



One Plan: Auckland Regional Infrastructure Inventory

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Executive Summary

This One Plan: Regional Infrastructure Inventory provides information on Auckland's regionally significant capital infrastructure projects, current and planned, over the next 30 years. The inventory covers six main asset classes – transport, water, energy, telecommunications, open space and social and cultural infrastructure. It is a snapshot of the current status of regional infrastructure projects and is designed to assist future infrastructure planning and decision-making.

The infrastructure inventory initiates an integrated and cross-sector approach to infrastructure planning. Information has been provided by, and developed in cooperation with, all relevant governing bodies and major infrastructure providers. The inventory will assist central government in its development of a National Infrastructure Plan by providing a single information source of Auckland capital projects.

As a stock-take of current and proposed capital work projects, the inventory does not attempt to prioritise, assess or evaluate projects. As a regional document, individual projects have been required to demonstrate regional impact, so many important local projects featuring in various district and city council planning documents are not included. Due to commercial sensitivities, some critical infrastructure projects either do not feature or do not disclose full information. While some projects are nearing completion, construction on others is unlikely to commence for over a decade and several may never proceed at all. This inventory is a first step towards developing an integrated infrastructure plan for the region, not an end in itself.

The large number of participating organisations illustrates, however, the need to enhance relationships within and across infrastructure sectors and to coordinate planning. One of the potential benefits of any subsequent regional infrastructure plan, as well as the National Infrastructure Plan, will be to prioritise projects

across, not just within, different infrastructure sectors.

Several high-level infrastructure issues currently affecting the optimal delivery of regional infrastructure services are described. As identified, the challenge will be to take a longer term view of infrastructure, improve implementation of regional plans and objectives and enhance alignment and integration across and through all the infrastructure sectors.

These issues have arisen over the course of decades and reflect the geographical, social and economic characteristics of the Auckland region, together with decision-making at the national and regional level. Resolving them is not likely to be achievable in the short term, but international experience shows that it is not impossible. Other city-regions, many with greater environmental and population pressures than Auckland, have worked successfully to overcome the challenges they have faced, providing models from which Auckland can learn.

It is envisaged that a proposed regional spatial plan will be a precursor to the fully developed regional infrastructure plan and it is likely that the links between these two important pieces of work will mean that they should be developed iteratively and in tandem. Other plans that have important spatial and infrastructure elements should follow and align with these processes, for example, economic development, social and environmental plans.

As a living document, this inventory recognises that infrastructure planning and development in Auckland never ceases. With the establishment of the Auckland Council in late 2010, a new era in regional infrastructure planning will commence and it is anticipated that this document will assist the new entity in making Auckland an even better place to live.

Introduction

Māku anō hei hanga i tōku nei whare,
Ko ngā poupou he mahoe, he patete,
Ko te tāhuhu he hīnau
Me whakatupu ki te hua o te rengarenga
Me whakapakiri ki te hua o te kawariki

And I will build my house
And the pillars will be made of mahoe and patete
The ridge beam of hinau
It shall grow and blossom like that of the rengarenga
And be strong and flourish like the kawariki¹

Defining infrastructure

Nationally, infrastructure is defined as “fixed long-lived structures that facilitate the production of goods and services, both physical and institutional”².

Broadly, infrastructure can be defined as a system of services, networks and facilities that support people, businesses and communities, including assets and services such as roads and hospitals.

Much debate has occurred around the definition and complex nature of infrastructure. For the purposes of this inventory, infrastructure will include all known, regionally significant, capital expenditure (capex) projects, ie ‘hard infrastructure’. Due to difficulties compiling information from multiple sources, the capital projects within this inventory have not yet been further defined by type of capex funding, ie growth, levels of service or renewals. In addition, information about services and ‘soft’ or institutional infrastructure are beyond the scope of this document and have not been captured except in the approach taken to social and cultural infrastructure.

Infrastructure influences our everyday life. Without it Aucklanders cannot maintain a good quality of life, yet if it is not properly planned and delivered it may work to undermine the very values it is intended to enhance. The demands of global and national competition make it essential that, economic, social, environmental, land use and infrastructure plans are brought together – the overarching ambition of the One Plan framework, and one of the drivers for establishing the new Auckland Council.

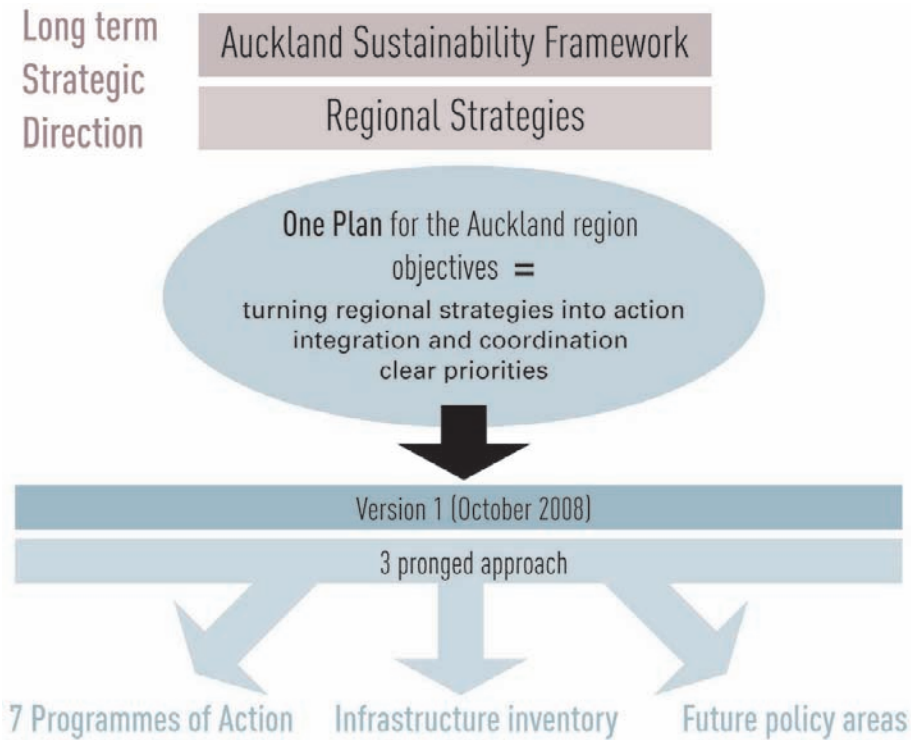
Following decades of comparatively low spending, the region now requires a major increase in infrastructure investment, both to redress past underinvestment and to provide for and facilitate future growth. A number of strategies have been developed to address these issues and plan for the future, including the Regional Growth Strategy (1999) and the Auckland Sustainability Framework (2007).

The Auckland Sustainability Framework (ASF) provides a

¹ TE ARANGA Māori Cultural Landscape Strategy, April 2008 – A tongi of King Tawhiao, the second Māori King, and reflects his vision in the retention and sustainability of his mana and in a particular time of great despair amongst his Iwi. He relates the building of a house, to the building of a steadfast nation. The pillars and roof are made of different types of rākau: the mahoe, patete, and hinau when united together will nurture and flourish.

² National Infrastructure Unit, Treasury.

Introduction



long-term and integrated approach to regional planning. The framework is intended to create a shared long-term view of what is required to make the region more sustainable, with guidance to help decision-makers achieve its goals and objectives as well as identify potential synergies or trade-offs. The ASF sets out in aspirational goals what sustainability means for the region. The fundamental concept of sustainability underpins One Plan for the Auckland region's vision to meet the long-term needs of the region.

One Plan version 1 aims to improve implementation of the region's strategies and bring a more co-ordinated and integrated approach to delivery of significant investments across the region, particularly infrastructure investments. The Plan was endorsed by the Regional Sustainable Development Forum (RSDF) on 10 October 2008 and adopted by the Auckland Regional Council (ARC) on 28 October 2008. One Plan version 1 follows a 3-pronged approach:

1. Seven programmes of action
2. Regional infrastructure plan commencing with the development of an infrastructure inventory
3. Future priority areas

The second prong of One Plan is to progress an infrastructure inventory to provide the first step towards a comprehensive regional infrastructure plan. The development of this infrastructure inventory has occurred amidst a time of significant change for local government in Auckland. In March 2009, the government announced the establishment of the new Auckland Council, a unitary authority for the entire Auckland region, by 1 November 2010. It is anticipated that the information contained in this inventory will remain valid through and beyond the governance transition and will assist with processes of improving decision-making around the region's critical infrastructure.

Why do an inventory

The purpose of this regional infrastructure inventory is to:

- Provide a stock-take of current and proposed regional infrastructure projects.
 - Provide a platform that will inform and guide future regional infrastructure decision-making and prioritisation processes.
-

At a national level, the government has identified infrastructure as a priority. A Minister for Infrastructure has been appointed and New Zealand's first National Infrastructure Plan will be developed in early 2010, under the guidance of the Infrastructure Advisory Board. This regional infrastructure inventory will provide information for the national plan.

Infrastructure is supported by complex arrangements between central and local government and the private sector. As a consequence, fragmentation has occurred and is outlined as a key issue in a number of regional strategies, review processes and in independent research³. Fragmentation affects both the planning and timely delivery of infrastructure in the Auckland region. It occurs at multiple levels of government and public and private sector agencies, all of which have different processes, systems, information baselines and differing priorities.

Infrastructure agencies, business leaders and the wider community have through various consultation processes called for greater certainty in planning for the region's future growth. This inventory is an initial attempt to overcome some of the difficulties caused by fragmentation across the infrastructure sectors by providing a common, comprehensive and up-to-date source of information. As a stock-take of current knowledge and understanding on regional infrastructure projects, it takes the opportunity to consolidate existing regionally significant infrastructure projects in one place. The establishment of the new Auckland Council provides a unique opportunity to further advance this work through the design and delivery of an integrated spatial and infrastructure planning framework.

³ See for example Metro International Report (2006), Growing Smarter: an evaluation of the ARGS (2007), NZCID Policy Priorities for Advancing Economic Infrastructure Development in NZ (2008).



Regional Infrastructure Inventory

The Regional Infrastructure Inventory covers four main aspects:

- Introduces Auckland's role and function and connectivity with New Zealand.
- Places regional infrastructure within the wider national network of infrastructure.
- Summarises cross-sector challenges facing infrastructure planning in Auckland.
- Presents the regional infrastructure inventory tables and key information under six infrastructure asset categories (transport, water, energy, telecommunications, open space, social and cultural).

Role and function of the Auckland region and its connectivity with New Zealand

Since it was established, Auckland's population growth rate and demand for infrastructure has outpaced that of the rest of the country. It was not until the 1990s that central government recognised Auckland's role in New Zealand's economic development and provided additional funding for transport. Recent studies confirm that certain infrastructure developments have contributed positively to New Zealand's economic development⁴. The challenge for now and the future is to ensure that Auckland's infrastructure investments are making their maximum possible contribution to New Zealand's economic development.

Auckland, with its large concentration of people and businesses, is a key player in the national economy and has a close relationship to the rest of New Zealand. In addition, Auckland's economic performance affects national economic performance. Auckland contributes slightly more to government revenue (35%) than its share of national population (33%), which is typical of major metropolitan areas in other OECD countries⁵.

Auckland supports industry clusters in manufacturing and technology, the marine and creative industries, and information and communications technology (ICT). It provides specialised business, distribution and education services and acts as an international gateway. Auckland is also the country's largest domestic market and is a net importer of goods and services from the rest of the country⁶.

The Auckland economy is relatively large and comprehensive in the New Zealand context and has many of the characteristics which one would expect to see in a successful regional economy⁷:

- A major national gateway.
- A commercial hub.
- A key education centre.

Major gateway

The region is the major gateway to and from New Zealand because of its size and scale, its ports, transport and storage functions, and the importance of immigrants as a proportion of its population. About three-quarters of New Zealand's imports and 40% of exports by value pass through either the Ports of Auckland or Auckland International Airport. 70% of all international visitors to New Zealand arrive at and depart from Auckland International Airport⁸.

Commercial hub

Despite a large number of small firms in the region, Auckland is also home to two-thirds of the country's top 200 companies and 35% of its firms overall. In this sense, Auckland is New Zealand's commercial hub⁹.

Key educational centre

Auckland dominates the New Zealand education industry. Approximately one third of the total national education industry is located within the region, and a number of regional universities and tertiary institutes have campuses or satellite campuses here (unique in the New Zealand context)¹⁰. In addition, significant facilities for innovation and entrepreneurship exist with tertiary, research, major Crown research institutes, and other organisations all operating in the region.

Auckland can use its size, its role as New Zealand's commercial hub, gateway to the world and a key education centre to spearhead New Zealand's global economic engagement and lift its own productivity performance.

⁴ Grimes, A. (2008). The Role of Infrastructure in Developing New Zealand's Economy, Motu Economic and Public Policy Research and University of Waikato.

⁵ Royal Commission on Auckland Governance, 2009.

⁶ Ibid.

⁷ Metropolitan Auckland Project: Background Paper, Ascari, 2006.

⁸ Metropolitan Auckland Project: Background Paper, Ascari, 2006.

⁹ Ibid.

¹⁰ Royal Commission on Auckland Governance, 2009.

National network infrastructure

The list of projects presented later in this section is the most comprehensive developed for a number of years. While it focuses on Auckland regional infrastructure, this inventory and Auckland's infrastructure planning more generally, recognise the importance of Auckland's role within New Zealand's wider infrastructure network.

It is expected that wider national infrastructure will be incorporated into the National Infrastructure Plan, scheduled for publication in early 2010, and in other public documents.

Infrastructure planning in Auckland must consider Auckland's strategic position within this network and how investments will most benefit New Zealand and the region. Auckland is part of much larger, interdependent systems which rely upon each other to function smoothly. Any failure to maintain and support national networks will compromise both the regional and national economy and living standards.

As the single largest and most important market in New Zealand, Auckland supplies, purchases, finances and conveys goods and services which sustain the national economy. Auckland's hospitals and universities are national centres of expertise and its airport the gateway to the nation and world. Auckland does, however, depend upon New Zealand to supply those goods and services it cannot provide for itself.

In no area is the interdependence of Auckland and New Zealand more evident than in energy. Almost all of Auckland's energy requirements are completely dependent upon resources imported from outside the region: fuel oil is piped in from Northland, electricity transmitted from the Waikato and South Island and natural gas conveyed from Taranaki. These regions, in return, have come to depend on income generated from supplying Auckland.

Transport networks, including the state highway and rail networks need to be given appropriate priority and the national strategic importance of Auckland International Airport recognised. Investment in the ports and their role in New Zealand's import, export and distribution system must also be taken into consideration.

In developing telecommunications infrastructure, links with the entire country must be enhanced, as well as those with international partners. In determining social and cultural infrastructure, investments need to recognise benefits to all New Zealanders are equally as important as benefits to Aucklanders. In all infrastructure decisions, local, regional and national, wider infrastructure planning in Auckland needs to understand the importance of the wider connected infrastructure systems and integration.

Challenges for regional infrastructure

Although Auckland shares many challenges with other regions in New Zealand, there are several of scale, significance and persistence that impact especially heavily on this region. This section summarises the major challenges impacting infrastructure development in Auckland. Emphasis here is on identifying the leading cross-sector, systems-based – not sector-specific – challenges. These sector-specific issues are identified further in their respective sections of the inventory.

The major challenges identified below are grouped under the following headings:

- Taking a long-term planning approach
- Improving implementation of infrastructure
- Achieving greater alignment and integration

By addressing these challenges it will help the region to achieve better economic, environmental, social and cultural outcomes.

Taking a long-term planning approach

Despite best endeavours through a number of collaborative regional strategic planning exercises there has been a lack of long-term, strategic planning for infrastructure development in the region. Infrastructure planning in the Auckland region has at times in the past failed to accurately anticipate future use of the infrastructure itself, and the wider impacts of infrastructure investment.

It is essential that planning for infrastructure takes a long-term focus. This means planning for greater resilience to global changes such as climate change and rising energy costs. These external forces have the potential to dramatically and fundamentally alter the nature of infrastructure requirements into the future, and the nature of costs and benefits pertaining to individual projects.

The economic effects of certain types of new infrastructure may have very long-lived, dynamic impacts and the pay-offs to major infrastructure investments must therefore be considered over a

very long time horizon¹¹. Agglomeration benefits from infrastructure projects are unlikely to be well identified within traditional cost: benefit analyses. Such analyses also tend to omit future benefits from unimagined opportunities that may arise in association with new infrastructure (eg unexpected uses of broadband and electricity). The discount rates applied to long-term costs and benefits of projects should be critically examined to ensure uncertainty about future benefits (in particular) does not lead to dismissing them outright.

There is now more emphasis on making more efficient use of existing infrastructure which achieve positive environmental outcomes as well as postpone or avoid capital costs. Demand management measures can be used to successfully delay infrastructure investment (eg water and transport). There should be continued efforts to manage demand for services through urban design, conservation, education and beneficial re-use of resources such as water and waste products.

Improving implementation of infrastructure

It is generally recognised that the major issues affecting Auckland's infrastructure development today arise from implementation. Obtaining the necessary funding to cope with a growing city has been challenging and past under-investment has made implementation even more difficult. Even when funding is sourced there can be challenges such as skill shortages as experienced in 2007-08.

Affordability of new infrastructure has always been a challenge for cities and countries in terms of what is necessary and desirable in order to respond to growth pressures and pursue a step change in environmental service levels and economic performance. This means that measures to help prioritise, and select the infrastructure that will deliver the greatest benefits and value for money is vital. One part of the response to this challenge is a growing recognition internationally of the need for new and innovative ways of funding and paying for infrastructure.

¹¹ Royal Commission on Auckland Governance, 2009.

Challenges for regional infrastructure

Auckland has a legacy of fragmented under-investment in infrastructure and has experienced infrastructure failures in recent years (eg electricity black outs). The region's infrastructure has not kept pace with its rapid population growth and critical thresholds were reached in the 1990s for public transport and transport networks, water supply, sewage treatment and disposal, refuse disposal and port facilities. Underinvestment remains an issue today and significant funding gaps have been identified in many critical infrastructure sectors.

Incremental additions to infrastructure projects to increase capacity have often been required within a short timeframe and at significant cost, which suggests infrastructure decisions in the region have often underestimated future demand more than they have overestimated it.¹² One of the primary challenges for Auckland infrastructure planning in the future is to rethink how regionally significant infrastructure is best provided at a regional and local level.

There is a risk with the economy currently in recession, that there will be a further contraction in infrastructure spending. Short-term investment reductions will potentially lead to a requirement to spend more in future years as infrastructure deteriorates and is unable to meet capacity. Given the linkage to the wider economy, any reduction in spending now will further constrain economic growth and recovery, with consequential impacts on the Auckland firms involved in infrastructure project planning, design and delivery.

Finally, adequate funding for infrastructure will require an associated improvement in the level of skills. Engineers, builders, doctors, managers and many other skilled workers are all essential to the provision of infrastructure services. There is currently a shortage of such workers in Auckland, despite the recession, and a strong likelihood many will leave as employment conditions in Australia improve. In the year to February 2009 more than 1100 building tradespeople left New Zealand,

equating to around 15 per cent of apprenticeships.¹³ Even allowing for inward migration, this depletion of the skill base is unsustainable if regional infrastructure is to improve.

Achieving greater alignment and integration

Different infrastructure sectors have not always successfully incorporated the thinking and plans of other sectors. At a practical level this lack of integration is expressed through the general concern that roads and footpaths are being excavated multiple times to lay and maintain the electricity, gas, water and fibre networks. At a more theoretical level, the concern is expressed through a need for a deeper understanding of systems and the inter-relationships between infrastructure, environment, economy, social well-being and land use patterns. An example is achieving a better understanding of the impacts of rising fuel costs (energy) on the transport system.

The lack of long-term strategic planning has been exacerbated by complex arrangements for governance, infrastructure ownership, funding and control. Major infrastructure projects in the region have required collaborative efforts between local and central government agencies through formal and informal mechanisms.

Experience reveals the complexity involved with addressing disparate evaluation methods, multiple funding sources and approval processes and the changes required as government funding contributions to major projects are reviewed or even withdrawn. The new model proposed for Auckland governance is designed to overcome some, but not all of this complexity. Even with a single Auckland Council there will still be a number of central government and private sector stakeholders with an interest in the region's future infrastructure planning and delivery. It is important to establish processes between the new Auckland local government organisation and other agencies to align and progress infrastructure plans.

¹² For example the Auckland Harbour Bridge clip-on lanes installed in 1969, 10 years after the bridge was completed. Refer also New Zealand Council for Infrastructure Development (NZCID), *Priorities for Advancing Economic Infrastructure Development in New Zealand*, 2008.

¹³ Auckland Regional Council, *Industry Snapshot for the Auckland Region: the Construction Sector*, 2009.

Infrastructure inventory sectors

One Plan version 1 included a partial inventory of committed and anticipated transport, water and energy projects. This inventory expands on the earlier work and contains up-to-date information on regionally significant capital infrastructure projects, either planned or underway, in the Auckland region. The inventory is divided into six categories corresponding to the various infrastructure sectors. The categories are:

- Transport
- Water
- Energy
- Telecommunications
- Open space
- Social and cultural.

Each section begins with a snapshot of current infrastructure assets in the region and provides an overview of the sector, followed by a table of regionally significant projects and associated information. All sections include key issues, outcomes and key stakeholders. However, the social and cultural section is presented as commentary instead of in tabular form to reflect a broader approach that includes systems and services as well as facilities.

The information for these sectors was obtained from a range of organisations, many of which apply different methods for collecting and presenting data. It is also important to note that the following tables only contain currently known and publicly available projects.

Due to the vast number of local and regional infrastructure projects currently committed to or underway, the following broad test of regional significance, identified in One Plan version 1, has been applied to this inventory:

- Spatial – whether the project impacts on more than one geographic area (using current territorial authority boundaries).
- Temporal – whether the project impacts are long term.
- Scale – whether the project generates significant value and opportunity and impacts on the region as a whole or even nationally.

For the sake of completeness, this inventory includes all regionally significant capital works projects. However, these have not yet been further defined by type of capex funding (ie growth, level of service, renewals). The application of the broad test of regional significance means that small, local projects, such as community libraries and footpaths, are not captured. Finally, some project information is commercially sensitive, for example in the telecommunications table, so has not been included.

In all cases, costs and timeframes are provisional and reflect the best known information at the time of publication. Each funding agency reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

Transport

Transport infrastructure includes all those assets which facilitate the movement of people and goods. It includes all local roads and state highways, busways and bus stations, ferry terminals, rail lines and rail stations as well as footpaths, cycleways, tunnels, bridges, ports and airports.

The transport project table includes information on regionally significant transport infrastructure investments either planned or underway in the Auckland region. A number of local projects are progressing across the region which are not included in the inventory because they do not meet the broad test of regional significance. Projects not located within current regional boundaries have also not been included.

A unique challenge confronting the transport section of this inventory is the accurate representation of funding commitments. Because transport funding is committed to each phase of a project,¹⁴ not the project itself, it is not always possible to indicate committed funds. Moreover, as project funding is usually shared between two or more agencies, phase funding can only be finally committed once all agencies approve investment.¹⁵ To provide consistency with other infrastructure categories within this inventory and assist ease of reading, the transport table has not incorporated this layer of complexity. For full details of transport funding, refer to the National Land Transport Programme (NLTP), Regional Land Transport Programme (RLTP) and Long-Term Council Community Plans (LTCCPs).

Project information has been obtained from recognised public documents, such as LTCCPs, the RLTP 2009, the State Highway Plan 2007/08, the Rail Development Plan 2006 and the recently released NLTP. Figures have been further updated with the assistance of transport management agencies including the Auckland Regional

Transport Authority (ARTA), the New Zealand Transport Agency (NZTA) and local authorities.

Costs and timeframes are provisional and reflect the best known information at time of publication. Each agency responsible for funding reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

Strategic outcomes for transport¹⁶

- Assist economic development
- Assist safety and personal security
- Improve access and mobility
- Protect and promote public health
- Ensure environmental sustainability
- Support the Regional Growth Strategy
- Achieve economic efficiency

Key issues¹⁷

- Travel speeds and congestion
- Public transport trends
- Equity and choice
- Environmental sustainability and public health
- Global environmental impacts
- Local and regional environmental and health impacts
- Noise
- Road trauma and safety

Key stakeholders

- 8 local authorities
- Auckland Regional Transport Authority
- New Zealand Transport Agency
- Kiwirail
- Ports of Auckland
- Ministry of Transport
- Auckland International Airport

¹⁴ The National Land Transport Programme 2009 identifies five project phases: study, investigation, design, construction and property purchase.

¹⁵ Note also that the NLTP only provides an indication of funding for the following three years, whereas LTCCPs are required to take into account 10 year planning timeframes.

¹⁶ Regional Land Transport Strategy 2005.

¹⁷ Regional Land Transport Strategy 2005.

Transport

Existing transport infrastructure

The table on the right provides a snapshot of existing transport infrastructure within the Auckland region. The table is by no means exhaustive but provides an indication of existing transport infrastructure. Additionally, some regional asset information is commercially sensitive and new infrastructure is constantly under development, some project details, therefore, may not be included. Information was sourced from documents such as 2009 Long-Term Council Community Plans (LTCCPs), annual reports and asset management plans.

Transport snapshot	
Airfields	4 (1 international)
Park n Ride facilities	11
Rail stations	41
Rail track	92km
Road network	8,160km
State highway	335km
Ports	4 (2 inland)

Table of transport infrastructure projects

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
PT (Rail)	Rail electrification	KiwiRail	500				Central government funding confirmed	
PT (Rail)	Rail electric rolling stock: long-term	KiwiRail	500					
PT (Rail)	Rail rolling stock: interim	ARTA/ARC	33				ARC LTCCP 2009	
PT (Rail)	New Lynn undergrounding	KiwiRail/WCC	196				WCC LTCCP 2009 Project DART ¹⁸ \$83m (remaining)	
PT (Rail)	Onehunga rail link	KiwiRail	12				Project DART	
PT (Rail)	Newmarket (track)	KiwiRail	65				Project DART	
PT (Rail)	Manukau rail link	KiwiRail/MCC	60				\$20m MCC LTCCP 2009 Project DART	NLTP Probable ¹⁹

¹⁸ Project DART (Developing Auckland's Rail Network) is a \$600m ONTRACK/KiwiRail upgrade of the Auckland rail network. There is approximately \$216m remaining to be spent, including track upgrades at New Lynn, Onehunga, Newmarket and Manukau.

¹⁹ The NLTP assigns a priority rating to projects applying for NZTA funding. Category 1 projects are confirmed for funding, whereas Category 2 projects have no current funding approval. Category 2 projects are further separated into "probable," "possible" and "reserved," depending on the likelihood that each project will qualify for funding within the three year period of the programme.

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
PT (Rail)	Newmarket: station upgrade	ARTA/ARC/NZTA	35				\$15m ARC LTCCP 2009 (remaining)	
PT Rail	New Lynn station	ARTA/ARC/NZTA	14				ARC LTCCP 2009	NLTP Probable
PT (Rail)	Onehunga stations	ARTA/ARC/NZTA	4				ARC LTCCP 2009	NLTP Probable
PT (Rail)	Other Rail station improvements	ARTA/ARC/NZTA	44				ARC LTCCP 2009	NLTP (funding commitment varies by project)
PT (Rail)	CBD Rail Loop	KiwiRail/ARTA/ARC	1500				\$4m NLTP (investigation) ARC LTCCP 2009	
PT (Rail)	Airport-CBD rail link	KiwiRail	2600					
PT (Rail)	Avondale-Southdown line	KiwiRail	1000					
PT (Bus)	Central Connector	ACC	46				\$23m LTCCP 2009 (remaining)	
PT (Bus)	Northern Busway (to Constellation Drive)	NZTA/NSCC/ARTA/ARC	196				\$6m NLTP 2009 (remaining)	
PT (Bus)	Constellation to Albany bus priority lanes	NZTA	33					NLTP Probable
PT (Bus)	Silverdale park and ride	RDC	5					NLTP Possible
PT (Bus)	Dominion Road	ACC	84				\$7m NLTP 2009 ACC LTCCP 2009	NLTP Probable
PT (Bus)	Northern Busway (extension to Orewa)	NZTA/NSCC/RDC	800				\$74m NLTP 2009 (designation)	
PT (Ferry)	Downtown/ Birkenhead terminal upgrades	ARTA/ARC	8				ARC LTCCP 2009 NLTP 2009	

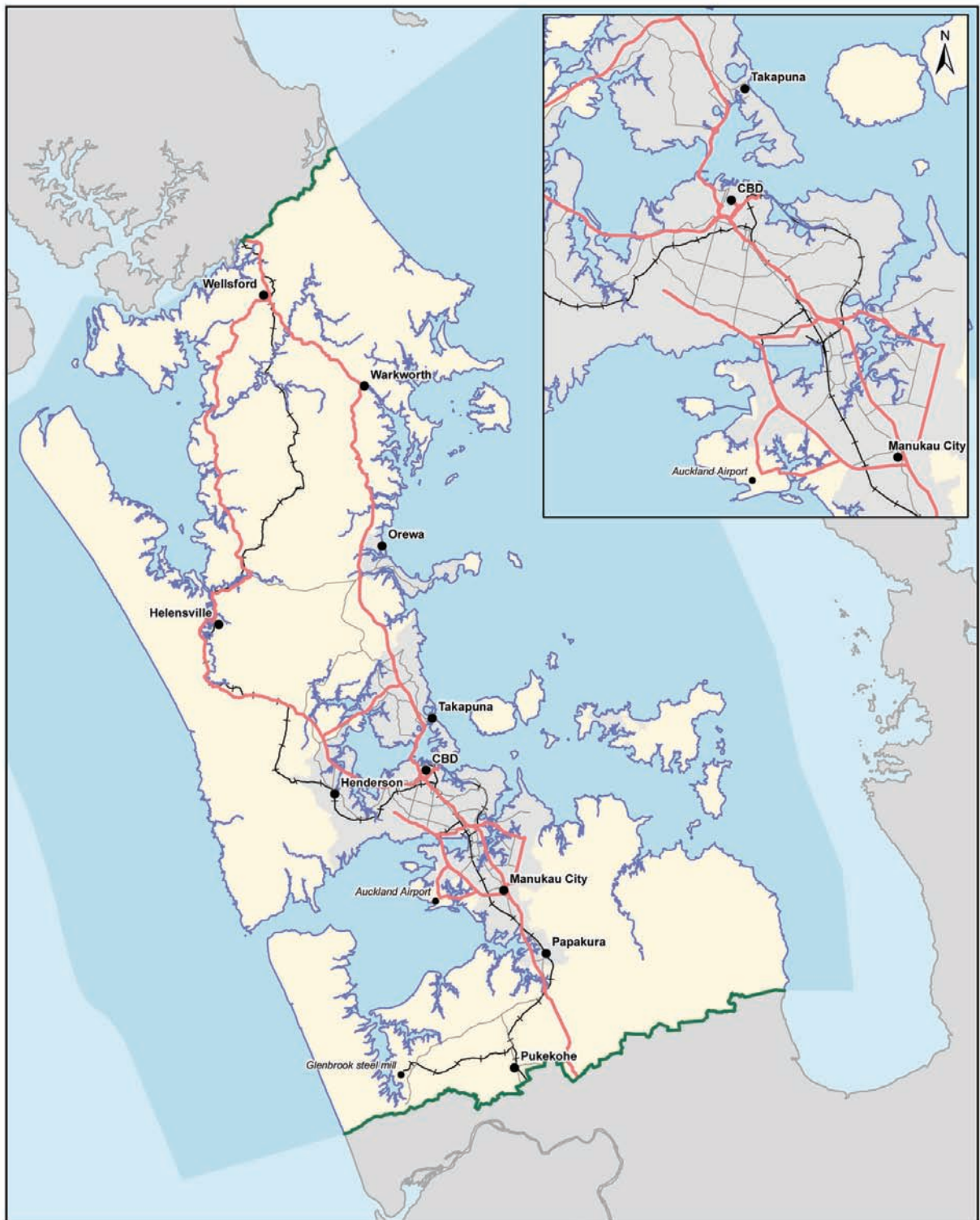
Transport

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
PT (Ferry)	Other ferry terminals and wharves	ARTA/ARC	18				ARC LTCCP	NLTP Probable
PT (Mixed)	Manukau interchange	MCC/ARTA/ARC	30				\$15m ARC LTCCP 2009 \$14m MCC LTCCP 2009	NLTP Probable
PT (Mixed)	Integrated ticketing	NZTA/ARTA/ARC	70				ARC LTCCP 2009	NLTP Probable
PT (Mixed)	New Lynn Transit Oriented Design (TOD): passenger transport interchange	WCC	33				NLTP 2009	
PT (Mixed)	Te Wero Bridge	ACC	47				LTCCP 2009	
Roads of National Significance	Victoria Park Tunnel	NZTA	430				\$406m NLTP 2009	Roads of National Significance
	SH20 Waterview (Waterview Tunnel)	NZTA	1400				\$1179m NLTP 2009	
	SH1 Puhoi to Wellsford	NZTA	2267				\$58m NLTP 2009 (property and designation)	
Roading	New Lynn TOD Stage 1	WCC	83				NLTP 2009	
Roading	Tiverton Rd / Wolverton St	ACC	14				NLTP 2009	
Roading	Auckland Harbour Bridge structural upgrade	NZTA	45				NLTP 2009	
Roading	SH16 Brigham Creek extension	NZTA	40				\$19m NLTP 2009	
Roading	SH18 Hobsonville Deviation (WRR)	NZTA	209				NLTP 2009	
Roading	SH20 Manukau Extension (WRR)	NZTA	212				NLTP 2009	
Roading	SH20 Manukau Harbour Crossing (WRR)	NZTA/MCC	233				\$136m NLTP 2009	
Roading	Northern Strategic Growth Area (local roads)	WCC	133				LTCCP 2009	

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Roading	New Lynn road projects (Memorial Dr, Hetana St, Crown Lynn Pl)	WCC	10				LTCCP 2009	
Roading	SH1 Newmarket-Greenlane auxiliary lane	NZTA	25				NLTP 2009	
Roading	SH1 Warkworth improvements	NZTA	15				\$10m NLTP 2009	
Roading	Silverdale North access	RDC	17				\$14m LTCCP 2009	\$3m
Roading	Whangaparaoa Peninsula access (PENLINK)	RDC	203					NLTP Possible
Roading	Manuroa Rd overbridge	PDC	26					NLTP Probable
Roading	Whitford arterial road upgrading	MCC	59				LTCCP 2009	NLTP Possible
Roading	Major passenger transport projects	MCC	32				LTCCP 2009	
Roading	Pukekohe Eastern Arterial	FDC	30				LTCCP 2009	NLTP Possible
Roading	Lake Road corridor	NSCC	19				\$12m LTCCP 2009-23 (\$4m spent)	\$3m
Roading	Taharoto-Wairau corridor	NSCC	25				\$15m LTCCP 2009-23 (\$5m spent)	\$6m
Roading	Flatbush to Manukau City Centre QTN	MCC	25				LTCCP 2009	
Roading	Papatoetoe Town Centre roading	MCC	21				LTCCP 2009	
Roading	Auckland Manukau Eastern Transport Initiative (AMETI)	ARTA/ACC/MCC	1,330				\$137m ACC LTCCP 2009 \$83m MCC LTCCP 2009 \$249m NZTA	\$861m NLTP Probable
Roading	Akoranga corridor	NSCC	29				\$13m LTCCP 2009-23	\$17m

Transport

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Roading	Albany roading improvements	NSCC	74				\$61m LTCCP 2009-2023	\$13m NLTP Probable
Roading	East Coast Road corridor	NSCC	32				\$16m LTCCP 2009-23	\$16m
Roading	Long Bay access	NSCC	38				\$33m LTCCP 2009-23	\$5m NLTP Possible
Roading	Mill Road upgrading	MCC	57				LTCCP 2009	NLTP Possible
Roading	Neilson Street	ACC	24				\$10m LTCCP 2009 (deferred)	
Roading	Waitemata Harbour crossing	NZTA	3,700				\$60m Route protection and designation	
Active (walkways)	Orewa	RDC	7				NLTP 2009	
Active (cycleways)	SH20 cycleways	MCC	6					NLTP Reserved
Active (cycleways)	SH16 cycleways	NZTA	15					NLTP Possible/Reserved
Active (cycleways)	SH1 / SH17 cycleways	NZTA	7					NLTP Possible/Reserved
Active (walkways)	Flatbush	MCC	36					NLTP Reserved
Airport	Auckland International Airport Northern Runway	Auckland International Airport Ltd (AIAL)	32				Stage 1 allocated AIAL 2010/2011	
Port	Ports of Auckland Fergusson North stage 2	Ports of Auckland Ltd (POAL)						
Port	Ports of Auckland terminal intensification	POAL						
Inland port	Wiri	POAL/Kiwirail	8					



Legend	
	Existing Strategic Route
	Existing Regional Arterial Route
	Rail
	Regional Boundary
	Metropolitan Area

Major existing transport infrastructure
in the Auckland region

Map Produced by GIS
Information Services
Auckland Regional Council
September 2009



Water

Water services can be divided into three categories: water supply, wastewater and stormwater. Together, these are commonly referred to as the 'three waters'. Three waters infrastructure includes the assets required for freshwater collection and reticulation, stormwater reticulation and treatment, and sewer reticulation, sewerage treatment and final disposal.

The following table includes information on regionally significant water infrastructure investments either planned or underway in the Auckland region. A number of local projects are progressing across the region which are not included in the inventory because they do not meet the broad test of regional significance. The range of projects featured in this table are sufficiently broad, however, to include all those investments that may be considered for regional assessment at a later date.

Project information has been provided by key water infrastructure providers, including Watercare and local authorities, and is ultimately sourced from public documents, such as LTCCPs, Annual Plans and Asset Management Plans.

Project costs and timeframes are provisional and reflect the best known information at time of publication. Each agency responsible for funding reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

Strategic outcomes for water²⁰

- Protect community health and safety
- Meet the current and future needs of our communities
- Recognise the importance of the natural environment to the social, cultural and economic well-being of our region
- Deliver efficient and effective services
- Support the sustainable development of the Auckland region

Key issues

- Water supply
 - Demand management
 - Climate change
 - Future supply
- Wastewater
 - Infiltration by stormwater during wet weather leading to overflows
 - Future treatment capacity
- Stormwater
 - Water quality – contaminants and sediment entering the network and receiving environments (eg harbours and streams)
 - Flood risk – volumes at peak flows
 - Adequate habitat protection and remediation of stream environments.

Key stakeholders

- 8 local authorities
- Watercare
- Metrowater
- Manukau Water
- United Water

²⁰ A Three Waters Vision 2005.

Existing water infrastructure

The table on the right provides a snapshot of existing water infrastructure within the Auckland region. The table is by no means exhaustive but provides an indication of existing water infrastructure. Additionally, some regional asset information is sensitive and new infrastructure is constantly being developed. Some project details, therefore, may not be included. Information was sourced from documents such as 2009 Long-Term Council Community Plans (LTCCPs), annual reports and asset management plans.

Water snapshot	
Dams	10
Reservoirs	70
Stormwater network	5,529km
Stormwater pumping stations	7
Water supply network (km)	8,116km
Water supply pumping stations	86
Waste water pumping stations	363
Water supply treatment plants	33
Wastewater treatment plants	7

Table of water infrastructure projects

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Water Supply	Hunua No. 1	Watercare	48				10 year Asset Management Plan (AMP) 2008	
Water Supply	Kumeu/Huapai/Riverhead future water supply	RDC	14				LTCCP 2009	
Water Supply	Water meter renewal	WCC	23				LTCCP 2009	
Water Supply	Water supply network upgrade programme	WCC	9				LTCCP 2009	
Water supply	Reticulation	RDC	49				LTCCP 2009	
Water supply	Treatment	RDC	22				LTCCP 2009	
Water supply	Kumeu/Huapai/Riverhead	RDC	14				LTCCP 2009	
Water Supply	Northern Strategic Growth Area (NorSGA) capex	WCC	9				LTCCP 2009	
Water Supply	Compliance/levels of service	Manukau Water	11				AMP 2010-2029	

Water

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Water Supply	Expansion/growth	Manukau Water	58				AMP 2010-2029	
Water Supply	Roading projects (services relocation)	Manukau Water	26				AMP 2010-2029	
Water Supply	Replacement/renewal	Manukau Water	62				AMP 2010-2029	
Water Supply	New water meter connections	NSCC	11				LTCCP 2009-2023	
Water Supply	New capital works	NSCC	50				LTCCP 2009 to 2012 committed	LTCCP 2013 to 2024 mostly uncommitted
Water supply	Renewal capital works	NSCC	96				LTCCP 2009 to 2012 committed	LTCCP 2013 to 2024 mostly uncommitted
Water Supply	Water meter renewal	NSCC	12				LTCCP 2009-2023	
Water Supply	Hunua No.4 trunk watermain project	Watercare	205				AMP 2008	
Water supply	Waikato stage 2 ²¹	Watercare						
Water Supply	New harbour crossing	Watercare	30				AMP 2008	
Water Supply	New watermain – Hunua No. 2	Watercare	32				AMP 2008	
Water Supply	Huia No. 1	Watercare	27				AMP 2008	
Water Supply	New watermain-Waitakere No. 2	Watercare	23				AMP 2008	
Water Supply	Waitakere No. 1	Watercare	10				AMP 2008	
Water Supply	New watermain – North Harbour	Watercare	11				AMP 2008	
Water Supply	Long Bay reservoir	Watercare	11				AMP 2008	
Water supply	Waikato stage 3 ²²	Watercare						

²¹ Located outside the boundaries of the Auckland region, but planned, funded and operated by Auckland's bulk water supplier, Watercare, and designed to meet Auckland demand.

²² Located outside the boundaries of the Auckland region, but planned, funded and operated by Auckland's bulk water supplier, Watercare, and designed to meet Auckland demand.

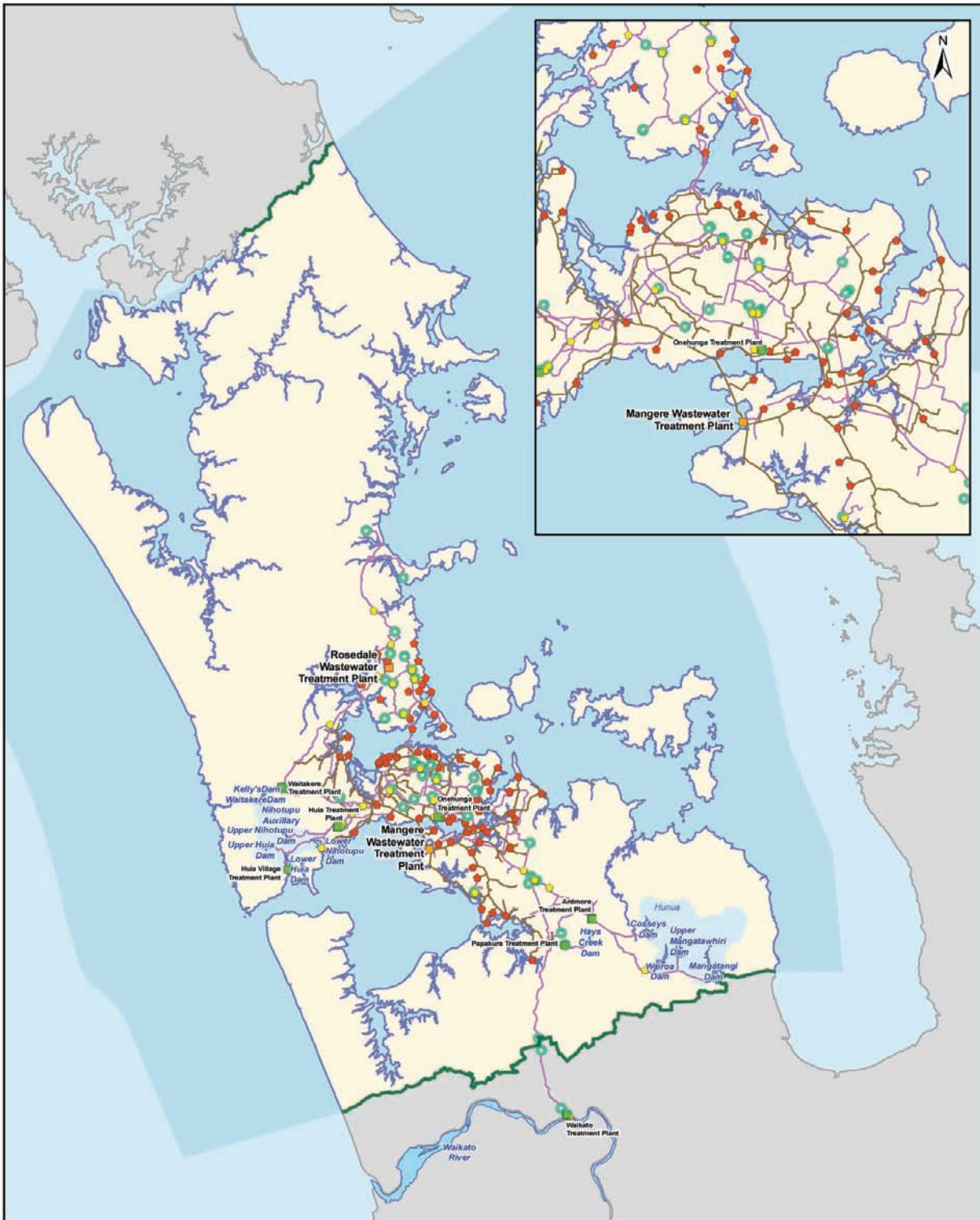
Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Water supply	Future source	Watercare						
Wastewater	Hobson Bay Tunnel	Watercare	120				AMP 2008	
Wastewater	Concourse storage tank	Watercare	22				AMP 2008	
Wastewater	North-western servicing	Watercare	25				AMP 2008	
Wastewater	Rural projects	Manukau Water	13				AMP 2010-2029	
Wastewater	Wastewater treatment plant outfall	NSCC	22				LTCCP 2009-2023	
Wastewater	Rosedale Wastewater Treatment Plant new outfall	NSCC	118				\$32m LTCCP 2009-2023	
Wastewater	Pukekohe Trunk sewer	FDC	13				LTCCP 2009	
Wastewater	Pukekohe WWTP	FDC	22				LTCCP 2009	
Wastewater	Waiuku WWTP	FDC	6				LTCCP 2009	
Wastewater	Project CARE: northern trunk sewer	NSCC	31				LTCCP 2009-2023	
Wastewater	Sewer renewals – infiltration inflow programme	WCC	23				LTCCP 2009	
Wastewater	Other wastewater renewals	WCC	15				LTCCP 2009	
Wastewater	NorSGA capex	WCC	12				LTCCP 2009	
Wastewater	Other wastewater network upgrade programme	WCC	22				LTCCP 2009	
Wastewater	Reticulation	RDC	72				LTCCP 2009	
Wastewater	Kumeu/Huapai/Riverhead system	RDC	12				LTCCP 2009	
Wastewater	Treatment	RDC	57				LTCCP 2009	
Wastewater	Muriwai treatment plant	RDC	11				LTCCP 2009	

Water

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Wastewater	Glendowie storage tanks	Watercare	20				AMP 2008	
Wastewater	Expansion/ growth	Manukau Water	129				AMP 2010-2029	
Wastewater	Kumeu/Huapai/ Waimauku/ Riverhead Wastewater Project	RDC	12				LTCCP 2009	
Wastewater	Replacement/ renewal	Manukau Water	71				AMP 2010-2029	
Wastewater	Central Interceptor	Watercare	622				AMP 2008	
Wastewater	South-western interceptor extension	Watercare	30				AMP 2008	
Wastewater	Southern interceptor duplication/replacement	Watercare	15				AMP 2008	
Wastewater	Otara wastewater catchment upgrades	Watercare	30				AMP 2008	
Wastewater	Glen Eden storage tanks	Watercare	15				AMP 2008	
Wastewater	Newmarket Gully tank	Watercare	13				AMP 2008	
Stormwater	Motions south separation	Metrowater/ ACC	6				LTCCP 2009	
Stormwater	Stanley (Ports to Twins)	ACC	25					Consent requirement
Stormwater	Stormwater projects	ACC	45				LTCCP 2009	
Stormwater	Awaruku-Long Bay wetlands	NSCC	8				LTCCP 2009-2023	
Stormwater	Whangapouri Stream	FDC	8				LTCCP 2009	
Stormwater	Stormwater network renewal programme	WCC	12				LTCCP 2009	
Stormwater	Project Twin Streams	WCC	14				LTCCP 2009	
Stormwater	Stormwater network upgrade programme	WCC	17				LTCCP 2009	
Stormwater	NorSGA capex	WCC	36				LTCCP 2009	
Stormwater	Stormwater projects	MCC	81				LTCCP 2009	

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Stormwater	Erosion and flood protection	RDC	12				LTCCP 2009	
Stormwater	Renewals	RDC	8				LTCCP 2009	
Stormwater	Reticulation	RDC	23				LTCCP 2009	
Stormwater	Treatment	RDC	6				LTCCP 2009	
Stormwater	Flat Bush water quality ponds	MCC	84				LTCCP 2009	
Stormwater	Stream rehabilitation works	NSCC	49				LTCCP 2009-2023	

Water



Legend

● Water Pumping Station	■ Bulk Water
● Wastewater Pumping Station	■ Water Source Dam
■ Water Supply Treatment Plant	— Fresh Water Pipelines
■ Wastewater Treatment Plant	— Wastewater Pipelines
● Reservoir	— Regional Boundary

Major existing water infrastructure in the Auckland region

Map Produced by GIS Information Services
Auckland Regional Council
September 2009



Energy

Energy infrastructure includes all those assets which allow for the generation, transmission and distribution of energy. It includes all electricity generation facilities (including dams, wind turbines and geothermal, gas, diesel and coal fired plants), electricity transmission and distribution networks, gas transmission pipelines, oil refining facilities and conveyance pipelines.

The following list includes information on regionally significant energy infrastructure investments either planned or underway in the Auckland region. A number of local projects are progressing across the region which are not included in the inventory, for example petrol station upgrades, because they do not meet the broad test of regional significance. Facilities which are located outside the Auckland region have also not been included, such as the Marsden Point oil refinery and various electricity generating plants.

Project information has been obtained predominantly from recognised, publicly available documents, such as asset management plans and energy provider websites. Where possible, information has been updated with the assistance of energy management agencies including Transpower, Vector and central government agencies, including the Ministry of Economic Development.

Costs and timeframes are provisional and reflect the best known information at time of publication. Each agency responsible for funding reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

Strategic outcomes for energy²³

- Assist economic development
- Secure electricity supply
- Efficient governance and regulation
- Environmental responsibility
- Energy efficiency
- Appropriate utilisation of New Zealand's energy resources

Key issues

- Security of supply
- Rising carbon emissions
- Demand management
- Damp and cold homes and buildings (by world standards)
- Dependence on transport fuels

Key stakeholders

- Ministry of Economic Development
- Ministry for the Environment
- Electricity Commission
- Commerce Commission
- Transpower
- Vector
- Counties Power
- Genesis
- Contact
- Mighty River Power
- 8 local authorities

²³ Taken from speech by Minister of Energy and Resources Gerry Brownlee on 24/02/09.

Existing energy infrastructure

The table on the right provides a snapshot of existing energy infrastructure within the Auckland region. The table is by no means exhaustive but provides an indication of existing energy infrastructure. Additionally, some regional asset information is sensitive and new infrastructure is constantly being developed. Some project details, therefore, may not be included. Information was sourced from documents such as 2009 Long-Term Council Community Plans (LTCCPs), annual reports and asset management plans.

Energy snapshot	
Energy substations	50
Overhead lines	3,100km
Transformers	8,800
Underground lines	6,100km

Table of energy infrastructure projects

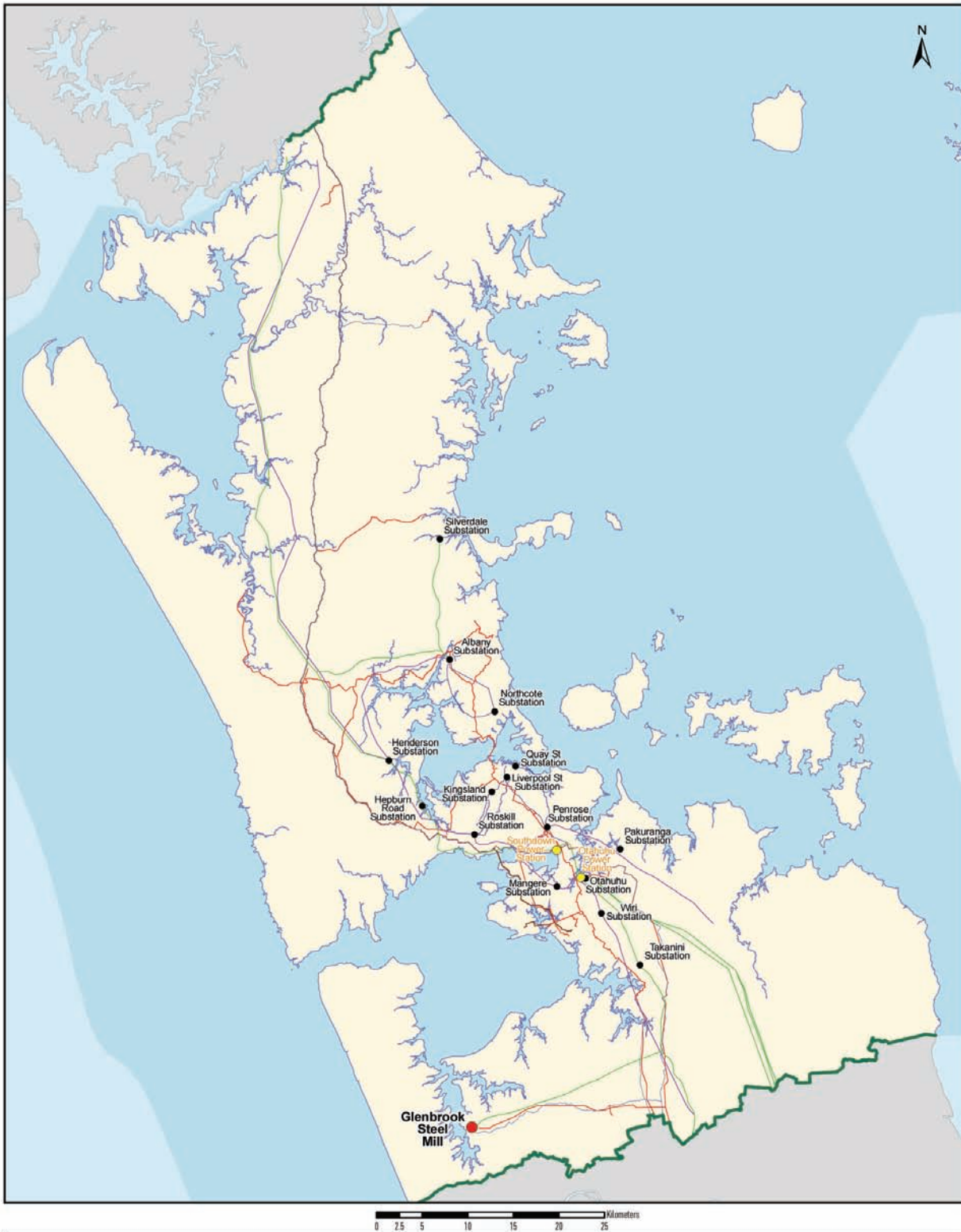
Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Distributed electricity and gas	North Island Grid Upgrade Project (NIGUP)	Transpower	683 ²⁴					
Distributed electricity and gas	Otahuhu substation diversity project	Transpower	97					
Distributed electricity and gas	200 Mvar capacitors at Otahuhu	Transpower	4					
Distributed electricity and gas	Penrose interconnecting transformer	Transpower	9					
Distributed electricity and gas	Upgrade of Otahuhu-Whakamaru C Line	Transpower	6					
Distributed electricity and gas	Auckland rail electrification	Transpower/ Ontrack	4					
Distributed electricity and gas	Increase supply capacity to Wiri	Transpower/ Vector						
Distributed electricity and gas	North Auckland and Northland Grid Upgrade Project (NAaN)	Transpower	473					
Distributed fuel	Additional Marsden to Auckland pipeline	New Zealand Refining Company	200-300 ²⁵					

²⁴ Total project figure, no regional estimate available.

²⁵ Total project figure, no regional estimate available. Project partially located outside the region.

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Electricity generation	Kaukapakapa gas turbine power station	Genesis Energy						
Electricity generation	Combined Cycle Gas Turbine (CCGT) project (Otahuhu C)	Contact Energy						
Electricity generation	Awhitu wind turbine	Genesis Energy						

Energy



Legend

- Electricity substations
- Power generation sites
- Liquid Fuels Pipeline Marsden to Wiri
- Vector High Pressure Gas Pipelines
- Vector Transmission Lines
- Transpower 110kv Line
- Transpower 220kv Line
- Mercury u/g and Transpower 33 kv
- Regional Boundary

Major existing energy infrastructure
in the Auckland region

Map Produced by GIS
Information Services
Auckland Regional Council
September 2009



Telecommunications

Telecommunications infrastructure includes all those assets which enable the exchange of information between two or more parties and incorporates all telephone, mobile and internet technologies. The copper legacy network providing telephone and low capacity broadband connections, the fibre network enabling content rich data and video transfer, mobile phone base stations, wireless nodes and broadcast transmission stations all comprise telecommunications infrastructure.

Development of a world class telecommunications network is a key means to improving Auckland's global competitiveness and will facilitate domestic and international connectivity. In providing significant gains for business communication there are likely to be sizeable productivity improvements. In facilitating education and health networks there is potential to progress social objectives. Central government has highlighted the importance of high-speed broadband and identified it as a national priority. New Zealand's small size and great distance from the rest of the world means measures to improve our international connectivity are critically important.

The reliability of New Zealand's international connectivity will become increasingly important as ultra-fast broadband networks are deployed domestically, and as convergence of networks takes effect. There is currently one provider of international connectivity (operating out of Auckland) though there are market-led developments currently taking place which may result in another international cable being deployed out of Auckland. This will be a vital part of Auckland's, and indeed the nation's, telecommunications infrastructure.

There is currently no agreed regional plan or strategy dedicated to Auckland's telecommunications sector and central government policy is officially under review. The strategic outcomes and issues identified below therefore focus on the broadband sector which has received strong central government emphasis.

The subsequent project list includes information on regionally significant telecommunications infrastructure investments either planned or underway in the Auckland

region. Information has been obtained predominantly from industry websites and media publications. Because the telecommunications sector is dominated by the private sector and operates under competitive market conditions, infrastructure investment plans and details are not always publicly available. Furthermore, the rapid technological and operational change characterising the sector requires that the following list be seen as a guide and not as a complete list of all telecommunications investment planned for the Auckland region.

Costs and timeframes are provisional and reflect the best known information at time of publication. Each agency responsible for funding reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

Strategic outcomes for broadband²⁶

- Ultra fast broadband to schools, hospitals and businesses within six years
- Ultra fast broadband to 75% of New Zealand homes within ten years

Key telecommunications issues

- Affordability
- Industry competition
- Consistency around consents and planning
- Service provider innovation
- Application and service choice
- Connectivity (domestic and international)
- Technology convergence - a move to fibre-optic networks underlying all telecommunications networks and services (eg mobile)

²⁶ New Zealand Government Broadband Investment Initiative.

Telecommunications

Key stakeholders

- Ministry of Economic Development
- Commerce Commission
- 8 local authorities
- Network providers (eg Telecom wholesale, Vodafone, Vector, Telstra-Clear)
- Service companies and ISPs (eg Telecom retail, Orcon)

Table of telecommunications infrastructure projects

Infrastructure	Project	Major Responsibility	Total Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Fibre	Vector fibre network	Vector	250-500					
Fibre	Broadband Investment Initiative	Central government	1500 ²⁷				\$290m ²⁸ allocated Budget 2009	
Fibre	Chorus fibre to the node (ADSL2+/ cabinetisation)	Chorus/Telecom	600 ²⁹					
Mobile	NZ Communications 900Mhz cellular network	NZ Communications	100-200					
Mobile	Telecom W-CDMA GSM/CDMA hybrid upgrade of cellular network	Telecom	547 ³⁰					
Mobile	Vodafone 900Mhz W-CDMA/HSPA cellular network upgrade	Vodafone	500 ³¹					
Wireless	Woosh WiMax 2.3Ghz upgrade	Woosh Wireless						

²⁷ National figure, no regional estimate available.

²⁸ National figure, no regional estimate available.

²⁹ National figure, no regional estimate available.

³⁰ National figure, no regional estimate available.

³¹ National figure, no regional estimate available.

Open space

Open space is defined as: “an area of land or a water body to which the public has a level of free physical and visual access ... encompass[ing] both ‘public’ and private open space”, which includes: ‘green spaces’ such as parks and reserves, sports fields and recreation areas that may contain buildings; ‘blue spaces’ such as waterways and regions; and ‘grey spaces’ such as civic squares streetscapes and transport corridors.³²

Open space is considered important to the unique identity of Auckland and contributes to better quality of life and economic wellbeing. High quality urban design also plays a vital role in open space planning. It enhances the quality of open space and improves its utility, in addition to associated benefits such as compact, connected, and sustainable communities.

The following table includes information on regionally significant open space infrastructure investments either planned or underway in the Auckland region. A number of local projects are progressing across the region that have not been included because they do not meet the broad test of regional significance. For the purpose of this inventory open space infrastructure is divided into conference, event and stadia, open space (parks and reserves), and pools.

Information has been obtained predominantly from recognised public documents such as LTCCPs, Annual Plans, and the Greater Auckland Regional Sport Facilities Project report produced by Auckland Regional Physical Activity and Sporting Strategy (ARPASS). The table has been reviewed by key stakeholders to ensure robustness.

Costs and timeframes are provisional and reflect the best known information at time of publication. Each agency responsible for funding reserves the right to reallocate funds according to necessity and responsibilities and commitments are subject to change.

³² Auckland Regional Open Space Strategy 2005 (ROSS).

Strategic outcomes for open space

Regional Open Space Strategy outcomes

- Enhance and expand physical and visual open space linkages
- Protect and enhance natural and cultural heritage features and landscapes
- Maintain, extend and enhance the overall quality and diversity of open space
- More public access to a range of open space
- A range of open space, which is relevant to the values of different communities
- Opportunities to express cultural diversity and identity through open space provision and management.
- Protection and restoration of significant and representative natural ecosystems and habitats for indigenous flora and fauna.
- Provision of access to a range of sport and recreation opportunities.
- Preservation and protection of the natural character of the coastal environment.
- Enhancement and expansion of open space, which increases both urban and rural amenity and quality of life in living and working environments.

Auckland Regional Physical Activity and Sports Strategy outcomes:

- The region will deliver the detailed goals, strategies and targets of this strategy by working together in a spirit of collaboration and cooperation
- The number of people participating in physical activity and sport will increase
- Sport in the region will have grown its capability to deliver quality sporting experiences and environments and, as a result, will attract and retain increasing numbers of participants at all levels
- The region will produce more winning teams and individuals
- Regional facilities will be planned, developed and managed to meet the current and future needs of the region

Open Space

Key issues

- Changing public needs and expectations
- Urban development competing with open space for land
- Increasing operational costs
- Access to open space network
- Lack of connectivity to open space within the urban network
- Quality of open space (urban design)
- Protection and conservation

Key stakeholders

- 8 local authorities (and subsidiaries)
- Auckland Regional Physical Activity Sports Strategy (ARPASS)
- Sport and Recreation New Zealand
- Ministry of Health
- Department of Conservation

Existing open space infrastructure

The table below provides a snapshot of existing open space infrastructure within the Auckland region. The table is by no means exhaustive but provides an indication of existing open space infrastructure. Additionally, some regional asset information is sensitive and new infrastructure is constantly being developed. Some project details, therefore, may not be included. Information was sourced from documents such as 2009 Long-Term Council Community Plans (LTCCPs), annual reports and asset management plans.

Open Space snapshot

Leisure/recreation facilities	70
Parks and reserves	51,966ha

Table of open space infrastructure projects

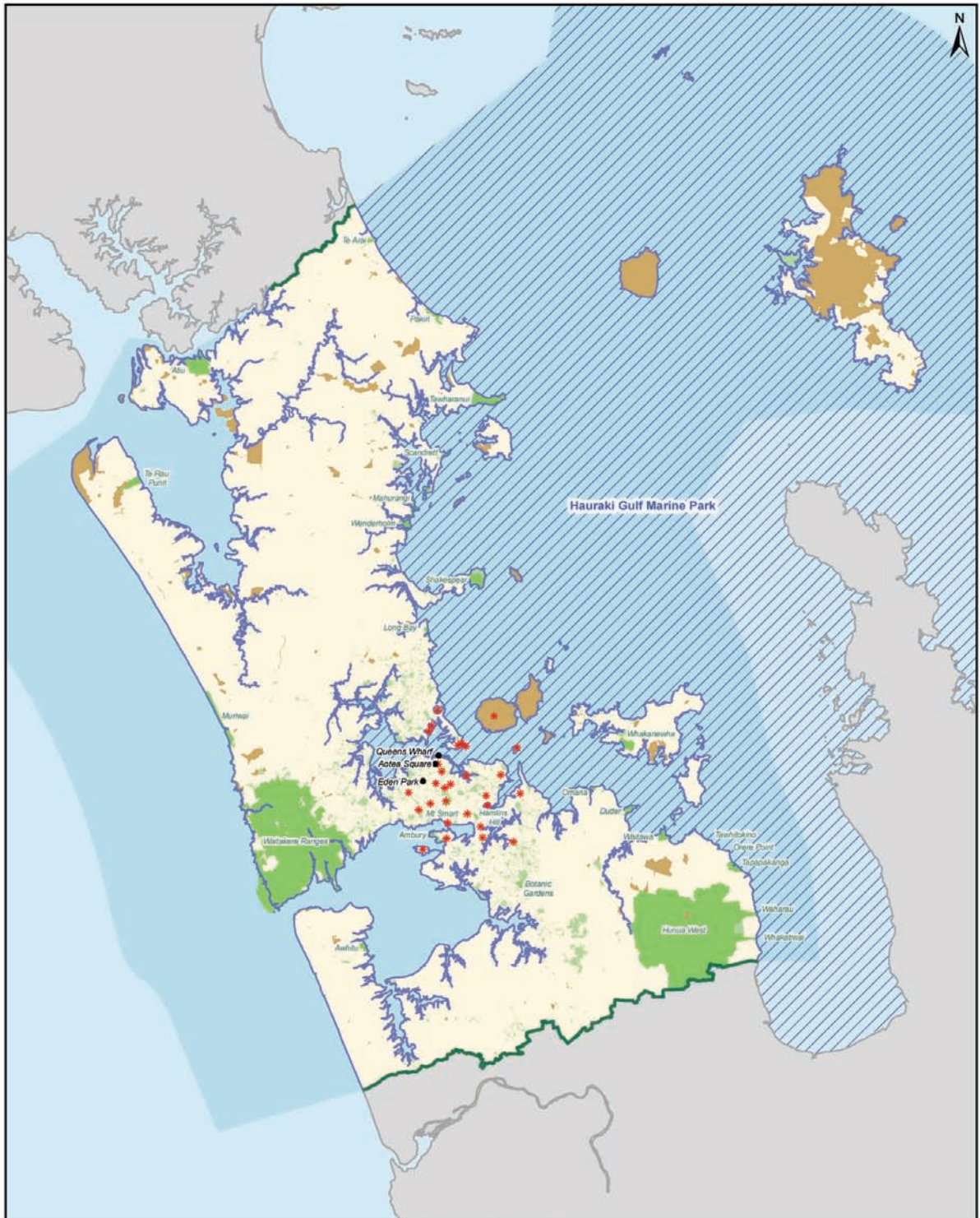
Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Conference/Event/Stadia	Eden Park ³³	Eden Park Redevelopment Board	240				\$190m Central Government \$12m Eden Park Trust Board \$10m NZRU \$6.5m ASB Community Trust \$10m ARC	\$12m
Conference/Event/Stadia	ASB Tennis Centre upgrade	ASB Tennis Centre	25					

³³ Auckland City Council has allocated \$31 million in transport and infrastructure upgrades around Eden Park and other citywide projects in preparation for hosting Rugby World Cup 2011.

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Conference/Event/Stadia	Q Theatre	ACC	7				LTCCP 2009	
Conference/Event/Stadia	Regional cycling indoor velodrome	Awaiting outcome of Commonwealth Games feasibility study						
Conference/Event/Stadia	Regional equestrian site including indoor venue	Awaiting outcome of Commonwealth Games feasibility study						
Open Space	Town hall and Aotea Square redevelopment	ACC	89				\$61m LTCCP 2009	
Open Space	Onehunga Bay foreshore upgrade	ACC	10				LTCCP 2009	
Open Space	Northern Strategic Growth Area purchase and development	WCC	9				LTCCP 2009	
Open Space	Other NorSGA parks/reserves/ capital works	WCC	33				LTCCP 2009	
Open Space	Corridor Park Area 2 Massey North PC15	WCC	15				LTCCP 2009	
Open Space	Sportsfield PC13	WCC	22				LTCCP 2009	
Open Space	Lower Corridor Area 3 Massey North PC15	WCC	16				LTCCP 2009	
Open space	Whenua rangatira – Bastion Point native vegetation reclamation	ACC	4				LTCCP 2009	
Open Space	McLennan Park extension	PDC	8				LTCCP 2009	
Open Space	Upgrade of Massey Park	PDC	6				LTCCP 2009	
Open Space	Hingaia Sportsfields	PDC	5				LTCCP 2009	
Open Space	Regional park acquisitions	ARC	54				LTCCP 2009	
Open space	Regional parks capital works	ARC	39				LTCCP 2009	

Open Space

Infrastructure	Project	Major Responsibility	Total Project Cost \$m (est.)	Timeframes			Funding status	
				2009-2013	2014-2020	2021-2030	Committed	Uncommitted
Open Space	Queens Wharf open space and cruise ship terminal	ACC/ARC/Central Govt					\$56m ACC LTCCP 2009 ARC Central Govt	Full wharf development costs to be confirmed
Open Space	Wynyard Quarter	ACC	143				LTCCP 2009	
Open Space	Land/reserve acquisition	MCC	31				LTCCP 2009	
Open Space	Park and reserve acquisition	ACC	77				LTCCP 2009	
Open Space	Premier Park development	MCC	29				LTCCP 2009	
Open Space	Sports parks	MCC	35				LTCCP 2009	
Open Space	Park acquisition	NSCC	104				LTCCP 2009-2023	
Open Space	Westhaven Marina premier park	ACC	23				LTCCP 2009	
Open Space	Esplanade development	MCC	19				LTCCP 2009	
Pool	Redevelopment of Aquatic Centre	PDC	5				LTCCP 2009	
Pool	Norman Kirk Memorial Pool	MCC	8				LTCCP 2009	
Pool	Northern Aquatic Centre	NSCC	12				LTCCP 2009	
Pool	Flat Bush Swimming Pool and Sports Centre	MCC	18				LTCCP 2009	
Pool	Regional aquatic facility	Awaiting outcome of Commonwealth Games feasibility study						



Legend

- ★ Volcanic Cones
- Landmark
- Public Open Space Zoning
- Regional Parks
- Department of Conservation
- ▨ Hauraki Gulf Marine Park

Existing open space in the Auckland region

Map Produced by GIS Information Services
Auckland Regional Council
September 2009



Social and Cultural

Social and cultural infrastructure is the system of services, networks and facilities that support people and communities, and includes community development processes. Social and cultural infrastructure is provided or supported by local and central government, community groups and individuals. It supports and sustains the wellbeing of communities, and as such has a significant impact on residents' overall quality of life and is therefore a critical element in the design and creation of healthy sustainable communities. There is currently no single agreed regional or national definition of social and cultural infrastructure. There are, however, a number of existing regional strategies and plans³⁴ that provide guidance and examples for a social and cultural infrastructure definition.

Social and cultural infrastructure comprises a broad spectrum of community assets that underpin our communities, and may:

- Be provided by the public sector, private sector, or by non-governmental organisations.
- Be passive (open space) or active (supporting services and activities).
- Be 'hard' or 'soft' assets. Soft assets relate to the benefits of coming together, collaboration, sharing or some other social transaction (social capital), 'hard' assets are based on facilities used in the delivery of services or the actual services themselves.
- Arise from the decisions of individuals.
- Result from the formal decision-making of organisations or agencies.
- Be located across or operate within local, district or regional levels, or a combination.

Ideally, social and cultural infrastructure should be an integral part of planning, not a consequence of it. Infrastructure delivery plans (physical and social) need to sit alongside land use plans and the concepts that deliver growth management plans and strategies. Social infrastructure planning should balance both the bottom up needs and desires of a local community with the often top down planning systems of infrastructure providers. Of necessity, many social infrastructure providers have to plan far in advance and balance local needs across a region to accommodate for the rapid growth of the region³⁵.

Unlike other infrastructure, which is primarily based around large built projects, social and cultural infrastructure tends to be a network of components such as community facilities and libraries that provide the means to connect and strengthen local communities across the region. The less tangible benefits of such infrastructure are demonstrated through a sense of community, social cohesion, a sense of place, identity, civic pride, safety and cultural expression.

³⁴ Regional Growth Strategy and Social Infrastructure Planning Framework for Waitakere City.

³⁵ Social Infrastructure Planning Framework for Waitakere City May 2007.

Social and cultural infrastructure examples

As just outlined, social and cultural infrastructure encompasses both physical facilities and services, and community development processes that enable a community to meet its own needs. Many services are associated with, or operated from physical facilities.

Below are some examples of physical facilities and services.

Cultural and community facilities	Libraries, community halls, community centres, marae, recreation and leisure facilities, sports clubs, non-governmental organisations and service providers, churches and places of worship
Health facilities	Hospitals, GP practices, specialist medical centres, residential care facilities, dental practices, public health services, Māori health providers
Justice and safety	Prisons, courts, youth justice facilities
Emergency services	Police, fire, ambulance, civil defence
Education	Tertiary providers, schools, pre-school facilities such as kindergartens, early childhood centres, kohanga reo, playcentres
Arts and cultural centres	Museums, art galleries, theatres, events centres
Social and Emergency Housing	Public and privately owned housing
Community and welfare services	Work and Income centres, Children Youth and Family Services offices, Citizens Advice Bureaus, iwi and Māori services, Christian social services

Examples of community development processes include networks of people and organisations, events, and community building, brokering and development programmes. Community development processes can be delivered by a range of government, non-government and not for profit organisations, or by groups of people coming together. An example of the latter is the

traditional 'working bee' or the parents of children attending a local school or community group.

While social and cultural infrastructure is often intangible, there are a number of social and cultural infrastructure projects currently underway or planned across the Auckland region. This section focuses on the physical assets and facilities, with information provided in commentary form rather than in tabular form.

Some of the large, regionally significant physical infrastructure social and cultural projects and programmes underway in Auckland (referenced by their associated physical assets/facilities) include:

Arts and culture:

- Auckland Art Gallery redevelopment for \$121.1 million will, on completion in 2011, provide an additional 50 per cent more space for exhibitions.
- Manukau City Council has allocated \$39 million for arts development and redevelopment projects, which include Uxbridge Arts Centre redevelopment, Flat Bush Arts Centre and the new Mangere Arts Centre.
- Auckland Zoo development of Te Wao Nui exhibit (New Zealand wildlife exhibit) will receive \$15.3 million to be completed 2012.
- Waitakere City Council has allocated \$21 million for library and community centre development in the new Massey North town centre and over \$7 million for the redevelopment of Lopdell House Gallery, Titirangi.

Housing:

- Government funded insulation package, which is a national scheme providing \$323.3 million over four years for a campaign to fit homes with insulation and clean heating devices such as heat pumps and approved wood burners.
- For the Tamaki Transformation Project, Government has allocated a kick-start investment of approximately \$52 million over the next three years to upgrade state housing stock in the area. This will include about 150 new homes and 120 refurbished homes, with employment opportunities

Social and Cultural

for locals generated through construction activity. The programme will also provide a potential model for community regeneration of similar urban communities.

Education:

- Funding has been allocated for the construction of two new primary schools - \$10 million for Mt. Wellington and \$11.6 million for south Auckland. Funding will also be allocated to construct a south Auckland Trades Academy at Southern Cross Campus in Mangere. These projects are part of the \$216.7 million allocated by government to accelerate construction of new schools, improve existing school buildings across the country, and to upgrade Information Communication Technology infrastructure in schools.
- Manukau City Council and Manukau Institute of Technology have announced plans for a city centre tertiary campus closely linked with the new train and bus station. The campus will be built on a section of Hayman Park on the corner of Davies Ave and Wiri Station Rd.

Health:

- The Ministers of Health and Finance have approved \$208 million for redevelopment and expansion of Middlemore Hospital. This will enhance the Manukau and south Auckland infrastructure and community and provide opportunities, creating over 1000 jobs in south Auckland including clinicians and trades people. Building on this, Counties Manukau District Health Board plan to further develop the current Super Clinic and Day Surgery complex within a Health Park complex. This complex will also incorporate a range of health care facilities. A planned Centre for Health Services Innovation hub will be located on the Middlemore campus, requiring a public transport link between Middlemore Hospital, the planned Health Park, and the wider area.

- Waitemata District Health Board has allocated \$262 million from 2009 – 2015 for the capital programme. Additionally, Waitemata District Health Board's Facilities Master Plan for hospitals is an estimated \$1.4 billion over 22 years, and a prioritisation of projects within that total.
- Auckland District Health Board has allocated \$131 million for capital works in their 2009-2012 Statement of Intent. Projects include \$14 million for construction of the Child and Family Unit at Starship Hospital and \$7 million for the development of an oral clinic.

Social services:

- St Matthew-in-the-City and Auckland City Mission are committed to creating purpose built social service facilities for the very diverse people of the inner city, especially marginalised people. The next stage of the project is securing the \$70 million necessary for development.

Community grants, trusts and funding schemes:

- The Community Organisation Grants Scheme is a grant-making scheme that distributes over \$14 million to over 3000 community groups annually.
- Council community grants and funding schemes such as the Community Response Fund support local initiatives, community services and community-based social development programmes.
- Lottery grants are available for different types of projects such as community facilities, and marae heritage and facilities. The Lottery Significant Projects Fund, for example, will distribute \$9.8 million this year to complete large scale community based capital expenditure projects costing over \$1 million.

The boxes below list some of the key issues and stakeholders for social and cultural infrastructure in the region. While not exhaustive, this is followed by some of the key stakeholders responsible for developing and delivering this infrastructure.

Key Issues

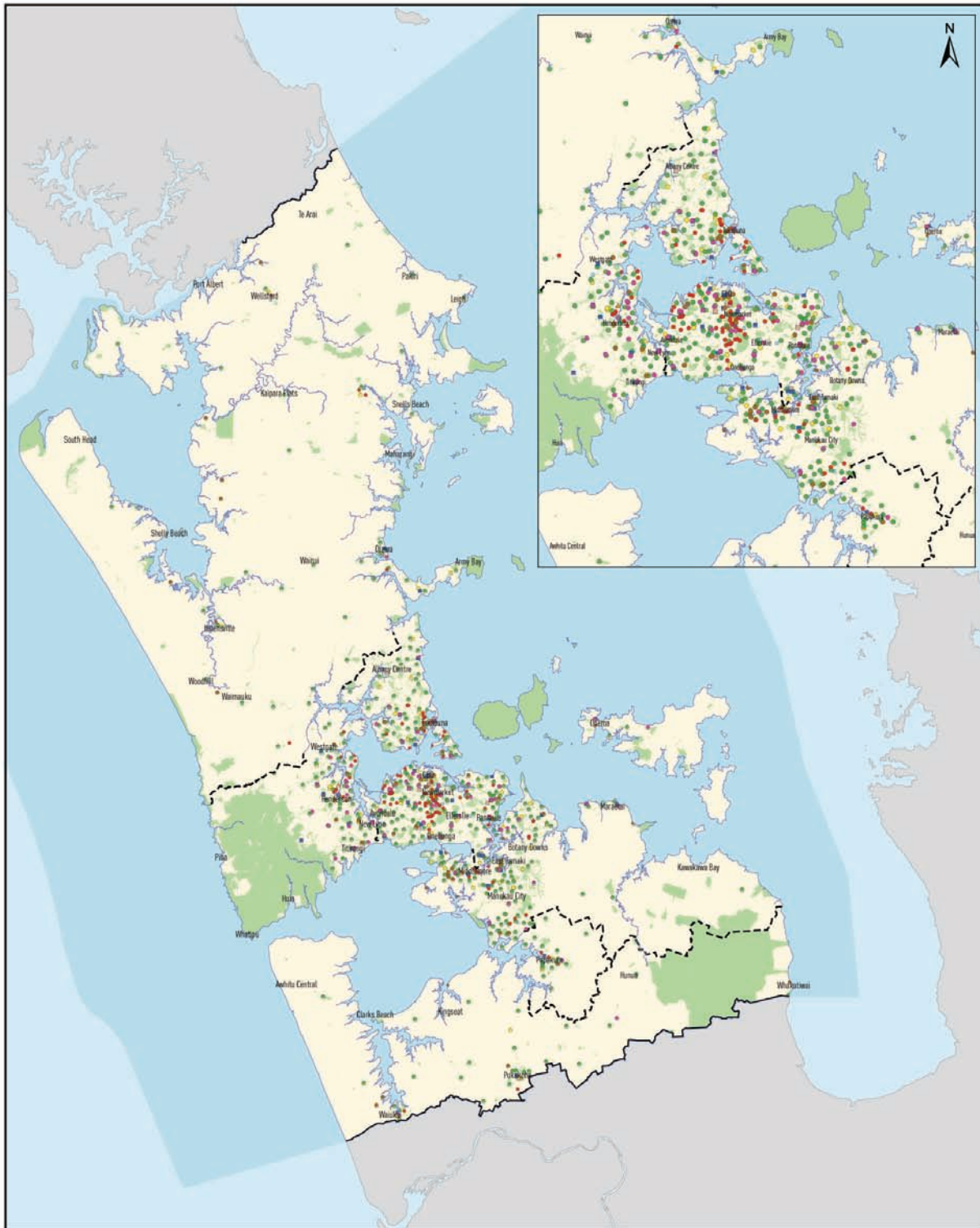
- Access to services and amenities
- Social cohesion and inclusiveness
- Education and skills development
- Housing affordability
- Social equality across geographic areas of deprivation
- Sustainability focus
- Place³⁶

Key stakeholders

- 8 local authorities
- Auckland District Health Board
- Auckland Regional Public Health Service
- Counties Manukau District Health Board
- Department of Building and Housing
- Department of Internal Affairs
- Department of Labour
- Housing New Zealand Corporation
- Ministry of Economic Development
- Ministry of Education
- Ministry of Health
- Ministry of Justice
- Ministry of Pacific Island Affairs
- Ministry of Social Development
- New Zealand Police
- Te Puni Kokiri
- Waitemata District Health Board

³⁶ The role and importance of place-based and community planning are critical factors in shaping social wellbeing.

Social and Cultural



Legend	
● Council Locations	● Police stations
● Primary Schools	● Public libraries
● Secondary Schools	● Hall and Community Centre
● Universities and Institutes	■ Open Space
● Marae	— Regional Boundary
● Hospitals	- - - Territorial Authority Boundary

Major existing social infrastructure
in the Auckland region

Map Produced by GIS
Information Services
Auckland Regional Council
September 2009



Looking forward

This regional infrastructure inventory will help to inform future spatial and infrastructure planning in the Auckland region. The inventory provides a first step towards integrated infrastructure planning by making transparent regionally significant infrastructure projects in progress or proposed over the next 30 years. Creating the inventory has been a collaborative effort, involving a wide range of agencies involved in the design, planning and delivery of regional infrastructure. A broad approach has been applied to ensure completeness based on available information. However, it is recognised that the inventory requires further development and refinement in order to prepare for the next steps.

Summary of the key messages for future regional infrastructure planning

- Improving the resilience of the region's infrastructure networks and services is required to help the region successfully adapt to future forces of change
- History reveals that a number of Auckland's major infrastructure projects have suffered from stop-start efforts and changes in policy direction leading to delays and capacity issues
- Infrastructure investment in strategic projects can shape cities and has the potential to change the nature of settlement patterns and economic activity across the region
- Greater integration and alignment between planning and implementation within and across sectors is needed – an agreed regional spatial plan would provide long-term direction for regional infrastructure priorities and the sequencing of infrastructure investment
- Building on the existing partnerships and collaboration amongst central government, local government and the private sector will be crucial to long-term success

Currently, local government in the Auckland region is undergoing unprecedented change through a transition to new governance arrangements set to be in place by November 2010. Whilst the current context is creating uncertainty and the constraints placed on current decision-making mean that not all work can be progressed immediately, it is considered worthwhile to identify the main gaps and areas requiring further work. The inventory process has highlighted a number of future work streams that will be of long-term benefit to the region as outlined below.

Transition towards an Infrastructure Plan

Development of an infrastructure plan will be the responsibility of the new Auckland Council. It is expected, consistent with similar international plans, that the purpose of the regional infrastructure plan will be to coordinate infrastructure planning across local and central government and the private sector in the Auckland region. Such a plan will require regional decision-making that identifies clear priorities about what infrastructure is regionally (and nationally) significant. It is likely to include commitments by a range of parties to work towards implementing and funding agreed infrastructure within the timeframes of the plan. The starting point will be achieving a clear understanding of the preferred spatial form.

Spatial integration

Work is currently underway, through the Land Use and Transport Futures project, to test and evaluate different land use and transport scenarios for the Auckland region. The inventory provides information that can be used in two ways to support the Land Use and Transport Futures project – firstly to provide input to scenario development and refinement and secondly to identify under each scenario what infrastructure may be required, when and where – and whether current plans deliver on this. Using information in the inventory will also help in

Looking forward

identifying strategic infrastructure investments – those projects that have the potential to reshape the pattern of development and economic activity across the region. Looking forward, improving the delivery and sequencing of infrastructure with land use is critical and utilising the inventory information within the Land Use and Transport Futures project is an important first step.

Funding

Ascertaining accurate and consistent information on project costs has been a major challenge in compiling this first regional infrastructure inventory. There is a need to ensure the inventory is kept up to date as decisions are made and costs and project time-lines are refined. Financial information collected for this inventory can be further developed to distinguish amounts anticipated for growth, level of service and renewals. Understanding the quantum and nature of regional funding gaps and affordability issues is an additional piece of work. This work will need to investigate broad issues facing the region such as inter-generational funding and affordability, as well as improving understanding of different funding and delivery models. This last point is particularly relevant in light of recent central government announcements, for example investigations around establishing a bond bank.

National Infrastructure Plan

As work on the national infrastructure plan progresses, there will be an opportunity to achieve greater alignment and improved understanding of the connections between national and regional level infrastructure planning and implementation. Work being undertaken at a national level will also provide further information to assist with developing a set of agreed principles that will guide decision-making.

Infrastructure planning principles

This work will develop a set of principles that could be applied at a regional level that will assist decision-makers to prioritise programmes of infrastructure investment. It is likely to cover a range of strategic objectives that include regional development and sustainability objectives. These principles will provide a framework for assessing and testing the contents of the infrastructure inventory. A starting point will be to compile the planning principles and prioritisation tools that have resulted from the Auckland Sustainability Framework and One Plan processes.

Conclusion

Auckland is embarking on a new era for regional planning, and infrastructure has a fundamental role to play in shaping the region's future. The opportunity is to move beyond a 'predict and provide' model of regional planning, towards a model that seeks to 'create the future' in positive ways. Under the 'predict and provide' model, the incremental impacts of infrastructure decisions simply reproduce past patterns of urban development and infrastructure is viewed primarily in terms of its capacity to meet user demand. This model has little regard for the spill-over effects on urban form and the locational decisions of households and businesses. The alternative focuses on defining a preferred future where the quantum and nature of demand may shift in ways that generate a number of wider benefits. This approach appreciates that infrastructure investment is not simply a response to demand, but provides a powerful tool to shape growth within the urban system.



Appendix

Appendix 1: List of contributing organisations

Auckland Regional Council
Auckland City Council
Franklin District Council
Manukau City Council
North Shore City Council
Papakura District Council
Rodney District Council
Waitakere City Council
Department of Internal Affairs
Department of Labour
Ministry for the Environment
Ministry of Economic Development
Ministry of Pacific Island Affairs
Ministry of Social Development
Ministry of Transport
Te Puni Kokiri
Tamaki Regional Manawhenua Forum
Auckland District Health Board (ADHB)
Auckland Regional Holdings (ARH)
Auckland Regional Physical Activity Sports Strategy (ARPASS)
Auckland Regional Public Health Services (ARPHS)
Auckland Regional Transport Authority (ARTA)
Counties Manukau District Health Board (CMDHB)
Government Urban and Economic Development Office (GUEDO)
New Zealand Transport Authority (NZTA)
New Zealand Treasury – the National Infrastructure Unit
Transpower
Vector
Waitemata District Health Board (WDHB)
Watercare
Regional Policy Steering Group (RPSG)
Auckland Engineering Lifelines Group (AELG)
Auckland Regional Broadband Advisory (ARBA)
Auckland Regional Transport Executive Group (ARTEG)
Greg Clark, Cities and Regions
Marcus Spiller, SGS Economics and Planning
Stephen Selwood, New Zealand Council for Infrastructure Development (NZCID)
Brian Waddell, Urbanista
Alan Johnson, Policy and Planning Consultant
Cathy Jordan, Consultant
Kelvin Norgrove, Strateg.Ease Ltd
David Walker, PricewaterhouseCoopers