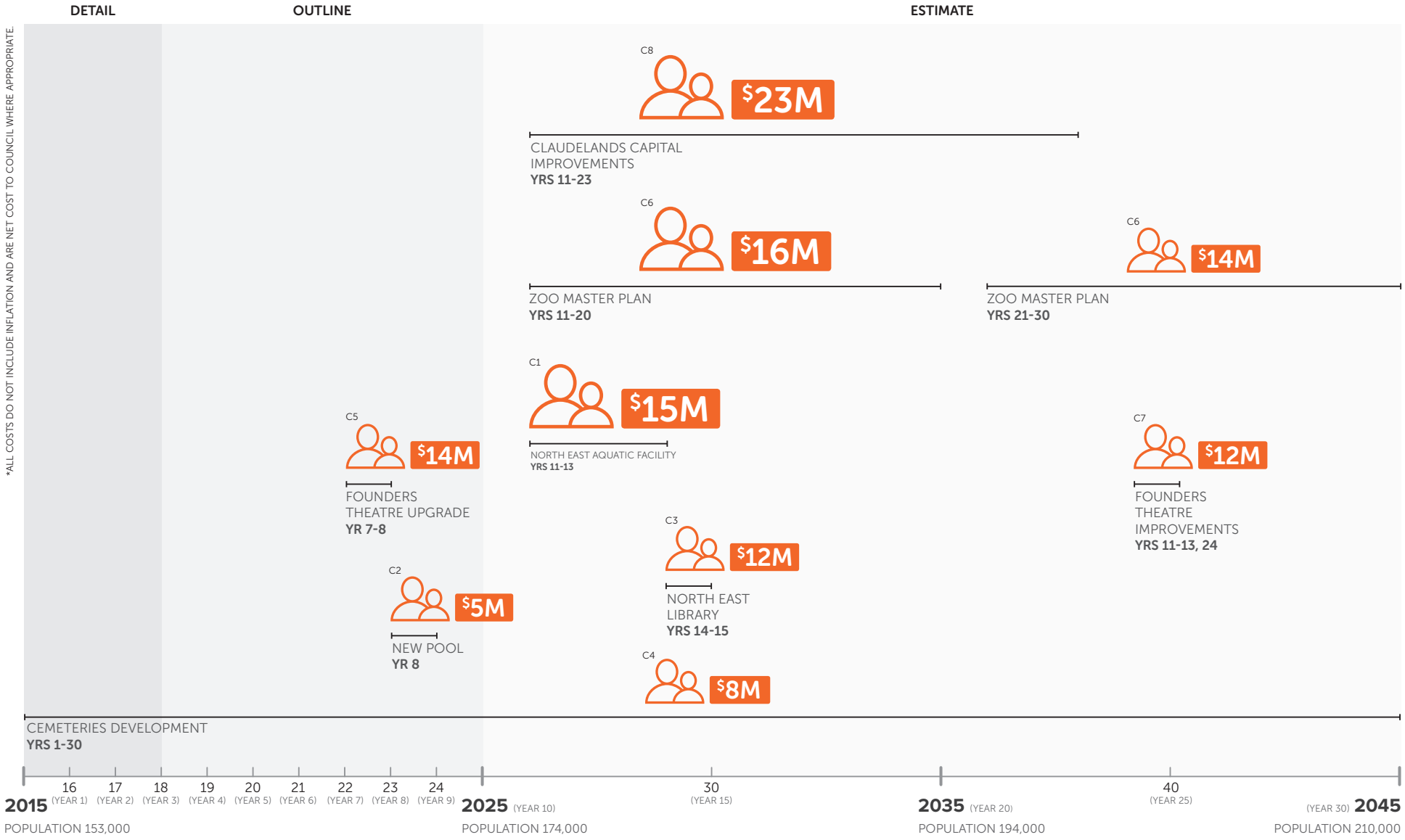


FIGURE 43: FORECASTED CAPITAL EXPENDITURE FOR COMMUNITY AND EVENTS, FIVE YEARLY PERIODS – 2015-45

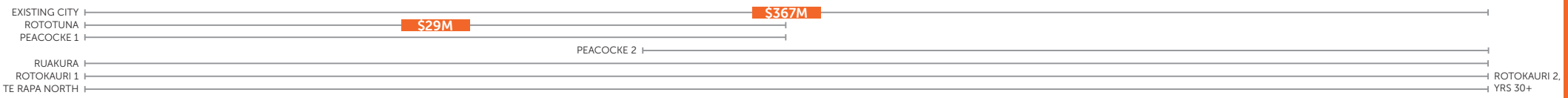


The following significant infrastructure decisions are required and projects have been included in the estimated capital expenditure.

COMMUNITY AND EVENTS



TOTAL CAPITAL COSTS BY AREA



Projects shown as icons are the strategic projects to provide new or upgrade existing infrastructure. These do not include renewal projects or growth related projects that are for non-strategic (local) infrastructure. Only key construction periods and costs for projects are shown.
All costs are shown on timelines 'Total capital costs by area'.

Operational expenditure

The forecasted operational expenditure from year ending 30 June 2016 to 2025 has been included in the draft 2015-25 10-Year Plan. Estimated expenditure beyond 2025 is based on the year 10 forecast and then adjusted for anticipated future growth of the city.

Operational expenditure includes indirect costs to provide the service to the community such as depreciation, interest costs and overheads. Forecasted operational expenditure is shown as net costs.

FIGURE 44: FORECASTED OPERATIONAL EXPENDITURE FOR COMMUNITY AND EVENTS EACH YEAR, 2015-25 10-YEAR PLAN

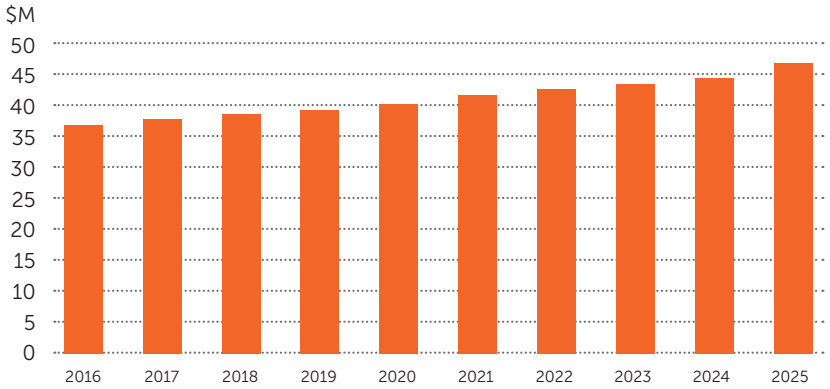
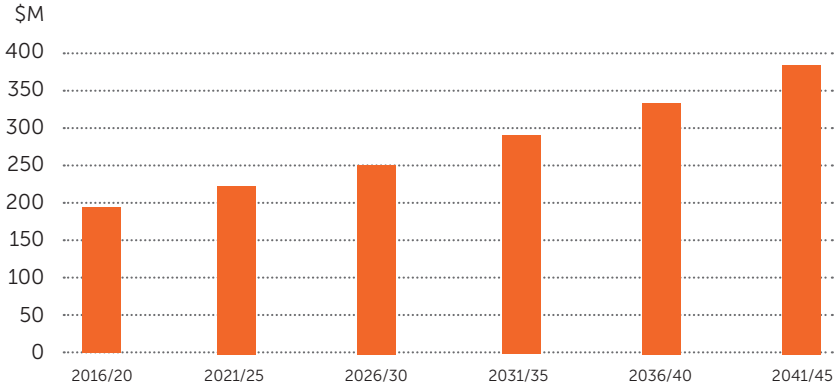


FIGURE 45: FORECASTED OPERATIONAL EXPENDITURE FOR COMMUNITY AND EVENTS, FIVE YEARLY PERIODS – 2015-45



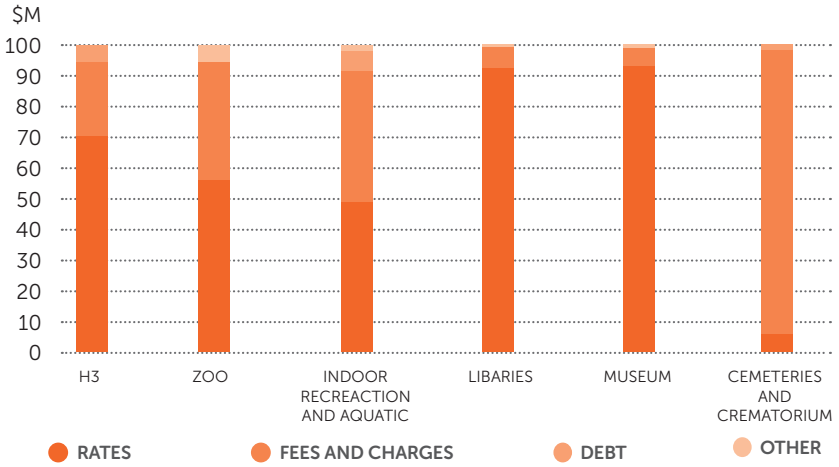
Funding of Activity

The Community and Events activities are currently funded through a mixture of:

- rates collected in the year of expenditure
- rates to repay loans raised for capital works
- donations
- user charges for services provided and venue hireage.

The graph to the right shows the proportion of funding for the various activities.

FIGURE 46: COMMUNITY AND EVENTS ACTIVITIES FUNDING



GROWTH AREAS

Hamilton has a number of current and future growth areas to provide for its long-term needs. Each area is unique and is at a different point of development.

Council is responsible to manage growth efficiently and make sure that good quality infrastructure is in place for new areas.

Council is also responsible for connecting them to the existing city in a way that will be sustainable over the long-term.

HAMILTON'S GROWTH AREAS

The fold out guide inside the front cover of this Strategy, indicates the assumed timing for when development will occur for each of the major growth cells within Hamilton.

This section of the Strategy provides information on the current major growth areas in Hamilton. It has been included in the Strategy as a significant amount of the forecast expenditure over the next 30 years is to provide the necessary infrastructure for a growing city.

Even though there is more than enough land within these growth areas for many decades of projected growth, there is periodic assessment of other areas around the city that may provide good quality and cost effective growth opportunities. The Waikato Spatial Plan is currently being prepared and may identify areas where it makes sense to start planning for land use changes outside Hamilton current growth areas.

The completion of the Waikato Expressway by 2020 will provide a major feature to the north and east of Hamilton. This will reorient some parts of Waikato District towards Hamilton as the Expressway will sever some roads and have limited opportunity for crossing. These areas have been anticipated to become part of Hamilton over the longer term.

The maps in this section of the Strategy show yet to be developed land in growth areas that is already serviced by infrastructure or will be serviced within the next 10 years.

TABLE 26

Type of land	Description
Serviced residential land	• Land that has the strategic infrastructure in place and therefore be available for developer to construct the local infrastructure required for development to occur
10- year service residential land	• Residential land that by the end of the 10-years of the 2015-25 10-Year Plan will have the strategic infrastructure in place and therefore be ready for developer to construct the local infrastructure required for development to occur

CITYWIDE (EXISTING CITY)

Background

The Hamilton Urban Growth Strategy states that future growth will be split 50/50 between development in existing parts of the city and greenfield areas.

Development in the existing city is a mixture of the following:

- Infill – subdivision of larger sections in general residential zones
- Intensification – development to a higher density in identified intensification areas.

The Proposed District Plan identifies six areas targeted for residential intensification:

- In and around the Central City
- Dinsdale
- Hamilton East
- South of the Hospital
- University
- Five Cross Roads

Current situation

The water treatment and wastewater treatment plants have been upgraded on a 'just in time' basis as the city grows.

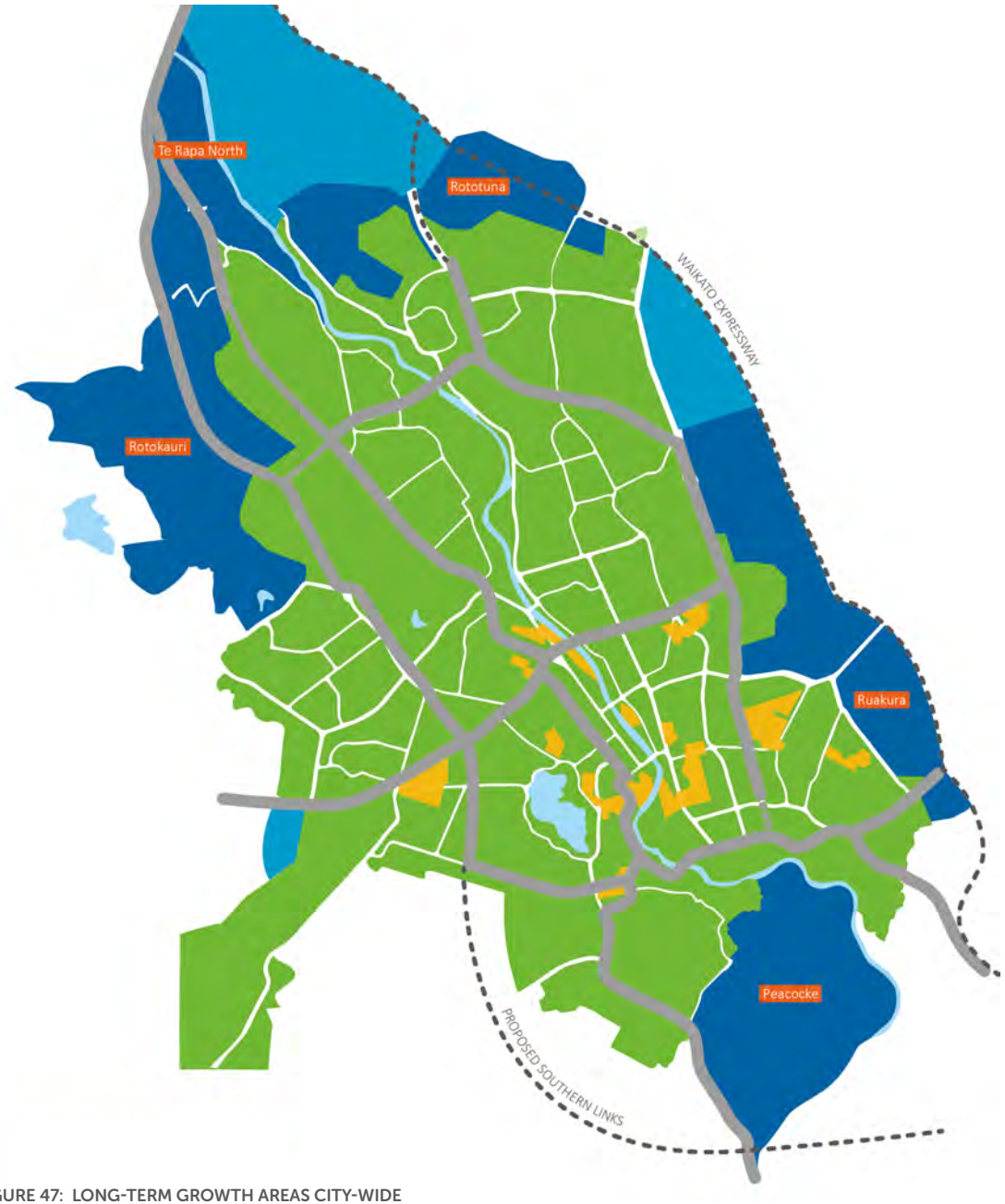
In a general sense, low level infill development can be accommodated within existing strategic infrastructure.

The planned city-wide investments in the strategic water, wastewater and treatment plants are required to service the intensification areas, as well as support growth in the greenfield areas.

The future state highway network (Waikato Expressway, the Te Rapa section of the Waikato Expressway and Southern Links) is secured by designations.

The Ring Road is largely in place and secured for four lanes (except the Maungakaraheke Drive, the railway overbridge by The Base, Ruakura Road and along Kahikatea Drive and Greenwood Street due to land constraints).

At present, the majority of the strategic transport network is in place as either two or four lanes, with the exception of future connections to the unconstructed sections of the Waikato Expressway and Southern Links.



HAMILTON GROWTH AREAS CITYWIDE

Hamilton City

- Already Developed
- Growth Area
- Residential Intensification Zone
- Long-term Growth Area
- Main Roads
- Future Main Roads

FIGURE 47: LONG-TERM GROWTH AREAS CITY-WIDE

ROTOTUNA

Background

Rototuna has been Hamilton's main greenfield growth area for residential development.

The first residential subdivisions occurred in the late 1980s and the first structure plan was approved in 1992.

In the early years, this growth cell was in highly fragmented ownership. Over time, the land ownership has consolidated into what is now a small group of six - eight large developers.

The Waikato Expressway designation was confirmed in early 2000 and severed part of the growth cell, creating a residential pocket to the northeast. The urban residential zoning for this land has recently been confirmed.

Current situation

This growth cell has all the city-wide strategic services in place or committed to the southern edge of the development area and internally within the cell.

Council has made a significant investment in infrastructure in this growth area over a long period of time, including a new major arterial road from Pukete (Wairere Drive), a new traffic bridge over the Waikato River and a new major wastewater bridge over the Waikato River. This work was generally completed within three years of the structure plan being approved in 1992. The area west of Resolution Drive is already largely consented for development.

The area immediately east of Resolution Drive is generally in single ownership and includes provision for new schools, community facilities, and residential development.

The area north of the Waikato Expressway is undeveloped and an extension of infrastructure is required for urbanisation to proceed.

FIGURE 48: ROTOTUNA GROWTH AREA

Note: Areas are indicative only.

ROTOTUNA GROWTH AREA DETAIL

Hamilton City

- Already Developed
- Long-term Growth Area
- Serviced Residential Land
- 10-Year Serviced Residential Land
- Commercial/Employment Area
- Main Roads
- Future Main Roads

PEACOCKE

Background

Peacocke was brought into the city from Waipa District in 1989.

It was changed from 'rural' zoning to 'future urban' in 1999, and through appeals, the development of a structure plan was required in 2001.

Stages 1 and 2 of the Structure Plan were finalised through Variation 14 to the District Plan between 2009-2012.

For transport, a Stage 1A capacity of 500 lots was agreed as a maximum land release without requiring investment on the existing transport network. A Stage 1B release of a further 350 lots was provided for with a requirement for transport and wastewater network improvements (e.g. a new intersection on State Highway 3).

Current situation

Council, in partnership with the NZ Transport Agency, has invested over $7M in designating the Southern Links arterial road network through the growth cell.

For wastewater, Council has completed some of the network improvements that enable the existing network to accommodate the combined Stage 1A and 1B 850 residential lot development.

This growth has the citywide strategic water services in place at the edge of the growth cell but significant investment is required to extend transport and wastewater strategic services to the edge of the cell. There is no suitable internal infrastructure in place within the cell for urban development.

Parts of Stage 1 are currently able to connect into Council's strategic infrastructure. With the investments scheduled in the 2015-25 10-Year Plan, the remainder of the Stage 1 area will have the necessary strategic infrastructure in place by 2025 to allow the development community to progress local networks to enable development.

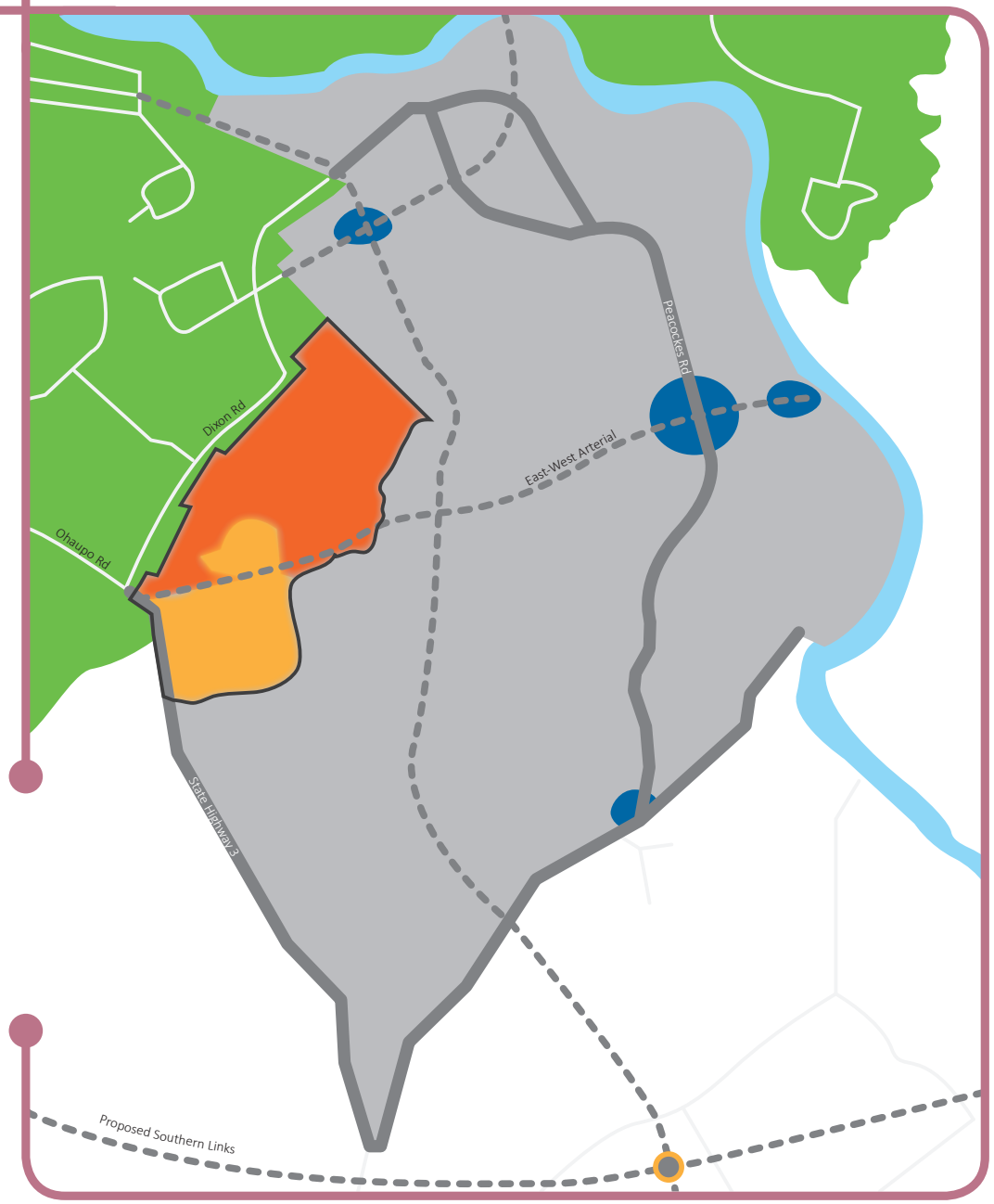


FIGURE 49: PEACOCKE GROWTH AREA

Note: Areas are indicative only.

PEACOCKE GROWTH AREA DETAIL

Hamilton City

- Already Developed
- Serviced Residential Land
- 10-Year Serviced Residential Land
- Commercial/Employment Area
- Main Roads
- Future Main Roads
- Residential Stage 1
- Residential Stage 2
- Proposed Interchange

ROTOKAURI

Background

Rotokauri was brought into the city from Waikato District in 1989.

It was zoned from 'rural' to 'future urban' by the Operative District Plan in 1999.

The Structure Plan, prepared between 2006-2009, enabled Stage 1 for residential and industrial development and kept Stage 2 as future urban.

The decisions on the Proposed District Plan have extended Stage 1, although this decision is currently subject to appeals to the Environment Court.

Current situation

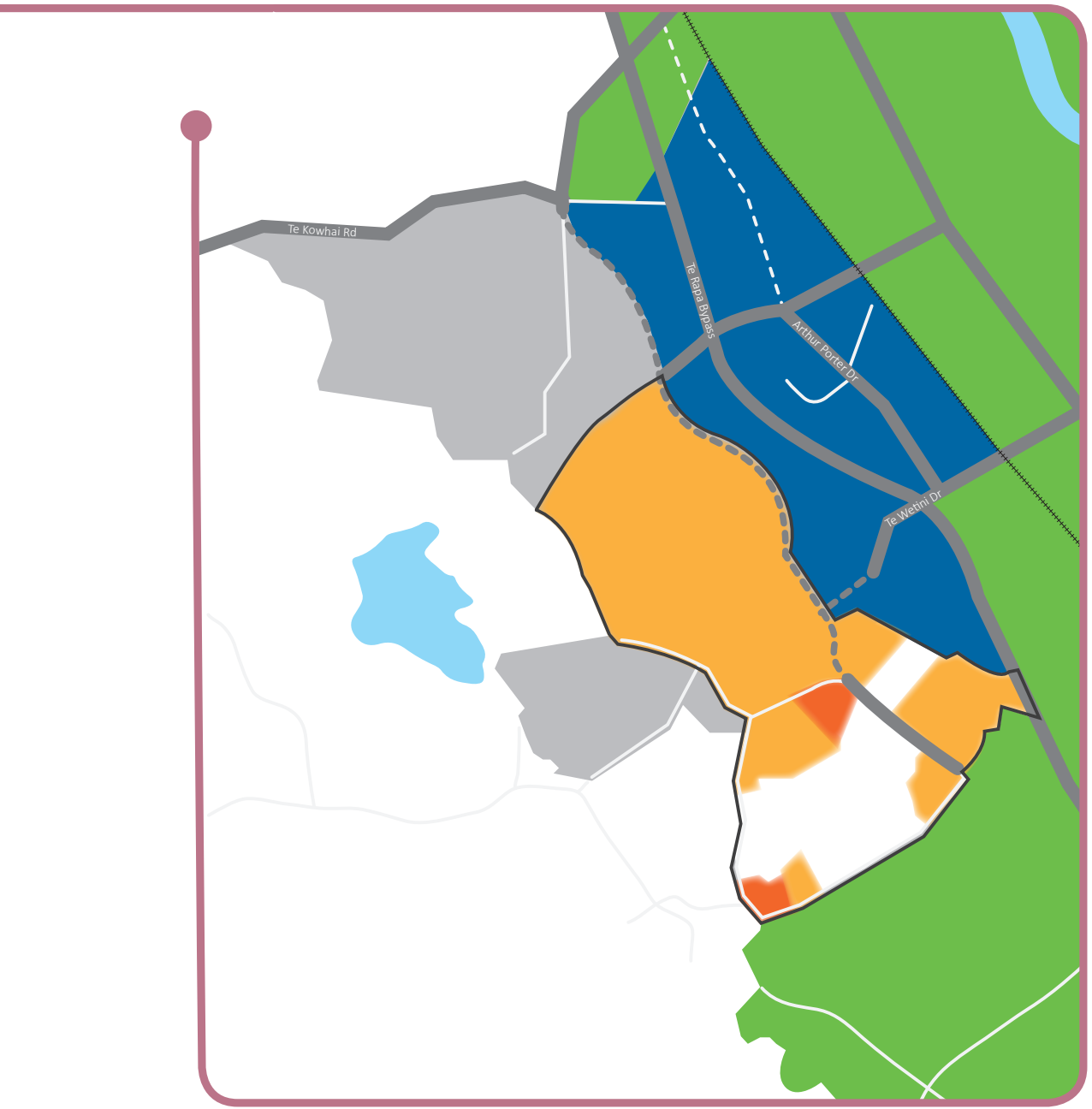
This growth has all the city-wide strategic services in place to the edge of the industrial zone. Council, in partnership with the NZ Transport Agency (NZTA), has invested over $180 Million in designating and constructing the Te Rapa section of the Waikato Expressway and associated local road connections. This work has facilitated the Stage 1 industrial development which is now largely complete or consented.

The local road connections completed are:

- two structures below the Te Rapa section of the Waikato Expressway
- the Te Wetini Drive arterial to Wintec's entrance
- part of Arthur Porter Drive.

For wastewater, the Council has completed a significant interceptor extension south to support all industrial development. A further extension of the far western interceptor will provide the strategic wastewater infrastructure for the wider growth area.

There are some areas where developers are currently able to connect into strategic infrastructure. However with the investments scheduled in the 2015-25 10-Year Plan, a significant amount of the Stage 1 area will have the necessary strategic infrastructure available by 2025 to allow the development community to progress local networks to enable development.



ROTOKAURI GROWTH AREA DETAIL

Hamilton City

- Already Developed
- Serviced Residential Land
- 10-Year Serviced Residential Land
- Commercial/Employment Area
- Main Roads
- Future Main Roads
- Residential Stage 1
- Residential Stage 2

FIGURE 50: ROTOKAURI GROWTH AREA

Note: Areas are indicative only.

RUAKURA

Background

Ruakura was brought into the city in 2011 from Waikato District.

Through a private plan change, approximately half of the area was zoned for both residential and industrial uses, including an inland port.

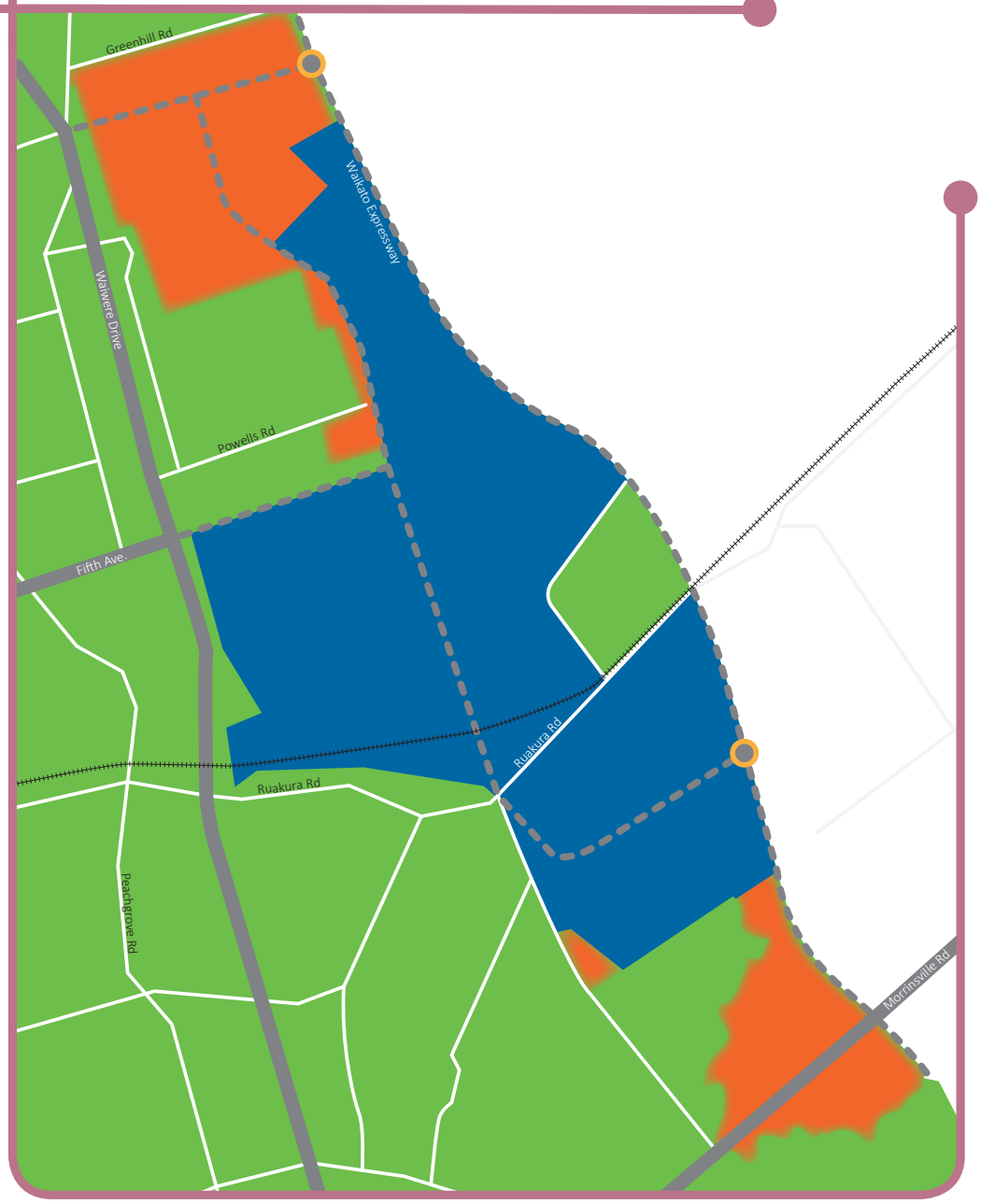
Current situation

This growth cell has all the city-wide strategic services in place at the edge of the cell. The strategic services include bulkwater, wastewater interceptor and the major arterial Ring Road.

Significant investment is required to extend wastewater strategic services through the growth the cell for citywide needs particularly to service Peacocke to the south.

The NZ Transport Agency has designated the Waikato Expressway that forms the eastern boundary of the cell. At present, the Transport Agency is finalising the alterations to designation for the interchange locations and is in discussions with Tainui Group Holdings for the provision of the Ruakura interchange.

There is no suitable local internal infrastructure in place within the cell for urban development.



RUAKURA GROWTH AREA DETAIL

Hamilton City

- Already Developed
- Serviced Residential Land
- 10-Year Serviced Residential Land
- Commercial/Employment Area
- Main Roads
- Future Main Roads
- Proposed Interchange

FIGURE 51: RUAKURA GROWTH AREA

Note: Areas are indicative only.

OTHER GROWTH AREAS

This Infrastructure Strategy has been developed to meet the forecast growth needs for the period up to 2045. Growth beyond this period is anticipated in the following areas. The infrastructure needs for these areas are outside the next 30 years.

Te Rapa North

Te Rapa North was brought into the city through a boundary change with Waikato District in 2011.

The area included a structure plan originally commenced by Waikato District Council.

The final version of the structure plan includes a staged land release of employment areas in two locations within the structure plan.

Fourteen hectares is available for development now. This will increase to 56 hectares after 2021.

The initial 56 hectares is available for development on the basis that the developer is responsible for all infrastructure services.

Temple View

Council has committed to prepare a structure plan for the area.

Future growth areas

Council has a strategic agreement with Waikato District which provides for future boundary changes:

- North of Ruakura (200 hectares)
- North of Rototuna up to the Waikato Expressway boundary (780 hectares)
- Wallace Road area (25 hectares).

APPENDIX 1

INFRASTRUCTURE PROJECTS

Project estimates are not inflated and expressed as thousands of dollars.

An * in the 'total' column indicates that there is an assumed third party funding contribution or subsidy for this project. Project costs are also shown as net cost to Council.

If a project code is shown at the beginning of the project name in bold, these relate to the significant infrastructure timelines that are shown in the six infrastructure activity group section of this Strategy. The dates under the 'project name', indicate when it is estimated that Council will need to make a final decision on whether or not to undertake this project. These decisions may be part of a future 10-Year Plan or part of a formal business case process.

Expenditure types are listed for the primary purpose of each project:

Growth (G)
Project provides infrastructure to enable growth of the city.

Level of Service (LOS)
Project increases or maintains service levels.

Renewal (R)
Project replaces existing asset at end of its useful life.

CORE INFRASTRUCTURE

TABLE 27

Project name	Description	class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Stormwater							
Replacement of stormwater assets	Replacement of assets which have reached their useful life and/or are no longer providing the service for which they were intended. Assets include stormwater pipes, channels, manholes, outfalls	R	1,881	5,767	7,482	33,221	48,353
Stormwater network improvements for intensification	Capital programme for improvements to the existing storm water network to cater for intensification areas	G	-	-	2,000	1,250	3,250
Stormwater Project Watershed Capital Works	Planned and reactive works to protect/repair stream banks from erosion.	LOS	-	-	1,000	1,000	2,000*
Rototuna stormwater infrastructure	Stormwater infrastructure program for core elements to facilitate growth in Rototuna	G	1,753	5,552	253	-	7,559*
SW3 - **Rotokauri stormwater infrastructure stage 1** (decision required est. yr 7)	Stormwater infrastructure program for core elements to facilitate growth in Rotokauri stage 1	G	-	23,294	1,967	-	25,261*
Rotokauri stormwater infrastructure Stage 2	Stormwater infrastructure program for core elements to facilitate growth in Rotokauri Stage 2	G	-	-	-	4,580	4,580*
Peacocke stormwater infrastructure Stage 1	Stormwater infrastructure program for core elements to facilitate growth in Peacocke Stage 1	G	858	1,640	-	-	2,498*
Peacocke stormwater infrastructure Stage 2	Stormwater infrastructure program for core elements to facilitate growth in Peacocke Stage 2	G	-	362	3,572	4,110	8,045*
Te Rapa North stormwater infrastructure	Stormwater infrastructure program for core elements to facilitate growth in Te Rapa north growth cell	G	-	-	2,504	1,297	3,802*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Stormwater							
Stormwater pipe upgrade - growth	Capital budget for improvements to the existing storm water network to cater for growth outside of growth cells	G	375	875.0	1,250	1,250	3,750
Integrate stormwater network in new areas with existing network	Capital budget which allows for small network improvements to link existing infrastructure with new developments, e.g. stormwater pipe extension	G	300	700	1,000	1,000	3,000
SW1 - **Strategic improvements for existing city** (decisions required est. yrs 9, 11, 16, 21, 26)	Capital stormwater improvements programme to facilitate urban growth city-wide	G	-	-	36,660	36,660	73,320
SW2 - **Comprehensive stormwater consent implementation (compliance)**(decisions required each 10-Year Plan	Retrospectively constructing stormwater treatment devices in the older areas of the city to protect streams, lakes and the Waikato River against contamination	LOS	175	1,490	2,100	2,100	5,865
Integrated catchment management plans	Development of catchment management plans for the city	G	1,060	2,100	1,800	1,050	6,010*
Stormwater master plan	Updating stormwater master plan for city	R	-	-	150	150	300

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Transport							
Resurfacing off-street carparks	Renewal programme for resurfacing of off-street carparking	R	22	249	250	250	771
Replacement of parking enforcement equipment	Renewal programme for parking enforcement equipment	R	725	185	1,100	1,100	3,110
Parking building renewal	Renewal programme for parking buildings (Garden Place)	R	286	73	500	500	1,359
Parking - technology new	Capital programme for purchase of new parking technology	LOS	-	-	2,500	6,000	8,500
Replacement of footpath	Renewal programme for the resurfacing or reconstruction of existing footpaths	R	6,771	12,250	17,500	17,500	54,021
Replacement of street furniture	Renewal programme for the replacement of street furniture	R	180	420	600	600	1,800
Replacement of drainage (kerb and channel)	Renewal programme for replacement of existing drainage facilities	R	1,814	4,233	6,047	6,047	18,142*
Replacement of road base	Renewal programme for renewal/reconstruction of a road pavement	R	2,324	6,895	9,851	9,851	28,922*
Road resurfacing	Renewal programme for road surfacing (chip seal or asphaltic concrete)	R	6,116	14,564	20,386	20,386	61,452*
Replacement of bridges and culverts	Renewal programme for replacement of bridges and culverts	R	179	875	5,889	18,617	25,561*
Replacement of retaining walls & structures	Renewal programme for the replacement of structures and/or their components	R	66	154	313	2,819	3,353*
Replacement of environmental controls	Renewal programme for replacement of environmental controls related to stormwater quality	R	14	61	98	98	272*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Transport							
Replacement of street signs	Renewal programme for replacement of signs and the installation of new signs	R	102	240	343	343	1,029*
New street lights	Capital programme for installation of new street lighting	LOS	-	-	294	147	441*
New footpath construction	Capital programme for installation of new footpaths	LOS	-	-	600	300	900
T3 - **Hamilton Ring Road improvements** (decision required est. yr 12)	Programme of capacity and safety improvements projects on Ring Road network to support city-wide growth	G	-	-	6,612	7,787	14,399*
Minor improvements to transport network	Programme of minor capital improvements	LOS	937	2,188	3,125	3,125	9,377*
Speed management	Programme of traffic calming and speed limit changes	LOS	-	-	1,196	-	1,196*
Bus stop infrastructure	Programme of capital works to provide bus shelters and accessible kerbs at bus stops	LOS	165	385	551	551	1,653*
Gateways facilities	Gateway improvements project at rural/urban city thresholds	LOS	-	-	1,470	1,470	2,940
T8 - **Transport Centre redevelopment** (decision required est. yr 20)	Capital improvements programme for transport centre	LOS	-	-	800	8,000	8,800
Building and property renewals	Renewals programme for transportation building assets,	R	135	619	300	300	1,354
T6 - **Central City Local Area Plan - Transport** (decision required est. yr 11)	Transport modal model followed by capital programme for central city local area plan	LOS	-	-	10,634	7,085	17,720*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Transport							
Public Transport (PT) priority	Capital programme for the introduction of public transport priority measures	LOS	-	-	1,886	3,485	5,371*
T10 – **Strategic cycle network** (decision required each 10-Year Plan from 2024)	Capital programme for completion of strategic cycleway projects to complete network	LOS	-	-	3,091	4,074	7,166*
Suburban precinct upgrade	Capital programme for upgrading of shopping precincts	LOS	-	-	2,687	1,612	4,300
T9 - **Upgrade bridge infrastructure - growth** (decision required est. yr 11)	Capital programme for increasing capacity on bridges for growth	G	-	-	18,546	-	18,546*
T9 - **New bridge infrastructure - HPMV** (decision required est. yr 11)	Capital programme for strengthening of existing bridges	LOS	-	-	14,186	4,394	18,580*
Integration of existing areas with new developments in the city	Capital budget which allows for small network improvements to link existing infrastructure with new developments	G	525	1,225	1,750	1,750	5,250*
Roading upgrades and development in Peacocke Stage 1	Transport programme to create new/upgrade existing road network in Peacocke for Stage 1	G	1,047	3,249	2,183	40	6,520*
T4 - **Roading upgrades and development in Peacocke Stage 2** (decision required est. yr 10)	Transport programme to create new/upgrade existing road network in Peacocke Stage 2	G	3,300	6,679	100,473	174,004	284,457*
Roading upgrades and development in Rotokauri Stage 1	Transport programme to create new/upgrade existing road network in Rotokauri for Stage 1	G	2,700	17,502	65,783	23,335	109,321*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Transport							
Roading upgrades and development in Rotokauri Stage 2	Transport programme to create new/upgrade existing road network in Rotokauri for Stage 2	G	-	-	-	592	592*
T1 - **Roading upgrades and development in Rototuna** (decision required est. yr 1)	Transport programme to create new/upgrade existing road network in Rototuna. Includes Resolution Drive extension	G	9,763	25,220	68,385	-	103,369*
Roading upgrades and development in Te Rapa North	Transport programme to create new/upgrade existing road network in Te Rapa North	G	-	-	3,444	19,441	22,885*
Roading upgrades and development in Ruakura	Transport programme to create new/upgrade existing road network in Ruakura	G	-	1,981	13,173	23,022	38,176*
Upgrade to or development of roading network (not growth cells)	Capital programme to upgrade existing intersections and corridors to cater for growth (outside growth cells)	G	-	-	11,274	19,095	30,369
Upgrade to city directional signage	Capital programme providing an upgraded network of advance directional signage throughout the city	LOS	-	-	326	-	326*
Traffic signal improvements	Capital improvements programme for upgrading of traffic signal technology and communications systems	LOS	294	-	352	352	999*
Integrated transport initiatives	Capital programme for minor improvements to the existing network to assist walking, cycling and public transport infrastructure	LOS	2,700	6,300	9,000	9,302	27,302
Miscellaneous land purchases	Capital budget which allows for purchase of small land holdings in conjunction with developers	G	-	-	500	500	1,000

Project name	Description	class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Transport							
T7 - **Rotokauri rail/ passenger transport interchange** (decision required est. yr 11)	Capital programme for the development of a rail/public transport interchange supported by park and ride facilities in Rotokauri (adjacent to The Base)	G	-	-	5,179	11,587	16,766*
Upgrade or development of road network (Safety)	Capital improvement programme for the upgrading of existing infrastructure to address safety issues	LOS	-	-	1,715	3,106	4,821*
T5 - **Cross City Connector (decisions required est. yrs 5, 12, 19, 26)**	Capacity upgrade for city connector corridor including traffic signals at Boundary/Heaphy and Five Cross Roads, and four-laning of Whitiora Bridge	G	-	2,432	20,681	43,021	66,134*
T2 - **Northern river crossing** (decisions required est. yrs 8, 11, 19)	Capital works programme to develop the northern river crossing corridor including designation, land purchase and construction of core transport elements including a bridge	G	-	2,896	36,689	12,302	51,888*

Project name	Description	class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Wastewater							
Replacement of wastewater pump station assets	Replacement of assets including pumps, impellers, cabinetry and electrical, wet wells, manholes, pipework, telemetry, lifting devices, covers	R	2,792	5,029	7,109	5,955	20,885
Replacement of wastewater assets	Replacement of assets including pipes, manholes, connections	R	11,730	31,076	56,136	42,180	141,124
Increase capacity of wastewater pump stations	Capital works programme to retrofit storage devices at older pump stations	LOS	1,216	4,650	4,233	4,233	14,333
Wastewater network improvements for intensification	Capital programmes for improvements to the existing waste water network	G	-	-	1,500	1,000	2,500
Wastewater pipe upgrade - growth	Capital works programme increase the capacity for infill/intensification growth	G	900	2,100	16,800	17,100	36,900
Increase capacity of wastewater network in Rototuna	Program for upgrading/new wastewater network in Rototuna growth cell	G	2,304	5,084	-	-	7,389*
Integrate wastewater network in new areas with existing network	Small network improvements to link existing infrastructure with new developments	G	240	560	900	1,000	2,700*
Increase capacity of wastewater network in Rotokauri Stage 1	Programme for upgrading/new wastewater network in Rotokauri Stage 1	G	629	4,086	1,528	-	6,243*
Increase capacity of wastewater network in Rotokauri Stage 2	Programme for upgrading/new wastewater network that facilitates growth in Rotokauri Stage 2 growth cell	G	-	-	935	1,264	2,200*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Wastewater							
Increase capacity of wastewater network in Peacocke Stage 1	Programme for upgrading/new wastewater network in Peacocke Stage 1	G	1,788	52	-	-	1,841*
Increase capacity of wastewater network in Peacocke Stage 2	Programme for upgrading/new wastewater network in Peacocke Stage 2	G	-	-	7,328	8,812	16,140*
Increase capacity of wastewater network in Te Rapa North	Programme for upgrading/new wastewater network in Te Rapa North	G	-	-	3,813	1,730	5,544*
Increase capacity of wastewater network throughout the city	Capital programme for increased capacity to bulk waste water / interceptor network	G	7,390	7,875	2,500	-	17,765
WW2 - **Increase capacity of wastewater network (Far Eastern interceptor in Ruakura)** (decision required est. yr 9)	Capital project for increased capacity to bulk waste water network - far eastern interceptor, Ruakura	G	-	5,000	5,000	-	10,000*
WW3 - **Increase capacity of wastewater network (Southern interceptor Peacocke)** (decision required est. yr 10)	Capital project for increased capacity to bulk waste water network - southern interceptor	G	-	300	33,756	25,112	59,168
WW1 - **Increase capacity of wastewater network (bulk storage wet weather)** (decisions required est. yrs 11, 13, 19)	Capital programme for increased capacity to bulk waste water network to provide bulk storage during wet weather events and manage flows to the treatment plant	G	4,543	26,351	7,870	12,560	51,324
Update wastewater model	Capital project to update wastewater model	R	-	944	959	959	2,863

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Wastewater							
Wastewater master plan	Capital project to update wastewater master plan	R	375	150	150	150	825
Replacement of wastewater treatment plant assets	Replacement of assets which have reached their useful life and/or are no longer providing the service for which they were intended. Assets include civil, structural, mechanical, electrical, automation	R	5,868	10,221	13,930	13,812	43,833
Upgrade wastewater treatment plant systems (SCADA and telemetry)	Capital programme to upgrade and extend the SCADA and telemetry systems at the wastewater treatment plant and pump stations	LOS	650	2,050	3,500	3,500	9,700
WW5 - **Upgrade wastewater treatment plant (Pukete 3)** (decision required est. yr 1)	Capital programme for upgrading and increasing capacity of the waste water treatment plant to meet growth and level of service requirements (Stage 3)	G	8,700	8,500	-	-	17,200
WW4 - **Upgrade wastewater treatment plant (wet weather treatment)** (decision required est. yr 13)	Capital works to provide a new treatment facility to treat wet weather overflows before discharging to the Waikato River	LOS	-	-	21,200	-	21,200
WW6 - **Upgrade wastewater treatment plant (Pukete 4)** (decision required est. yr 10)	Capital programme for upgrading and increasing capacity of the wastewater treatment plant to meet growth, level of service requirements, and provide for upgrades associated with the new resource consent conditions (Stage 4)	G	-	500.0	30,500	-	31,000
WW7 - **Upgrade wastewater treatment plant (Pukete 5)** (decision required est. yr 26)	Capital programme for upgrading and increasing capacity of the waste water treatment plant to meet growth and level of service requirements (Stage 3).	G	-	-	-	31,000	31,000
Wastewater Treatment Plant compliance - minor upgrades	Capital works programme to continuously improve the treatment plants to ensure reliability, resilience and risk mitigation, effective operations/processes, resource consent compliance.	LOS	1,500	3,500	5,000	5,000	15,000

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Water Supply							
Replacement of watermains	Replacement of assets which have reached their useful life and/or are no longer providing the service for which they were intended. Assets include pipes and connections	R	9,671.4	23,603	30,895	28,356	92,527
Replacement of water meters valves and hydrants	Replacement of assets which have reached their useful life and/or are no longer providing the service for which they were intended. Assets include water meters, values, hydrants	R	1,013	1,693	2,706	2,706	8,120
Water network improvements for intensification	Capital programmes for improvements to the existing water network to cater for intensification areas	G	-	-	1,000	1,250	2,250
Upgrade or build new watermains in Rototuna	Programme of upgrading/new trunk watermain network that facilitates the highest level of growth in Rototuna growth cell	G	3,652	6,167	175	-	9,995*
Water pipe upgrade - growth	Capital works programme increase the capacity of the water network to cater for infill and greenfield growth outside growth cells	G	900	2,100	3,000	3,000	9,000
Upgrade or build new watermains in Rotokauri Stage 1	Programme of upgrading/new trunk watermain network that facilitates the highest level of growth in Rotokauri Stage 1 growth cell	G	717	2,311	2,134	-	5,162*
Upgrade or build new watermains in Rotokauri Stage 2	Programme of upgrading/new trunk watermain network that facilitates the highest level of growth in Rotokauri Stage 2 growth cell	G	-	-	1,082	1,688	2,770*
Upgrade or build new watermains in Peacocke Stage 1	Programme for upgrading/new water network that facilitates growth in Peacocke Stage 1 growth cell	G	886	1,828	-		2,714*
Upgrade or build new watermains in Peacocke Stage 2	Programme for upgrading/new water network that facilitates growth in Peacocke Stage 1 growth cell	G	-	-	3,924	7,534	11,459*
Upgrade or build new watermains in Te Rapa North	Programme for upgrading/new water network that facilitates growth in Te Rapa North growth cell	G	-	-	1,979	2,378	4,358*

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Water Supply							
Integrate water mains in new areas with existing network	Capital budget which allows for small network improvements to link existing infrastructure with new developments e.g. water pipe extension	G	240	560	900	1,000	2,700*
Water Demand Management - network water loss	Capital programme for the segmentation of the water network into water demand areas	LOS	1,197	137	-	-	1,335
Upgrade or build new watermains in Ruakura	Program for upgrading/new water network that facilitates growth in Ruakura growth cell	G	513	616	1,134	969	3,232*
W1 - **Water demand management - Pukete reservoir zone (decision required est. yr 3)**	Capital project to reconfigure the supply zone from the Dinsdale reservoir and Newcastle reservoir	LOS	500	-	-	-	500
W1 - **Water demand management - Newcastle reservoir zone** (decision required est. yr 8)	Capital project to reconfigure the supply zone from the Dinsdale reservoir	LOS	-	5,593	3,887	-	9,481
Update water model	Capital project to update city water model	R	-	872	886	886	2,645
Update water master plan	Capital project to develop master plan for water	R	225	150	150	150	675
Replacement of water treatment plant and reservoir assets	Replacement of assets at treatment plant and reservoirs	R	3,123	8,383	12,279	12,928	36,714
Water treatment plant compliance - minor upgrades	Capital programme to continuously improve the water treatment plant	LOS	3,246	7,108	8,000	8,000	26,354
W7 -**Rototuna Reservoir and associated bulk mains** (decision required est. yr 0)	Capital project for the development of a new reservoir and associated bulk mains in Rototuna	G	14,422	-	-	-	14,422

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Water Supply							
W1 - **Water demand management - Hillcrest reservoir zone** (decision required est. yr 6)	Capital project to replace the Hillcrest Reservoir with a new reservoir	LOS	-	7,858	8,050	-	15,908
W6 - **Fairfield reservoir and associated bulk mains (Ruakura)** (decision required est. yr 11)	Capital project to either replace the current Fairfield reservoir with a 24 ML reservoir or construct a new reservoir in Ruakura	G	-	-	14,150	-	14,150
W8 - **Rotokauri Reservoir and associated bulk mains** (decision required est. yr 16)	Capital project for the development of a new reservoir and associated bulk mains in Rotokauri	G	-	-	9,800	6,050	15,850
W4 - **New intake structure for treatment plant** (decision required est. yr 18)	Capital project to construct a new structure to pump water from the Waikato River into the existing water treatment plant	LOS	-	-	26,250	-	26,250
W2 - **Water demand management - universal water meters** (decision required est. yr 11)	Capital programme to install water meters for all properties within the city to reduce water demand	LOS	-	-	26,500	-	26,500
W3 - **New water treatment plant** (decision required est. yr 30)	Capital project for the provision of a new water 50ML water treatment plant on the Waipa River.	LOS	-	-	-	100,000	100,000
W5 - **Water treatment plant capacity upgrade** (decision required est. yr 1)	Capital project to upgrade the water treatment plant from 105 ML to 140ML (peak capacity)	G	10,500	16,000	10,000	-	36,500
Water reservoirs seismic upgrades	Capital programme to improve the resilience of the reservoirs in an earthquake	LOS	-	-	6,480	-	6,480
Fluoride free water source	Capital project to provide a fluoride free water source for residents use	LOS	60	-	-	-	60

OTHER INFRASTRUCTURE

TABLE 28

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Parks and Green Spaces							
P1 - **Hamilton Gardens Development Programme** (decisions required each 10-Year Plan)	Council contribution to development of new themed gardens and supporting facilities and infrastructure	LOS	2,344	-	7,550	600	10,494*
Gardens building and operational renewals	Renewal of building assets and operational assets that support service delivery at Hamilton Gardens	R	585	1,189	4,712	4,199	10,686
P2 - **Land purchase future reserves** (decisions required each 10-Year Plan)	Purchase of land for the provision of future reserves	G	1,270	120	22,347	15,311	39,048
Renewal of park assets	Asset renewals for parks, including toilets and changing rooms. Renewal of natural environments, city landscape, playground and sports park assets	R	4,970	15,937	29,277	29,383	79,567
P3 - **Playground Development Programme** (decisions required each 10-Year Plan)	Council contribution to development of playgrounds throughout the city	LOS	1,100	2,600	2,610	1,000	7,310*
P4 - **New sports park development** (decisions required each 10-Year Plan)	Development of new sports parks to meet the formal and informal recreation needs of residents	G	350	5,100	9,850	3,550	18,850
Sports field improvements	Improvement of current sports fields to meet capacity and demand.	LOS	-	880	940	80	1,900
New park development	Development of Te Manatu Park and natural environments across the city	G	-	-	1,533	931	2,464

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Parks and Green Spaces							
P5 - **New public toilets** (decisions required each 10-Year Plan)	Development of new public toilets across the city	LOS	750	500	4,250	1,000	6,500
P6 - **Waiwhakareke Park development** (decisions required each 10-Year Plan from 2024)	Further development of Waiwhakareke Park Natural Heritage Park	LOS	-	-	2,308	2,534	4,842
P7 - **Existing park improvements** (decisions required each 10-Year Plan from 2024)	Improvement of existing parks including Hamilton Lake, Memorial Park, and Taitua Arboretum. Including the extension of Te Awa cycleway	LOS	-	-	2,590	2,080	4,670
Dog exercise areas	Development of existing and new dog exercise areas	LOS	-	-	275	-	275
Skate park development	Development of new skate parks	LOS	-	-	4,000.0	-	4,000

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Community and Event Facilities							
C1 - **North East Aquatic Facility** (decision required est. yr 9)	New aquatic facility at Rototuna	G	-	-	15,150	-	15,150
C2 - **New 25m pool** (decision required est. yr 6)	New 25 metre pool to meet community demand for swimming pool space	G	-	4,850	-	-	4,850
Aquatic facilities building and operational renewals	Renewal of building assets and operational assets	R	2,844	6,385	5,373	9,403	24,005
C3 - **North East Library** (decision required est. yr 12)	New library facility at Rototuna	G	-	-	12,450	-	12,450
North East Library collection purchases	Purchase of base collection for the new library facility in Rototuna	G	-	-	1,000	-	1,000
Libraries building, operational and collection renewals	Renewal of building, operational and collection assets	R	3,598	9,355	13,483	13,835	40,271
Garden Place Library modernisation	Reconfiguration of the building facade and Garden Place Library for community interaction	LOS	-	-	2,500	-	2,500
Libraries heritage programme (digitisation and storage)	Digitisation of unique materials within the heritage collection	LOS	-	-	662	500	1,162
Libraries RFID (barcode technology) installation	RFID (Radio Frequency Identification) replaces the superseded barcode technology for collections	LOS	-	-	976	-	976
Museum building and operational renewals	Renewal of building assets and operational assets	R	1,029	3,271	2,126	4,559	10,985
ArtsPost building earthquake proofing	Legal requirement to meet compliance with new building standards	R	1,250	1,250	-	-	2,500
Museum access upgrades	Opening up access on the riverside of the building and improving Victoria Street access	LOS	-	-	1,538	-	1,538

Project name	Description	class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Community and Event Facilities							
Museum collection purchases	Acquisition of new collection items	LOS	-	-	500	500	1,000
Cemeteries building and operational renewals	Renewal of building assets and cemetery and crematorium operational assets	R	298	1,033	2,360	2,360	4,817
C4 - **Cemeteries development** (decisions required each 10-Year Plan)	Extension of burial and ash interment areas and future land purchase at Hamilton Park Cemetery to meet growth needs	G	87	659	1,505	1,505	8,257
Cemeteries Improvements	Development of new facilities to support future site expansion at Hamilton Park Cemetery	LOS	-	-	3,731	3,731	3,881
Claudelands CCTV and Exhibition hall power upgrade	CCTV and power upgrade for Claudelands exhibition halls	LOS	90	15	30	30	150
Stadia capital improvement programme	Upgrade paths at Seddon Park and turf protection equipment for both stadia	LOS	175				175
C7 - **Founders Theatre capital improvements** (decision required est. yr 10)	Capital upgrades to enhance and increase capacity of the existing facility	LOS			2,935	2,935	12,435
Seddon Park temporary grandstand upgrade	Permanent structure to replace hired current temporary structure	LOS			1,450	1,450	1,450
C8 - **Claudelands capital improvement programme** (decisions required est. yrs 10, 22)	Capital upgrades to enhance existing Claudelands facilities	LOS			18,569	18,569	23,569
C6 - **Zoo Master Plan** (decisions required each 10-Year Plan from 2024)	Implementation of the draft Hamilton Zoo Master Plan	LOS			15,672	15,672	29,178
Zoo animal enclosure renewals	Renewals programme for zoo animal enclosures	R	383	908	988	988	5,332

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Community and Event Facilities							
Zoo building renewals	Renewal programme for zoo buildings, structures, pathways, landscape features, signs, plant and equipment	R	249	603	1,389	1,606	3,847
Zoo property renewals	Renewal of zoo buildings	R	25	512			537
Zoo browse plantation	Development of onsite browse plantation at the zoo to provide fodder for zoo animals	LOS	20	280	400	400	20
Zoo quarantine replacement	Replace zoo quarantine facilities for international animal transfers	R	80	13,956			80
Zoo animal replacement	Replacement of zoo animals for public display and enable breeding as part of regionally managed programmes	R	120	565	6,112	2,346	1,200
C5 - **Founders Theatre upgrade** (decision required est. yr 4)	Major upgrade of Founders Theatre	R	100	956	5,674	3,013	14,056
Founders Theatre building renewals	Ongoing renewal programme for Founders Theatre building structure, and building services	R	252	1,941	2,968	3,028	9,275
Founders Theatre - plant & equipment renewals	Renewal Programme for specialist theatre production/performance equipment	R	625	4,143	20,550	19,720	10,268
Technical Services - equipment renewals	Renewal programme for shared audio visual equipment, portable staging, specialist theatre lighting, and general operational tools and equipment.	R	945	4,104	5,628	4,064	8,882
Claudelands - property renewals	This is the renewal of building components for Claudelands	R	220				44,632
Claudelands - plant & equipment	Renewal programme for equipment and furnishings and plant	R	1,114				14,910
Stadia - property renewals	This is the renewal of building components for stadia	R	2,671	9,787	23,111	16,030	51,599

Project name	Description	Class type	Yr 1-3 2015-18 $(000s)	Yr 4-10 2019-25 $(000s)	Yr 11-20 2026-35 $(000s)	Yr 21-30 2036-45 $(000s)	Total $(000s)
			Detail	Outline	Estimate		
Community and Event Facilities							
Stadia - plant and equipment renewals	Renewal programme for playing surfaces, equipment, furnishings and plant	R	1,184	1,442	3,011	2,389	8,026
Turf services capital improvement programme	This is a programme of capital upgrades to improve the existing facilities including, training field extension, and storage	LOS			620		620
Turf services plant & equipment	Renewal programme for specialist sports field maintenance and protection equipment	R	149	355	501	471	1,476
Business administration plant & equipment	Renewal programme for business systems and booking software	R	50	250	345	340	985
Waikato Stadium & Seddon Park capital improvement programme	Programme of capital upgrades to enhance the existing facilities	LOS			12,522	5,280	17,802

APPENDIX 2

ASSUMPTIONS FOR USEFUL LIFE OF ASSETS

TABLE 29: WATER ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Aerial pipes	
• Exposed • Ducted	50 100
Pipes and connections	60-100
Hydrants	50-75
Valves	40-75
Backflow devices	40
Meters	15
Bulkmain chambers	100
Treatment plant and reservoirs	
• Electrical • Mechanical • Civil	15 25 100

TABLE 30: WASTEWATER ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Aerial pipes	
• Exposed • Ducted	50 100
Pipes, manholes and connections	30-100
Valves	40-75
Pump stations	
• Pumps • Electrical • Wet wells and storage units	20-25 15 75-100
Treatment plant	
• Electrical • Mechanical • Civil	15 25 100

TABLE 31: STORMWATER ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Pipes, manholes and connections	30-100
Soakage trenches	50
Inlets and outlets	100
Channels and streams linings	90
Ponds and wetland pipes, structures and spillway	100

TABLE 32: TRANSPORT ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Roads	
• Basecourse pavement	50-140
• Chipseal surface	6-16
• Ashphalt surface	10-18
• Concrete roads	60
• Cobblestone roads	30
Footpaths/cycleways	
• Tactiles	5
• Timber Boardwalks	25
• Asphalt paths	25
• Concrete, cobblestone, metal paths	50-60
Bridges	
• Steel and concrete bridges	150
• Concrete culvert	80
• Armco culvert	40
• Underpasses	80
Structures	
• Bus shelter, fences, guardrails	20-25
• Timber retaining walls	20-30
• Other retailing walls	100
Drainage – kerb and channel, swales and drains	60-70
Signs and traffic signals	15-20
Street lights	15-25
Street furniture	10-30
Building structures	50-75

TABLE 33: PARKS AND GREEN SPACES ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Furniture	15-50
Irrigation systems	15-30
River structures	15-50
Lights	25
Fences	10-20
Carparks	10-50
Roads	20-50
Plaques	50-80
Sports fields	7-100
Structures	30-100
Playground equipment	15-50
Youth facility	30-75
Entry points	30-75
Water features	10-50
Turf drainage	7-25
Signs	15-25
Stormwater	15-80
Walls	15-75
Footpaths	20-100
Hardscapes	20-50
Artwork	50

TABLE 34: COMMUNITY AND EVENT FACILITIES ASSET USEFUL LIFE ASSUMPTIONS

Asset group	Useful life (years)
Building structures	50-75
Electrical services	10-30
Plumbing elements	20-30
Furniture and fittings	10-15
HVAC	10-20
Decorative finishes	10-15
Joinery	20-35
Kitchen equipment	15-20
Operational assets	5-10
Pumps and heat exchanger	10-15
Play equipment	12-15
Fitness equipment	7-10
Operational assets	5-10

APPENDIX 3

ASSUMPTIONS FOR LEVELS OF SERVICE

Water

Council has water infrastructure to provide households and businesses with a safe, high quality and sustainable water supply.

In general Council is planning to keep service levels the same. In order to maintain our current service levels we are planning to spend more than what we have spent in recent years on our water infrastructure. With this additional investment our assets will be more resilient and residents and businesses can continue to expect:

- water that is safe to drink
- the water network to be well maintained
- a timely response if there is a problem with the water supply
- a quality service
- the water supply to be managed so demand does not outstrip the available capacity.

Wastewater

Council's wastewater activity provides our city with reliable services that protects both people's health and the health of our waterways.

Like the water activity, Council is planning to keep targets for services at the same level as in the past. We have had some difficulties in recent years meeting consent conditions and being able to manage and treat the amount of sewage that travels through the piped network and arrives at the plant in heavy rain events. For these reasons it is one of the areas that Council is planning to spend more on.

With this additional investment, our assets will be more resilient and residents and businesses can continue to expect:

- the wastewater system to be well maintained
- the wastewater system to be managed in a way that does not unduly impact on the environment
- a timely response if there is a problem with wastewater system
- the water supply to be managed so demand does not outstrip the available capacity.

Stormwater

The stormwater network protects people and properties from flooding and helps to minimise the pollution of waterways.

Council is planning to maintain the same levels of service for stormwater within the existing city over the period of the Infrastructure Strategy while at the same time growing the stormwater network to cope with city growth. The current level of service in the existing city for design of the stormwater system is:

- residential areas – to deal with a '1 in 2' year event
- commercial areas – to deal with a '1 in 5' year event
- industrial areas – to deal with a '1 in 10' year event.

Over the coming years catchment management plans will be prepared for the city's stormwater catchments. These will be guiding documents for further development of the stormwater network and help ensure that the community can continue to expect:

- the stormwater system to be maintained sufficiently to ensure it remains adequate
- the stormwater system to be managed in a way that does not unduly impact on the environment
- a timely response if there is a problem with the stormwater system.

Transport

Council has a good transportation network. Over recent years significant investment has been made on extending the strategic road network. With the completion of the last section of the Ring Road, the network will have a good ability to support the city's transport needs into the future.

Council is planning to keep the same service levels for transport as it currently has. Although as the city grows and more traffic needs to use the networks, there will be an increase in travel times and peak periods of congestion will increase. It is anticipated that any changes will be gradual and limited in severity.

Primarily, growth in demand will be managed through provision and facilitation of modal choice, i.e. ongoing development of public transport, cycling and walking options.

However, it is assumed that new roads will be required to maintain key service levels. It has been assumed that arterial road connections will be made to the Waikato Expressway, under construction by central government around the north and east of the city with completion due by 2019/20. In addition, other strategic arterial roads in the long-term future will be designated and protected.

In general, residents will continue to be able to expect:

- access to public transport, cycling and walking alternatives
- the transport network is managed to run efficiently and safely
- parking is available in the central business district (CBD) for shoppers and people doing business
- the network is kept in good condition
- a timely response to customer service requests.

Parks and Green Spaces

The Infrastructure Strategy has been prepared on the assumption that the following current key service levels will continue to be provided:

- Hamilton Gardens is of international significance, attracting visitors to the city.
- Hamilton Gardens provides a range of services including themed gardens, venues for hire and visitor amenities that are well-presented.
- The current network of parks and reserves are maintained.
- Sport and recreation areas are available and meet user needs.
- Parks are of good quality and people want to use them.

- Playgrounds meet user needs, the network of destination playgrounds is enhanced and added to.
- The city's natural biodiversity is maintained and enhanced.
- The city's destination parks are maintained and developed, including Hamilton Lake Domain, Taitua Arboretum and Waiwhakareke Natural Heritage Park.

Some minor changes have been planned for and expenditure estimates include changes to the following service levels:

- Improving the quality of the city's playgrounds by adding 12 destination playgrounds over the next 30 years for an improved play experience.
- Increasing the number of public toilets across the city to provide toilets at destination playgrounds and sports fields.
- Improving the quality of sports fields through improvements to drainage and increased irrigation, in turn increasing the amount of time fields can be used for organised sports.

Future service levels for parks and green spaces could be impacted by changes to:

- Securing external funding for playground development, Hamilton Gardens development and the maintenance and planting of natural environments.

Community and event facilities

The community and event infrastructure covered in this plan helps to make Hamilton a highly liveable city. The Infrastructure Strategy has been prepared on the assumption the service levels for the following activities are maintained to current standards.

- **Aquatic Facilities**
  Aquatic facilities provided meet community needs and preferences for recreation.
- **Indoor Recreation**
  The current Council indoor recreation facility is enhanced by additional indoor recreation space being made available with an additional facility.
- **Libraries**
  The current library network with an additional facility to maintain accessibility to services in the North-East to match recent and projected population growth. The Infrastructure Strategy does not include anticipated facility impacts of the recently completed Hamilton Libraries Strategic Plan.
- **Cemetery and crematorium**
  Hamilton Park Cemetery provides a modern cremation and burial service for Hamilton and other parts of the region. A small function facility is included in the future to support this service level.
- **Waikato Museum**
  The Museum collection is maintained and exhibited and the current facilities are used to deliver the service.
- **Hamilton Zoo**
  The range of services and species at the zoo remains similar to the current service. Implementation of the Zoo Master Plan that Council is currently developing is included from year 11.
- **H3**
  Stadia, theatres and Claudelands continue to provide event experiences that are in well maintained, market relevant facilities that attract a range of international, national and local events.

APPENDIX 4

ASSUMPTIONS FOR RENEWAL OF ASSETS

Water

When a new water asset is constructed, a number of assumptions are made about what maintenance will be required, the expected life of the asset and when it will need to be replaced or renewed.

As the water asset is used over the years, its condition and performance is monitored to ensure that the asset is replaced at the most cost effective time. To help in this assessment Council:

- uses asset age information to identify assets for more detailed assessment
- monitors the performance of assets to help identify where there might be issues
- is installing more bulk meters throughout the water network to help identify where there may be leaks or broken pipes
- physically inspects a sample of assets or use in-pipe CCTV to check condition
- uses a complex water model to predict current and future water flows and asset requirements.

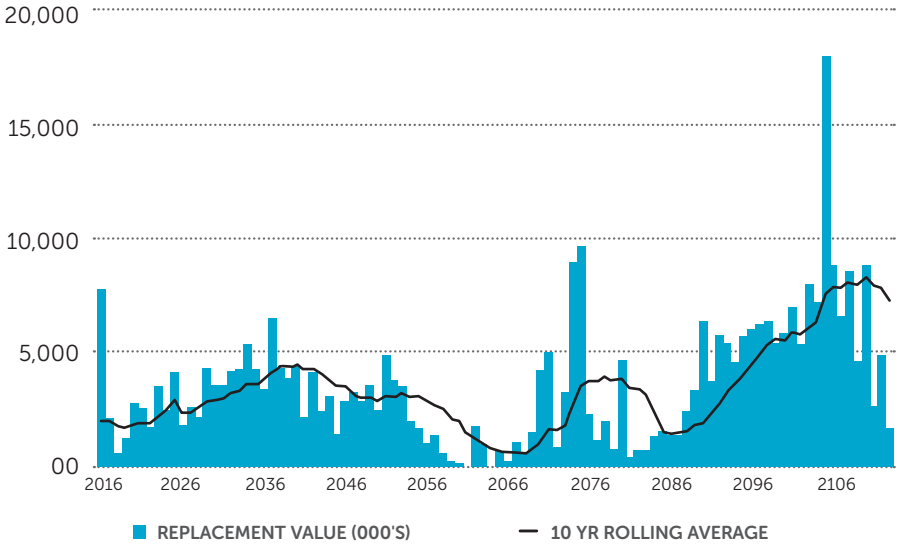
Asset condition and performance information is used to develop maintenance and renewal programmes to ensure expenditure on assets is done at the most cost effective time.

Confidence level assessments for maintenance and renewal forecast expenditure for water assets have been graded using the criteria of the International Infrastructure Management Manual 2011.

Type of forecast	Reason	Confidence level		
		Yrs 1-3	Yrs 4-10	Yrs 10+
Maintenance	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Reliable	Uncertain	Uncertain
Renewal	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Highly reliable	Reliable	Uncertain

Better information on the condition and performance of assets in recent years has allowed for more robust renewal forecasts to be prepared. This information has been used in developing the forecasts in the 2015-25 10-Year Plan budgets.

FIGURE 52: WATER PIPES – LONG-TERM RENEWAL FORECASTS



Renewal of water supply assets has been given a high priority for funding in Council's decision making on its 10-Year Plan.

Renewals are prioritised based on how critical the asset is. Assets which are critical to enable the operation of the activity such as bulk and trunk mains, reservoirs and plant assets are renewed before failure. Assets that are less critical such as reticulation servicing several houses, non critical valves and hydrants are left to run-to-failure and are renewed once they have failed. Occasionally an asset will fail prior to its expected end of life, when this occurs Council will either:

- carry out reactive maintenance to immediately return it to service
- prioritise the required work against the planned works being undertaken and will be renewed based on the priority assessment.

It has also been assumed that the existing water treatment plant abstraction consent (expires 2044) and discharge consent (expires 2026) will be renewed with the existing or similar conditions.

Wastewater

When a new water asset is constructed, a number of assumptions are made about what maintenance will be required, the expected life of the asset and when it will need to be replaced or renewed.

As the wastewater asset is used over the years, its condition and performance is monitored to ensure that the asset is replaced at the most cost effective time. To help in this assessment Council:

- uses asset age information to identify assets for more detailed assessment
- monitors the performance of assets to help identify where there might be issues
- physically inspects a sample of assets or uses in-pipe CCTV to check condition
- uses a complex model to predict current and future wastewater flows and asset requirements.

The asset condition and performance information is used to develop the most cost effective timing for maintenance and renewal programmes.

The majority of Council's reticulated infrastructure was built prior to 1950, these pipes have a life of between 60 and 100 years and therefore will require replacement within the next 40 years. The most significant year for forecast wastewater renewals is 2045.

However, this is based on predicted deterioration of assets. Over time physical inspections and other information will be used to ensure that renewals are not undertaken either too soon or left too late.

Confidence level assessments for maintenance and renewal forecast expenditure for water assets have been graded using the criteria of the International Infrastructure Management Manual 2011.

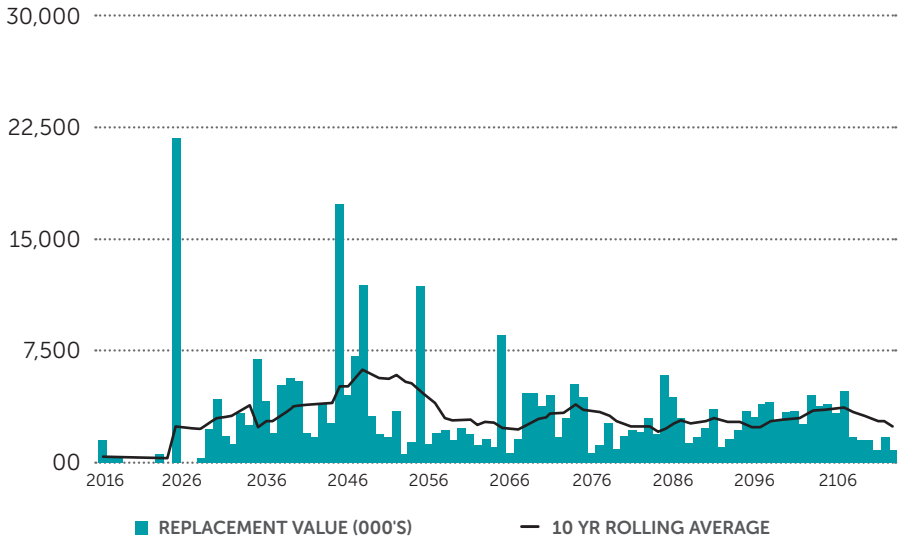
Renewal forecasts for the first ten years are based on current condition understanding, where condition assessment information is not available; industry life expectancy curves have been used.

Type of forecast	Reason	Confidence level		
		Yrs 1-3	Yrs 4-10	Yrs 10+
Maintenance	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Reliable	Uncertain	Uncertain
Renewal	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Highly reliable	Reliable	Uncertain

Long term forecasts for plant renewals are based on limited asset information.

Renewal prioritisation is carried out utilising criticality analysis. Assets which are critical to enable the operation of the activity such as interceptors and plant assets are renewed before failure. Assets that are less critical such as reticulation servicing several houses are left to run-to-failure and are renewed once they have failed.

FIGURE 53: WASTEWATER PIPES – LONG-TERM RENEWAL FORECASTS



Occasionally an asset will fail prior to its expected end of life, when this occurs we either:

- carry out reactive maintenance to immediately return it to service
- it is prioritised against the planned programme and renewed accordingly.

The most significant renewal planned in the first ten years is the renewal of our wastewater discharge consent for the disposal of treated effluent to the Waikato River from our wastewater treatment plant. Commencing in 2023/24, the resource consent is expected to take three years to be approved at an estimated cost of $1.8 million. This consenting process may require changes to be made to how Council treats and discharges wastewater.

It has also been assumed that the existing wastewater treatment plant discharge consent (expires 2027) will be renewed with the existing conditions.

Stormwater

When a new stormwater asset is constructed, a number of assumptions are made about what maintenance will be required, the expected life of the asset and when it will need to be replaced or renewed.

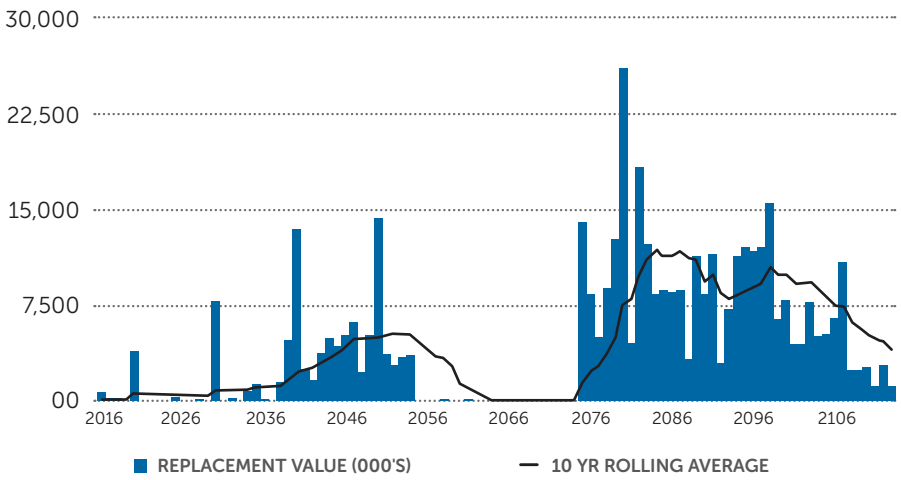
As the stormwater asset is used over the years, its condition and performance is monitored to ensure that the asset is replaced at the most cost effective time. To help in this assessment Council:

- uses asset age information to identify assets for more detailed assessment
- monitors the performance of assets to help identify where there might be issues
- uses a complex stormwater model to predict current and future flows and asset requirements
- uses asset condition and performance information to develop maintenance and renewal programmes to ensure expenditure on assets is done at the most cost effective time.

It has also been assumed that the existing stormwater discharge consent will be renewed when it expires with similar conditions.

Renewal forecasts are based on current condition understanding, where condition assessment information is not available; industry life expectancy curves have been used. Condition assessments will continue

FIGURE 54: STORMWATER PIPES – LONG-TERM RENEWAL FORECASTS



to be carried out, which may affect the renewal programmes in the next three years, prior to re-forecasting of the 2018/28 10-Year Plan.

Confidence level assessments for maintenance and renewal forecast expenditure for water assets have been graded using the criteria of the International Infrastructure Management Manual 2011

Transport

The maintenance and operation of the transport network is undertaken by Council's Infrastructure Alliance.

Type of forecast	Reason	Confidence level		
		Yrs 1-3	Yrs 4-10	Yrs 10+
Maintenance and operating	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Reliable	Uncertain	Uncertain
Renewal	Expenditure has been derived from a combination of actual and extrapolated data which is based on assumptions	Highly reliable	Reliable	Uncertain

When a new transport asset is constructed, a number of assumptions are made about what maintenance will be required, the expected life of the asset and when it will need to be replaced or renewed.

As the transport asset is used over the years, its condition and performance is monitored to ensure that the asset is replaced at the most cost effective time. To help in this assessment Council:

- uses asset age information to identify assets for more detailed assessment
- monitors the performance of assets to help identify where there might be issues
- undertakes physical inspection and technical condition testing of assets
- use customer complaints to identify asset failures
- uses the Waikato Regional Traffic Model to predict future traffic demand, levels of service and asset improvement requirements

uses asset condition and performance information to develop maintenance and renewal programmes to ensure expenditure on assets is done at the most cost effective time. The Road Assessment

and Maintenance Management (RAMM) database is used to hold and manage the transport network asset information.

As part of a maturity assessment in 2013 the asset data held in RAMM was considered to be reasonably reliable and was given a score of intermediate. There are good processes in place for maintaining the data held in RAMM.

Parks and Green Spaces

When a new park or garden asset is constructed, a number of assumptions are made about what maintenance will be required, and when it will need to be replaced or renewed.

Appendix 2 includes a list of indicative expected lives that have been used for different park and garden asset types and as a basis for developing the projected renewal needs.

As the asset is used over the years its condition is monitored to ensure that the asset is replaced at the most cost effective time. Decisions on the priority of replacements and renewals of assets are identified mainly on the basis of:

- condition assessment for minor assets
- engineers' reports on significant assets as well as frequent condition assessments

Better information on the condition and performance of assets in recent years has allowed for more robust renewal forecasts to be prepared. This information has been used in developing the forecasts in the Parks and Open Spaces asset management plan (AMP), Hamilton Gardens AMP and subsequent 2015-25 10-Year Plan budgets.

Renewal programmes are prepared based on asset condition and performance information. Assets that are linked, either physically or through function may be considered for renewal at the same time to ensure a coordinated and cost efficient approach. Alternatively planned maintenance of the linked assets are planned to coincide with the capital renewal project to minimise disruption to service and costs of doing the work. The triggers for renewal of assets differ depending on the asset type. Most assets are replaced or repaired prior to failure, as a failed asset no longer delivers on levels of service.

Occasionally an asset will fail prior to its expected end of life, when this occurs Council will either:

- carry out reactive maintenance to immediately return it to service or
- prioritise the required work against the planned works being undertaken and renew it based on the priority assessment.

Community and event facilities

Council owns and maintains significant building infrastructure to deliver its community and events services to the community. These buildings range in age and use.

Both asset condition and performance information is used to determine when a renewal is required for the facility.

Appendix 2 is a list of indicative expected lives that have been used for community and event facilities and other types of assets. These are used as a basis for developing the projected renewal needs.

As the asset is used over the years its condition is monitored to ensure that the asset is replaced at the most cost effective time. Decisions on the priority of replacements and renewals of assets are identified mainly on the basis of:

- periodic reviews of asset condition
- feedback from users on appropriateness of venues and building infrastructure for activities
- need for upgrades to increase or maintain revenue from users.

APPENDIX 5

ASSUMPTIONS FOR GROWTH IN DEMAND

Water

Infrastructure that is required to provide for growth is anticipated through analysing a combination of:

- population projections
- hydrological network and process modelling
- capacity reviews at the treatment plant
- network requirements which have been analysed and solutions identified through integrated catchment management plants
- strategic network and treatment plant requirements and solutions which have been analysed and identified through our master plans
- engagement with central government, regional council and neighbouring district council's on future infrastructure requirements
- developing integrated catchment management plans (ICPs) which will identify issues and propose best practicable solutions for growth on a catchment basis.

Key water infrastructure assets that are anticipated to provide for growth include:

- network extensions for growth cells in Rototuna, Rotokauri, Peacocke, Ruakura, and Te Rapa North
- capacity upgrades of our water treatment plant and augmentation of treatment in the future
- new reservoirs to support growth
- specific network capacity improvements within the localised pipe network
- integration of new vested infrastructure into our networks.

More detail on specific projects by growth cell is provided in the sections on growth cells and in Appendix 1.

Wastewater

Planning for wastewater infrastructure assets to provide for new growth in the city has assumed that:

- new areas of the city will be serviced through the main reticulated network and existing treatment plant rather than standalone wastewater package plants
- wastewater assets from new development will be added to the existing reticulated network resulting in necessary interceptor and trunk extensions for growth cells in Rototuna, Rotokauri, Peacocke, Ruakura, and Te Rapa North over the 30-year period

- capacity upgrades of our water treatment plant will be required to accommodate new developments
- there will be a need to increase the capacity of the existing network resulting in the need for large inline storage tanks.

Projected population and resulting wastewater volumes have been based on Council's growth model using population projections prepared by National Institute of Demographic and Economic Analysis (University of Waikato).

No allowance has been made for new wet industry in the city as these have unique requirements that are not known until a specific proposal is put forward for consideration.

More detail on specific projects by growth cell is provided in the sections on growth cells and in Appendix 1.

Stormwater

Catchment management plans are being developed for each of the city's stormwater catchments to make sure stormwater infrastructure is planned, developed and managed in the most efficient way for the whole catchment.

There are different options for dealing with stormwater and the most efficient approach depends on the specific catchment. Determining the best approach for stormwater management and required infrastructure is determined through each integrated catchment management plan.

Council has consent from Waikato Regional Council for its stormwater discharges into the Waikato River. This consent is for the urban catchments within Hamilton and authorises the discharge of stormwater from 'existing' developed areas. Any new discharges will only be approved if they are supported by an approved catchment management plan.

The purpose of these plans in relation to stormwater is to:

1. provide guidance to developers and regulatory bodies on how stormwater from new developments will be managed and integrated with other water services and proposed future land uses.
2. minimise the need for stormwater treatment and detention devices.
3. propose opportunities for the reuse of stormwater to reduce water demand.
4. minimise stormwater and the effects of urbanisation on river and streams.
5. lessen flood hazards on private property
6. involve other stakeholders (such as tangata whenua, recreational and local interest groups) who may wish to contribute to the management of the catchment's waterbodies.

Each catchment management plan will provide best practicable options for stormwater management within each catchment area.

Transport

We propose to address growth in our city through prudent forward planning, only providing infrastructure if and when it is needed, and through managing the demand by encouraging alternative modes of transport.

Transportation demand results from the need for people and goods to move around and through the city. Key influences include population growth, land use patterns, density and use of alternative transport options.

The services we will provide include:

- influencing and managing the transportation aspects of subdivision and land use development
- encouraging alternative travel choices, so that people can choose to walk or cycle rather than drive cars
- encouraging the development and use of public transport systems
- planning ahead to ensure that transport corridors are in place for new growth and that the existing roads and facilities have the capacity for our increasing population
- constructing major new transport corridors (such as the Hamilton Ring Road) and improving the roads we have
- providing more bus and high occupancy vehicle priority where appropriate.

Planning for transport infrastructure assets to provide for new growth in the city has assumed that:

- new areas of the city will be serviced through the existing arterial and collector network
- transport assets from new development in Rototuna, Rotokauri, Peacocke, Ruakura, and Te Rapa North will be added to the existing network resulting in necessary capacity and safety improvements to arterial/collector link roads
- the growth forecasts and assumed settlement pattern provide uneven demand growth on the network
- the location of residential growth within the city will influence the way that the residents access jobs, education and other daily needs
- the freight movement are expected to increase over the next 10 years
- energy costs are expected to continue to increase in the future meaning that people may start to find alternative modes of travel or reduce their travel
- with a higher importance being put on healthy lifestyle there is an increase in demand for walking and cycling facilities.

Projected population, and resulting traffic volumes, have been based on Council's growth model using population projections prepared by National Institute of Demographic and Economic Analysis (University of Waikato) and the Waikato Regional Traffic Model (WRTM).

More detail on specific projects by growth cell is provided in the sections on growth cells and in Appendix 1.

Parks and Green Spaces

Infrastructure required to provide for growth is anticipated through analysing a combination of:

- population projections
- current and future trends for organised sport
- capacity review of sports fields.

Key open space infrastructure assets that are anticipated to provide for growth include:

- Purchase of land for future reserves identified in structure plans and committed to in past consents. In developing the Infrastructure Strategy it has been assumed Council will purchase and develop future parks.
- New destination playgrounds and toilets in the growth cells of Rototuna, Rotokauri, Peacocke, and Ruakura over the next 30 years.
- Development of Rototuna, Mangaiti, Rototuna West and Rotokauri sports parks.
- Development of Te Manatu park into a passive park.

Community and event facilities

Councils community and event infrastructure provides services to both Hamilton and surrounding areas.

Infrastructure required to provide for growth is anticipated through analysing a combination of:

- population projections
- current and future trends for passive and active recreation and organised sport
- commissioned research and studies that assess future demand for services and infrastructure.

Much of the current community and event infrastructure is adequate to meet the needs of a larger population. However over the period of the Infrastructure Strategy, it is known that increases in capacity will be required to meet demands of growth for:

- aquatic facilities
- library services.