Asset Management Plan
2012 – 2015
Overview

Auckland Transport
An Auckland Council Organisation

Asset Management Plan
2012 – 2015
Overview

Quality Record Sheet

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ORIGINATOR Auckland Transport Asset Management Unit Infrastructure Division Contributors: Siri Rangamuwa Michael Mason Denise Windleborn Mahesh Shivaswamy May Oo Robert McSpadden Glen Syred Cushla Anich George JasonSmith Simon Whiteley Richard Taylor Khaldoon Azawi Amar Singh	REVIEWED Siri Rangamuwa Regional AMP and Policy Manager
RECOMMENDED: Andy Finch Manager Asset Management and Programming APPROVED: Kevin Doherty Chief Infrastructure Officer	

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AMP Document Set	
Briefing paper	
Asset Management Plan – Strategic Context	
Asset Management Plan – Overview	(this document)
Asset Management Plan – Road Network	
Asset Management Plan – Public Transport Network	
Appendix document	

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Foreword

2012 – 2015 Asset Management Plan

Auckland's transport system is the largest in the country and one of the region's most valuable assets. The replacement cost of the road and public transport assets is $9.2b, excluding land under roads. Complex in space and scale, the network must accommodate the kind of rapid growth being experienced by all major world cities. Scenarios to 2041 put Auckland's population at around 2.1 million.

An expanding population creates pressure to prioritise spending on new assets. Auckland Transport must ensure this is not at the expense of maintaining, upgrading and renewing existing assets. The central task for Auckland Transport is to deliver best value for money and the best performance from existing assets.

Good communications, strong partnerships and leading-edge planning tools are required. This comprehensive 2012-15 Asset Management Plan is a critical tool. It is based on the asset management systems inherited from some of the legacy councils. A cycle of continuous improvement will see these systems, and this plan, refined as the organisation moves forward.

Local government amalgamation in late 2010 also gave the new Auckland Transport an opportunity to take stock of the transport portfolio, its size and condition, and to develop a "big picture" understanding of future costs and service consequences.

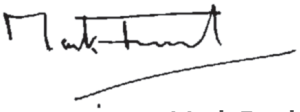
This plan is both strategic and tactical in its approach. It provides critical and detailed information on which to make decisions about future spending on assets and infrastructure-based services, and to develop policies for capital spending that give due weight to maintenance and asset renewal. It supports the organisation to manage assets in order to deliver an agreed standard of service, using multi-disciplinary management techniques over the lifecycle of each asset.

Auckland's transport network is being planned and managed as "One System", in partnership with the New Zealand Transport Agency's state highways and KiwiRail's railway infrastructure. This 10-year Asset Management Plan is closely aligned with the 30-year Integrated Transport Plan, which was developed collaboratively with NZTA. The two plans are being published together to provide the evidence base for the 2012 Regional Land Transport Programme and to support Auckland Council's Long-term Plan.

The Mayor's vision of Auckland as the world's most liveable city requires delivering a transformational shift in the public transport system. Over the past decade, Auckland has witnessed a revitalisation of its rail network through an injection of $1.1b from the Government. Every dollar spent on new assets contributes on average 10 cents every year to subsequent budgets for maintenance, operations and renewals. It is critical that asset maintenance and renewal keep pace with asset growth. In the 2010/11 year, renewals made up 38 per cent of all capital spending.

The benefits of sustaining, upgrading and renewing assets are numerous. Of the less obvious, asset management planning plays an important role in achieving road safety outcomes. Auckland Transport is a party to the Government's strategy of further reducing injuries and deaths on our roads – balancing this with the need to improve the region's productivity by moving people and goods faster and more efficiently.

Strategic and tactical asset management also plays a role in improving social and environmental outcomes for Auckland. This first 2012-15 Asset Management Plan is not a static document; it's an ongoing inquiry into what Auckland Transport should be doing with the region's transport assets to progressively improve the value for money delivered on behalf of Auckland's communities.



Mark Ford
Chairman
Auckland Transport

David Warburton
Chief Executive
Auckland Transport

1 Introduction

The purpose of the Asset Management Plan (AMP) is to manage Auckland Transport's asset portfolio in the most cost-effective and sustainable manner to meet the levels of service required from the road and public transport networks.

The AMP provides details of the programmes and projects that are included in the Long Term Plan (LTP) and the Regional Land Transport Programme (RLTP).

In fulfilling this purpose, the AMP defines the levels of service, identifies risks and mitigating measures, develops lifecycle management strategies and identifies long-term financial needs of the networks.

The Asset Management Plan seeks to provide clear answers to the following questions:

- What are the required levels of service of the network? How will demand change for these over time?
- What are the viable options available for the delivery of services?
- What is the current state of Auckland Transport's assets? Are the assets capable of meeting network demands now and in the future, and what are the risks that they may not?
- What are the best whole-of-life solutions for operating, maintaining, replacing and improving the assets cost effectively?

In this regard, Auckland Transport has produced a number of key documents which are summarised below.

Document title	Description	Target audience
Briefing paper	Includes key messages only Serves as a communication and marketing pamphlet	Public, Local Boards
Asset Management Plan 2012 – 2015 Strategic Context	Describes, at a strategic level, the purpose of asset management planning and establishes the relationships of asset management planning with other planning functions of Auckland Transport and Auckland Council	Auckland Transport Board, Auckland Council, NZTA and Auckland Transport corporate management
Asset Management Plan 2012 – 2015 Overview (this plan)	Provides key messages and highlights significant issues from the asset management plans	Auckland Transport Board, Auckland Council, Local Boards, NZTA, Auckland Transport corporate and middle management
Asset Management Plan 2012 – 2015 Road Network Asset Management Plan 2012 – 2015 Public Transport	These are detailed plans developed in accordance with current best practice. They provide specifics of asset condition, levels of service, lifecycle requirements, risks and future funding needs of the road network. They also stipulate improvement needs to address the gaps in asset management knowledge	Auckland Transport middle management, Audit NZ, NZTA, Auckland Council, all levels of Auckland Transport internal stakeholders
Appendix document	Includes all technical analysis reports and other supporting information	Asset management staff, Audit NZ

This is the third document highlighted in blue above:
Asset Management Plan 2012 – 2015 Overview.

Its purpose is to summarise the key messages from the two detailed asset management plans, namely:

- The Road Network Asset Management Plan
- The Public Transport Network Asset Management Plan

2 The transport system's assets

Transport assets form one of the largest infrastructure networks in the Auckland region. These networks have been developed over a number of decades of continuous investment.

The transport networks enable the daily flow of people and commerce throughout the region by providing:

- Road pavements and associated drainage
- Bridges and structures
- Footpaths
- Cycleways
- Street lighting
- On-street and off-street parking facilities
- Traffic control systems
- Train stations
- Wharves and ferry facilities
- Bus stations and bus stops.

The following summarises the assets that make up the transport networks.

Value of the network: $9.2 billion (30 June 2011)

Road network assets

7,227km of road pavement
6,879km of footpaths
994 bridges and structures
100,677 street lights
12 parking buildings
933 pay-and-display units
536 signal-controlled intersections

Public transport network assets

42 train stations
22 transport ferry wharves
15 bus stations and five busway stations
1,554 bus shelters

3 Summary of transport network levels of service

The transport networks enable the daily flow of people and commerce throughout the region by providing:

- Passage for private vehicles, freight and commerce
- Public transport services
- Passage for pedestrians and cyclists
- Access to properties and businesses
- Parking for road users, residents and businesses
- Access for utilities.

Examples of measures of the networks' performance are:

Road network services

8 billion vehicle kilometres travelled per year
5 per cent of network load is heavy vehicles (estimated)
3,650 customer requests for service each month
5,300 walking trips into the city centre during the morning peak
13,400 cycling trips throughout the region during the morning peak
5,400 children regularly use walking school buses
10,000 + corridor access requests processed between 1 November 2010 and 30 June 2011
270 travel plans in place

Public transport network services

70 million public transport trips per year
13 million annual passengers to January 2012 using rail and Northern Express along Northern Busway
52 million annual passengers to January 2012 using bus services (excluding Northern Express)
5 million annual passengers to January 2012 using ferries
75,000 HOP smartcards were issued in less than two months
205 contracted services in place including 28 school bus contracts

To deliver transport service outcomes to the Auckland Plan, Auckland Transport monitors the performance of assets and services through key performance indicators (KPIs) and levels of service (LOS). Table 1 and Table 2 show indicative levels of service, as well as KPIs pertaining to the levels of service.

Table 1 Road network indicative levels of service

Key result	Level of service	Measure	Current performance	Target performance (indicative / to be developed and agreed)
Effective	Increase availability of travel options	Walking trips into the city centre during morning peak	5,297	2% annual increase
		Cycle trips into the city centre (inbound cycle counts) in morning peak	12,970	2% annual growth
	Provide appropriate levels of parking	Percentage of user satisfaction with access to parking	75%	80%
		Percentage of drivers complying with parking restrictions	83%	82%
	Improve navigability	Percentage of arterial network with real-time information (signage) available	TBC	8%
	Assets are maintained in good condition	Urban Smooth Travel Exposure Index	79-95%	Maintain or improve on baseline
		Percentage of arterial routes that score 3 or better on AMEM Traffic Environment survey	95%	95%
		Percentage of footpaths that score 3 or better on AMEM Pedestrian Environment survey	98%	95%
Efficient	Reduce road peak congestion	Primary arterial roads – ratio of peak hour traffic volume and road capacity (V/C ratio)	TBC	No greater than 25% of LOS E (V/C=0.82)
		Number of morning peak (7-9am) car trips avoided through travel planning initiatives	8,417	9,600 (2013/14)
	Improve or maintain road travel time reliability	Percentage of arterial routes with signal optimisation	5%	10%
	Improve or maintain resolution rate for Requests for Service	Percentage of satisfaction with service	45-95%	Maintain or improve on baseline
Safe	Minimise fatal and serious crashes	Number of fatal and serious injuries per 100 million VKT (vehicle kilometres travelled)	5.1 (year to 31 Dec 2010)	Average annual reduction of 2%
	Minimise the number of pedestrian fatal and serious injuries	Number of fatal and serious pedestrian injuries on local roads	62 (year to 31 Dec 2010)	Reducing trend
	Minimise number of fatal and serious cycle injuries	Number of fatal and serious cycle injuries on local roads	36 (year to 31 Dec 2010)	Reducing trend
	Improve community road safety	Number of pupils participating in walking school buses	>4,000	TBC
	Provide a safe parking building environment	Percentage of customers satisfied with personal security	85%	80%
Sustainable	The network is managed to minimise carbon emissions	Total CO_2 (petrol and diesel powered) vehicle emissions	3,790 kilotons (2011)	Reduce baseline

Table 2 Public transport network indicative levels of service

Key result	Level of service	Measure	Current performance	Target performance (indicative / to be developed and agreed)
Effective	Increase availability of travel options	Passenger satisfaction rating for ease of transfer between public transport modes	66%	TBC
		Percentage of passengers travelling on an integrated ticket	TBC	TBC
	Improve navigability across the network	Percentage of public transport stops with service information	50%	56%
	Assets are maintained in good condition	Overall user satisfaction for facility (bus shelters)	78%	Maintain or improve on baseline
		Percentage of rail facilities in moderate condition (grade 3) or better	TBC	95%
Efficient	The public transport network can accommodate demand	Percentage of public transport passengers satisfied with their public transport service	86%	87%
		Total public transport patronage – annual boardings for bus, rail and ferry	69,401,126	80,245,000 (2014/15)
	Improve or maintain travel time reliability	Service arrives at all stations within five minutes of scheduled time	81%	84%
	Improve or maintain resolution rate for requests for service	Percentage of telephone calls to MAXX call centre answered within 20 seconds	82%	80% or better each year
		Response time to public transport service enquiries	87%	90%
Safe	Minimise the number of safety and security incidents	Percentage of users who perceive public transport modes as being safe	80%	Maintain or improve on baseline
		Public and customer safety and security incidents across public transport network	0.115 incidents per 100,000 passenger boardings (year to 31 Dec 2011)	0.090 (to 31 Dec 2014)
Sustainable	The network is managed to minimise carbon emissions	CO_2 emissions from rail network	24.1 kilotons (year to 30 June 2011)	Reduce baseline
	The public transport network promotes and provides sustainable travel options	Public transport mode sharing during the morning peak period increases across the isthmus and city centre screenlines	In 2006 H/Bridge (S/bound) 27% Isthmus (inbound) 12% City centre (inbound) 39%	By 2020 2040 38% 50% 18% 26% 52% 58%

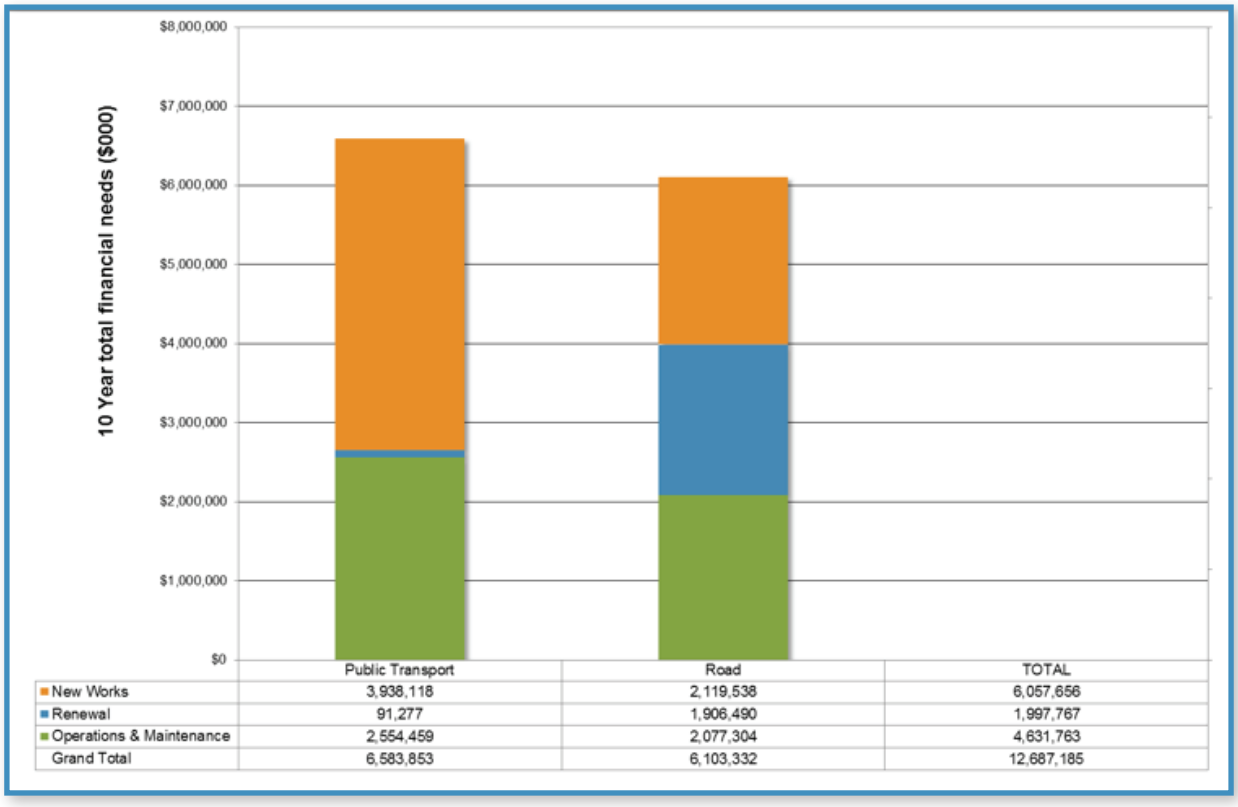
4 The cost of providing transport services

The indicative long-term programmes and financial needs identified in the AMPs are based on the lifecycle needs of the assets to meet the required levels of service.

The investment that will be needed over the next 10 years in operating, maintaining, renewing and improving the transport system so that it contributes effectively and efficiently to the vision and outcomes of the Auckland Plan, is shown in Figure 1.

This investment will be sufficient to deliver the required levels of service for the transport activity.

Figure 1 10-year total financial needs for transport networks
Source: Locked AMP Financial Model to be used as Final AMP Needs

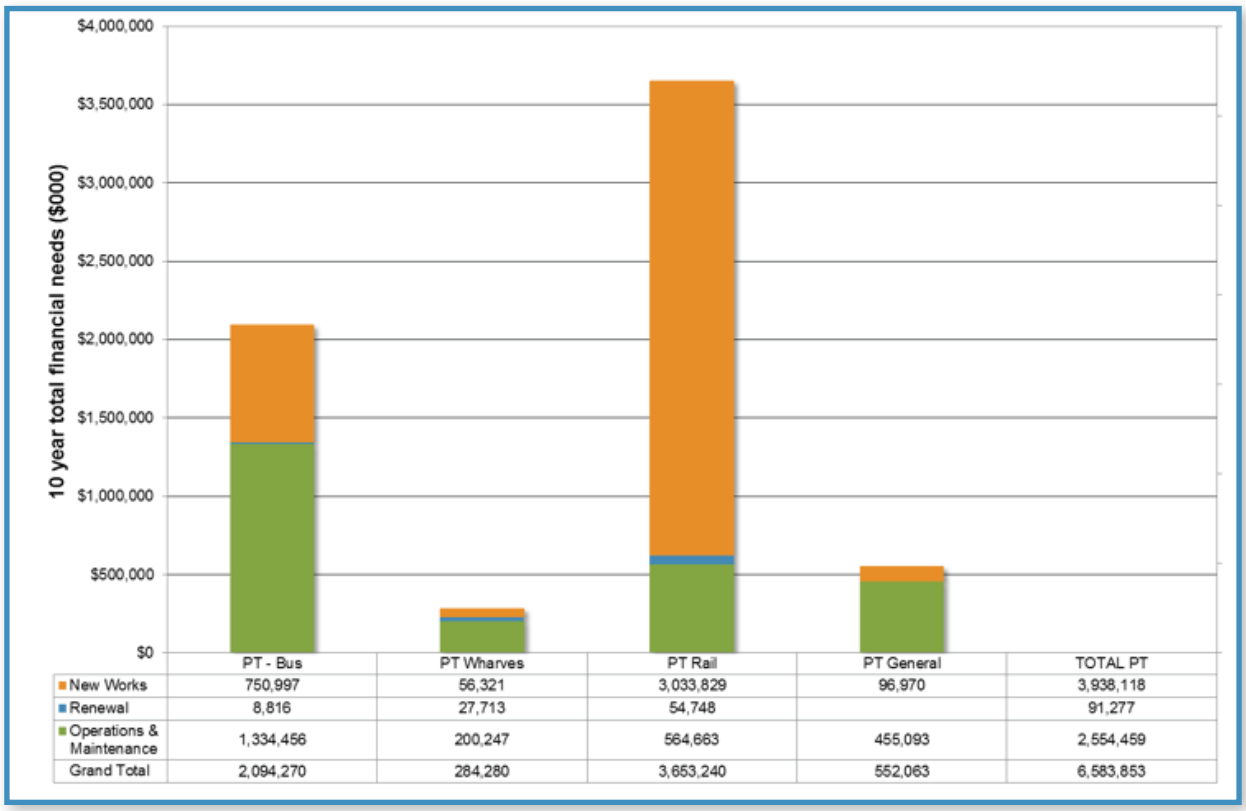


	Public Transport	Road	TOTAL
New Works	3,938,118	2,119,538	6,057,656
Renewal	91,277	1,906,490	1,997,767
Operations & Maintenance	2,554,459	2,077,304	4,631,763
Grand Total	6,583,853	6,103,332	12,687,185

The details of this investment for public transport and road networks are shown in Figures 2 and 3. These figures indicate how significant the bus, rail and road carriageway investments are.

Figure 2 10-year total financial needs for the public transport network by asset type

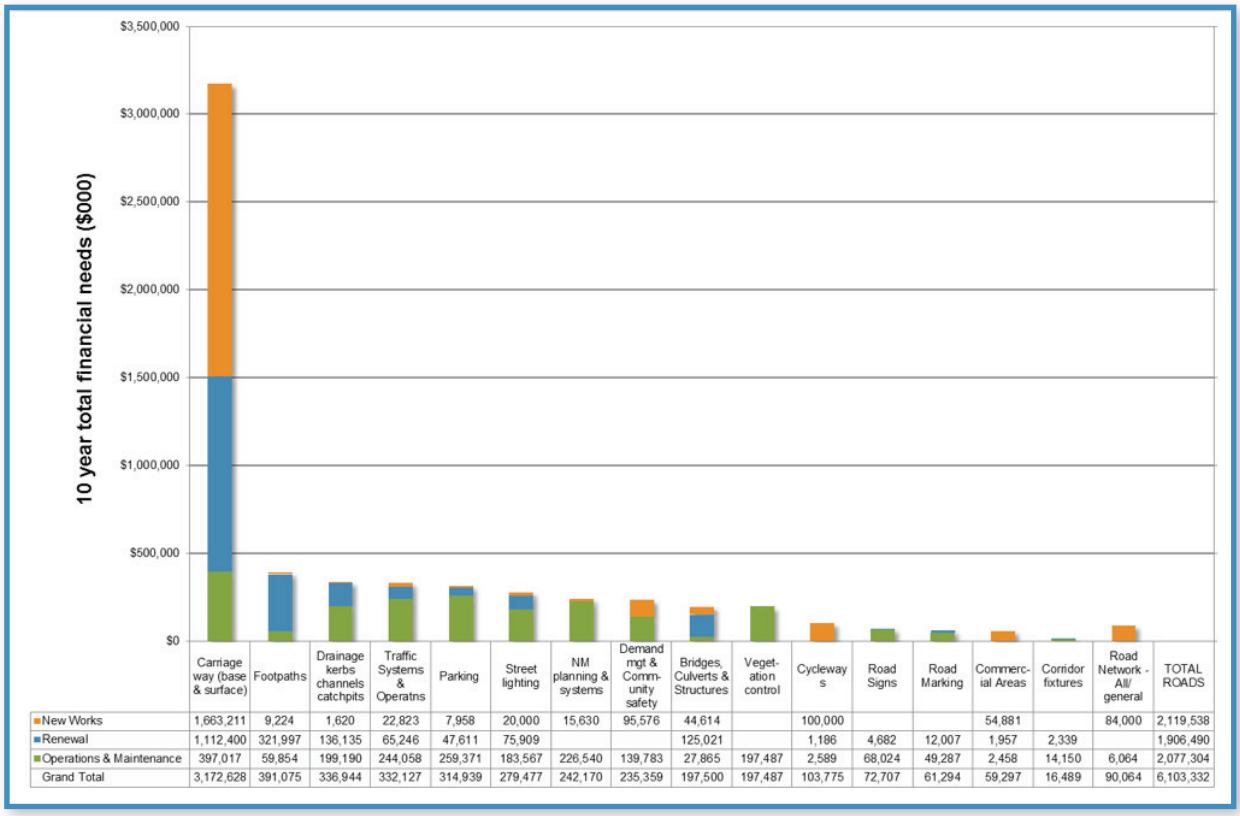
Source: Locked AMP Financial Model to be used as Final AMP Needs



	PT - Bus	PT Wharves	PT Rail	PT General	TOTAL PT
New Works	750,997	56,321	3,033,829	96,970	3,938,118
Renewal	8,816	27,713	54,748		91,277
Operations & Maintenance	1,334,456	200,247	564,663	455,093	2,554,459
Grand Total	2,094,270	284,280	3,653,240	552,063	6,583,853

Figure 3 10-year total financial needs for the road network by asset type

Source: Locked AMP Financial Model to be used as Final AMP Needs



	Carriage way (base & surface)	Footpaths	Drainage kerbs channels catchpits	Traffic Systems & Operatns	Parking	Street lighting	NM planning & systems	Demand mgt & Comm-unity safety	Bridges, Culverts & Structures	Veget-ation control	Cycleway s	Road Signs	Road Marking	Commerc-ial Areas	Corridor fixtures	Road Network - All/ general	TOTAL ROADS
New Works	1,663,211	9,224	1,620	22,823	7,958	20,000	15,630	95,576	44,614		100,000			54,881		84,000	2,119,538
Renewal	1,112,400	321,997	136,135	65,246	47,611	75,909			125,021		1,186	4,682	12,007	1,957	2,339		1,906,490
Operations & Maintenance	397,017	59,854	199,190	244,058	259,371	183,567	226,540	139,783	27,865	197,487	2,589	68,024	49,287	2,458	14,150	6,064	2,077,304
Grand Total	3,172,628	391,075	336,944	332,127	314,939	279,477	242,170	235,359	197,500	197,487	103,775	72,707	61,294	59,297	16,489	90,064	6,103,332

5 Asset management practice

Auckland Transport has developed its network asset management plans to be compliant with the New Zealand industry standard International Infrastructure Management Manual 2011. As such, Auckland Transport complies with the requirements of the Local Government Act 2002.

Two asset management frameworks were adopted by Auckland Transport's Board in April 2011:

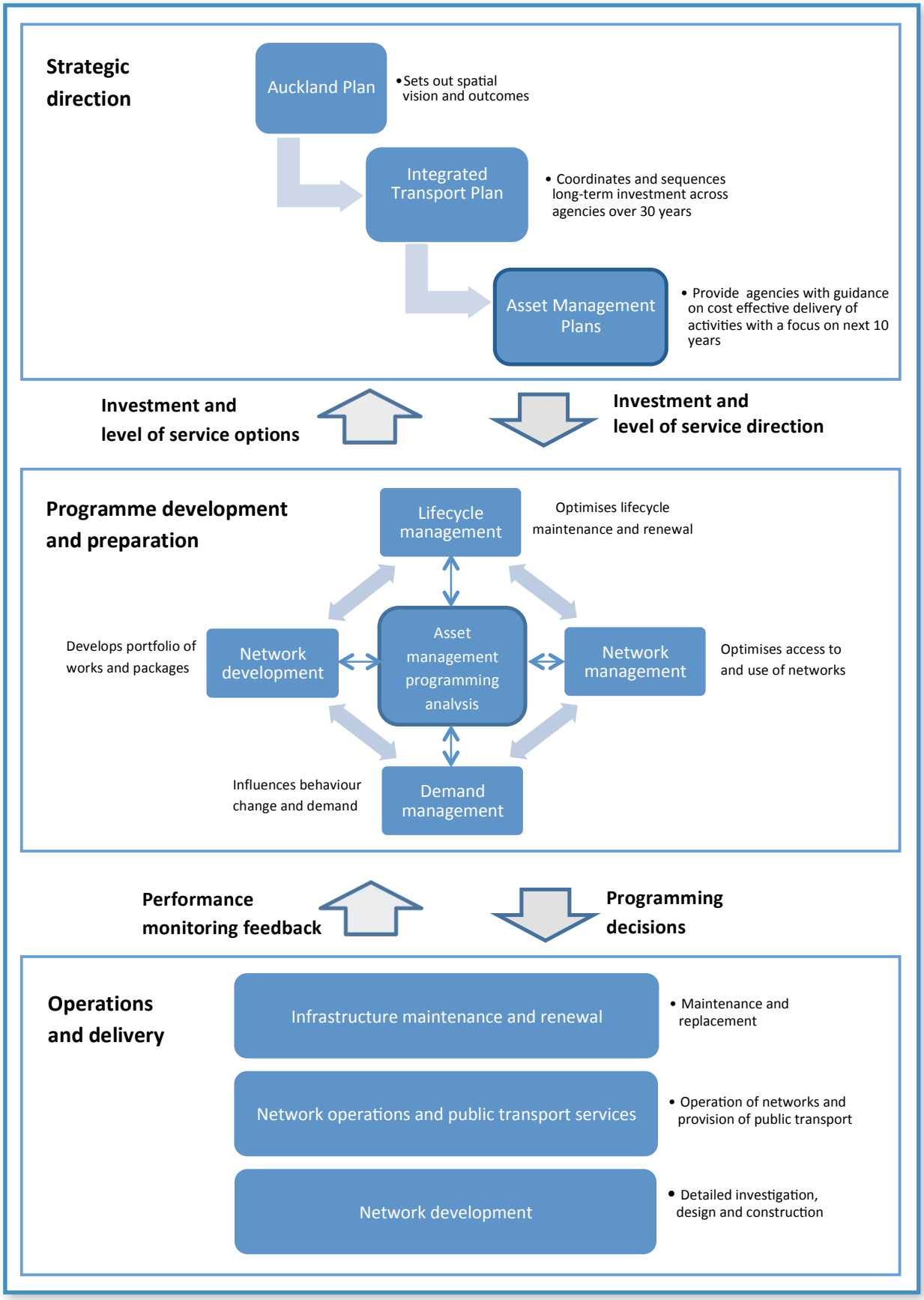
- Asset Management Framework – integrates policies, planning processes, decision making and information across all transport assets and activities. It provides a management structure within which stakeholder needs, levels of service, asset information, finance, risk and resources are brought together
- Levels of Service Framework – provides the structure to monitor and manage a common set of performance measures, outputs and outcomes. It provides the links between operational activities and strategic outcomes. It also aligns with Auckland Transport's Integrated Transport Plan (ITP), Statement of Intent (SOI) and Auckland Council's Long Term Plan (LTP).

These frameworks are included in the appendix of this plan.

Strategic context

The AMP is developed within the strategic planning context of the Auckland Plan and the Government Policy Statement on Land Transport Funding. The Auckland transport system is being planned and managed as a single system in conjunction with the NZ Transport Agency's state highways and KiwiRail's railway infrastructure. This is being achieved through development of the Integrated Transport Plan by Auckland Transport and NZTA with input and support from Auckland Council. The relationship of asset management to regional strategic planning and the delivery mechanism is outlined in Figure 4.

Figure 4 Planning context



Further details of this relationship are provided in the Strategic Context document of the Asset Management Plan. This document describes, at a strategic level, the purpose of asset management planning, and establishes the relationships of asset management planning with other planning functions of Auckland Transport and the Auckland Council.

The AMP and the Auckland Plan

Transport is a critical element in delivering the Auckland Plan's vision for Auckland to be the world's most liveable city by 2041.

The Auckland Plan is the council's 30-year strategy to prepare for population growth. It provides primary direction setting for planning across all council agencies and organisations. It requires Auckland Transport to manage Auckland's transport system in accordance with Auckland Plan outcomes and transport principles. The relationship of the transport AMP to the Auckland Plan outcomes is shown below.

Figure 5 Overview of objectives

Auckland Plan	Mayoral vision	World's most liveable city			
	Auckland Plan outcomes linked to transport	A well-connected and accessible Auckland	An Auckland of prosperity and opportunity	A fair, safe and healthy Auckland	A green Auckland
	Transformational shift	Move to outstanding public transport within one network			
	Strategic directions	Create better connections and accessibility within Auckland, across NZ to the world	Keep rural Auckland productive, protected and environmentally sound	Create a strong, inclusive and equitable society that ensures opportunity for all Aucklanders	Contribute to tackling climate change and increasing energy resilience
Integrated Transport Plan (ITP) and Statement of Intent (SOI)	Auckland Transport Overarching Outcome	Auckland's transport system is effective, efficient and provides for the region's social, economic, environmental and cultural wellbeing			
	Auckland Transport Impacts	Better use of transport resources Increased access to wider range of transport choices Effectively connects communities Provides for Auckland's compact urban form	People and goods move efficiently	Improved safety of transport system	Reduced adverse environmental impacts
		Increased customer satisfaction			
	ITP and AMP Levels of Service	Public transport patronage People's access to jobs Public transport access Mode share Public transport morning peak mode share Asset quality	Road congestion Commuting travel times Arterial road network productivity Strategic freight route mobility Bus congestion Transport delay Public transport efficiency	Road fatalities and serious injuries Public transport safety and security	Greenhouse gas emissions Air quality Fossil fuel energy consumption Active modes split Transport affordability
Asset Management Plan	Key result areas	Effective network Provide an effective, resilient and good quality transport network that is easy to use	Efficient network Provide an efficient and reliable transport network	Safe network Provide a safe transport environment for users and the community	Sustainable network Provide a regional transport network without compromising the environment for future generations
	Service values	Accessibility Quality Ease of use	Capacity Reliability Responsiveness	Safe environments for vehicles, pedestrians, cycling and public transport Support for community safety	Emissions Trading Scheme (ETS) responsibilities Pollution control Economic sustainability
	Network performance	Key performance indicators	Key performance indicators	Key performance indicators	Key performance indicators

Asset management approach

Auckland Transport asset management revolves around adopting a number of initiatives. These include:

- **One System approach**
  Auckland's transport system is being planned and managed as a single system in conjunction with NZTA's state highways and KiwiRail's railway infrastructure. This One System approach not only allows the competing transport uses to be prioritised and optimised one against the other, but also allows an appropriate balance to be struck between transport movement needs on the one hand and place-making needs on the other
- **Optimisation of strategic planning and asset management**
  Investment options consider public transport and road networks as part of a One System approach to achieve a higher level of integration between different modes. Public transport can move people more efficiently than private vehicle use. The overall network efficiencies gained by increased public transport mode share will help address growth and provide for increased demand for freight and commerce on the road network
- **Travel demand management**
  Non-asset solutions such as travel demand management (TDM) are used to help make the networks as efficient as possible so that the need for new capital is minimised. TDM maximises the use of the existing road network capacity by managing demand. TDM measures are designed primarily to address traffic congestion in ways other than increasing the capacity of roads and car parks
- **Funding prioritisation**
  A key Auckland Transport priority is to manage demand and make best use of existing assets before building additional capacity through new assets. It is good practice to use funds for maintenance activities before building new assets
- **Whole-of-life cost optimisation**
  If an asset is allowed to deteriorate into poor condition it will require more maintenance and present an increased risk to the network and potentially the entire system. Maintenance costs resulting from deferred renewals can be significant. Renewal investment is used to maintain levels of service, manage the cost of maintenance and manage risk. Optimised decision making (ODM) is used to minimise the total cost of asset ownership by providing an optimal balance between renewal and maintenance investment levels.

6 Asset management challenges

There are several challenges arising from asset management and network issues. The key challenges and issues, plus the implications for asset management planning, are outlined below.

Table 3 Asset management challenges

Issue	Challenge	Asset management implications
Investment options	Identify investment levels needed for different levels of service options	Different investment options being explored need to factor in the whole-of-life cost implications Large scale new works need to identify the operations and maintenance, and renewal expenditure implications
Levels of service	Establish robust alignment between lifecycle management plans and customer expectations	The delivered performance of services and assets need to link, in a logical manner, with key outcome measures. This will connect what is being done with how well it is being done and why it is being done
Optimised decision making (ODM)	Establish robust optimised decision making processes	ODM establishes the most cost-effective renewal intervention point for each asset to minimise total cost of ownership ODM establishes cost-benefit viability for major projects
Asset knowledge	Improve the quality of data in the asset management systems for all assets and services	Good quality outcomes from asset management processes depend upon inputting consistent and good quality data
Robust programming	Develop consistent and robust long-term programmes for key renewal activities	Long-term regional asset management outcomes can only be delivered through renewal programmes that follow a consistent long-term renewal strategy
Risk management	Develop asset management risk management processes Identify high-risk assets	Risk management processes include criticality, vulnerability and resilience requirements. These cover network criticality in relation to other services and infrastructure as well as emergency management Identifying high risk assets mitigates the vulnerability of the transport network

Key Risks

Asset management risks cover aspects such as health and safety, service delivery, cost management and organisational reputation. Successful delivery of regional transport services requires managing such risks by ensuring good practice in asset knowledge, funding, integrated planning and service levels.

An initial assessment for the transport activity shows a number of potential risk events and these are detailed in the AMP Risk Register and also listed in Table 4 below. No very high or high residual risks were identified.

Table 4 Summary of Risk Register

Ref ID	Risk description	Risk type	Consequence of the risk event
AMP 1	Failure to deliver on funding investment outcomes	Service delivery Financial Reputational	Lack of confidence from Auckland Council and NZTA Additional oversight and control Auckland Transport fails to convince NZTA to bulk fund capital projects under $5m
AMP 2	Ineffective decision making using inaccurate data in asset management systems	Service delivery Financial Reputational	Inadequate forward works programmes affecting service delivery Effectiveness of new AMP contracts may be compromised through non-standardised data formats Possible impact upon viability of customer relationship management (CRM) Project. Requires RAMM* 2011 to operate – Auckland Transport runs RAMM 2008 Unable to obtain optimal benefits from investment
AMP 3	Failure to deliver capital works programme compromising the delivery of the Statement of Intent (SOI) programme of action	Service delivery Financial Reputational	NZTA subsidisable projects not progressed, and increased Auckland Council funding required or a reduction in the programme Inefficient, inaccurate status reports and financial forecasting, with discrepancies, errors and out of date information Incomplete and inaccurate reporting from the lack of clear responsibility for monitoring Inconsistent information provided to management creating a poor reputation for programming and delivery Inaccurate programming information resulting in poor accuracy of programme delivery
AMP 4	Ineffective lifecycle management plans	Service delivery Reputational Financial	Inaccurate recommendations for the Long Term Plan (LTP). Delivery of the agreed levels of service will be compromised Value for money will not be delivered Objectives of the ITP and AMP may not be delivered
AMP 5	Unexpected failure of critical assets	Service delivery Financial Reputational Health and safety	Unforeseen capital or renewal expenditure required between LTP periods Unplanned closure or restrictions on networks Health and safety issues Adverse publicity Reduction in levels of service
AMP 6	Inaccurate asset registers and asset valuation	Service delivery Financial Reputational	Incorrect fixed asset register Incorrect asset depreciation calculation Incomplete knowledge of assets held across Auckland Transport
AMP 7	Failure to assess the levels of service needs in the development of AMP	Service delivery Financial Reputational	Misalignment between levels of service and long-term needs in AMP and LTP Customer service expectations may not be aligned to levels of service
AMP 8	Failure or unserviceability of critical infrastructure during an emergency event	Service delivery Financial Reputational	Implementation of emergency plans may be compromised Significant adverse publicity
AMP 9	Unforeseen programme cost escalation due to external factors (overspend)	Financial Service delivery	Lack of approved funding to meet improvement capital projects Programme delay leads to expiry of designations and consents on individual projects Failure to deliver on the strategic impacts for growth or service level as identified in SOI

7 Asset management improvement plan

The asset management improvement plan addresses the above issues and risks through a series of programmes planned to be implemented over a number of years. Twelve key improvement programmes are the priorities for regional asset management integration work in the next three years. These improvement programmes are:

Table 5 Key improvement programmes

No	Key improvement programme	Description	Priority
1	Levels of service options and costs	Establish investment levels needed for different levels of service options	Very high
2	Robust optimised decision making processes	Establish robust optimised decision making processes for major transport projects	High
3	Robust renewals programming	Develop robust renewals programmes on a regional basis	High
4	Asset management risk management processes	Further develop the asset management risk management processes including criticality, vulnerability and resilience requirements	High
5	LCMP and customer expectation alignment	Establish alignment between lifecycle management plans and customer expectations	High
6	Condition assessment programme	Complete a condition assessment programme for high risk assets as a priority. Implement a routine condition survey programme for all transport assets	Very high (for high risk assets)
7	Quality of asset data in asset management systems	Improve the quality of asset data in the asset management systems such as RAMM and SPM	High
8	Asset operations and maintenance	Rationalise monitoring and reporting frameworks and operational procedures between internal Auckland Transport groups including clarification of roles and responsibilities	High
9	Assets ownership	Develop a process to clarify asset ownership issues	High
10	Sustainability	Develop policies and strategies to promote sustainability through innovative solutions	Medium
11	Financial planning	Implement a financial planning model to facilitate the development of long-term financial plans	Medium
12	Asset management practice	Complete a formal practice review of Auckland Transport asset management practices	Medium

8 Summary of lifecycle needs

Lifecycle profiles are provided for each key asset or service group, to give a consolidated summary that highlights key aspects and issues.

Lifecycle needs are based on best available information from our asset systems (such as the RAMM database) and local knowledge. The data quality varies across the region and still depends on the data quality from the legacy councils. The data quality and completeness also varies between asset classes.

Renewal analysis has been completed based on condition and age. The robustness of these analyses is dependent on the underlying information, which is variable. The preferred method is the condition-based renewal analysis, as it is the most mature.

The following lifecycle profiles are provided in this section.

Asset Management Plan 2012 – 2015 Road Network	Road pavements
	Bridges and structures
	Retaining walls
	Corridor structures
	Parking
	Footpaths
	Cycleways
	Street lighting
	Traffic systems and operations
	Signs and road markings
	Drainage
	Street vegetation
	Community transport
	Network management and planning

Asset Management Plan 2012 – 2015 Public Transport Network	Rail
	Bus
	Wharves
	Public Transport Services

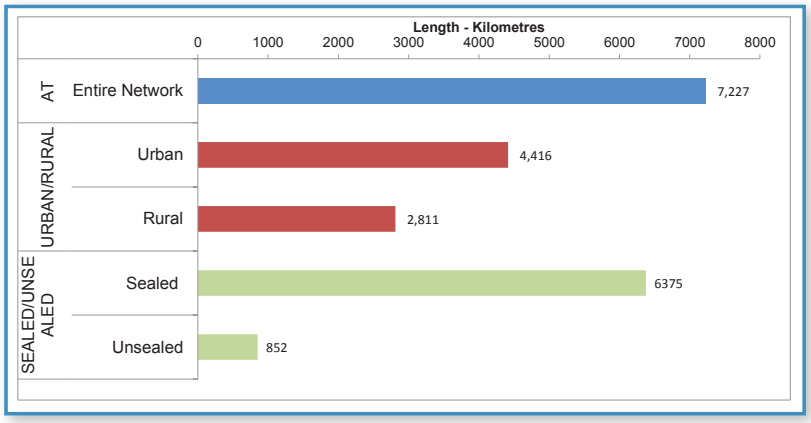

MANUKAU
Auckland Transport
CAF

8.1 Road pavements

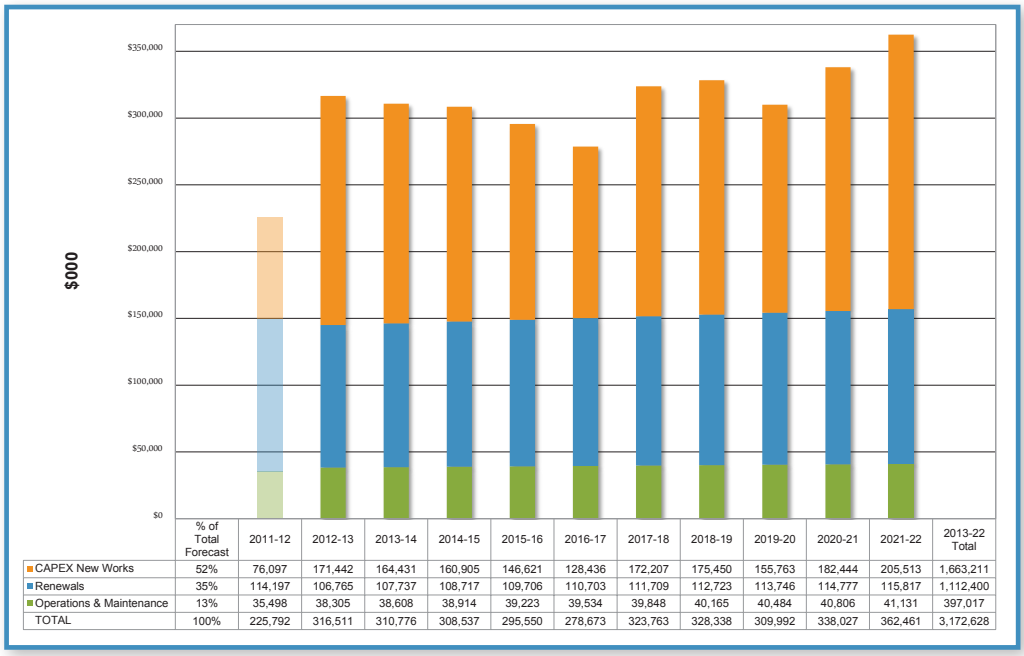
Road pavements network assets

7,227km of roads
$5.3 billion replacement value
85% of vehicle kilometres travelled on the network are on smooth roads
Estimated 5% current surface backlog
2% asset data is unknown for top surfaces and 36% of pavement base age is unknown
Road pavements represent 52% of the total road network expenditure

Road length distribution



Road pavements 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	52%	76,097	171,442	164,431	160,905	146,621	128,436	172,207	175,450	155,763	182,444	205,513	1,663,211
Renewals	35%	114,197	106,765	107,737	108,717	109,706	110,703	111,709	112,723	113,746	114,777	115,817	1,112,400
Operations & Maintenance	13%	35,498	38,305	38,608	38,914	39,223	39,534	39,848	40,165	40,484	40,806	41,131	397,017
TOTAL	100%	225,792	316,511	310,776	308,537	295,550	278,673	323,763	328,338	309,992	338,027	362,461	3,172,628

- **The total 10-year expenditure of $3.17 billion for road pavements includes $5 million per year for renewals and operations and maintenance of roads transferred to Auckland Transport ownership due to state highway revocations.**

Long Term Plan

- The approved Long Term Plan provides $1,412.8 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of $65.5 million (16% reduction) for O&M and $31.2 million (3% reduction) for renewals
- The impacts of this funding gap are:
  - a reduction of approximately 148 km of resurfacing and 17 km of rehabilitation of road pavements over the 10 years of the plan
  - insufficient budget to reduce the current levels of deferred renewals
- The consequences resulting from these variances will be monitored and reported as appropriate.

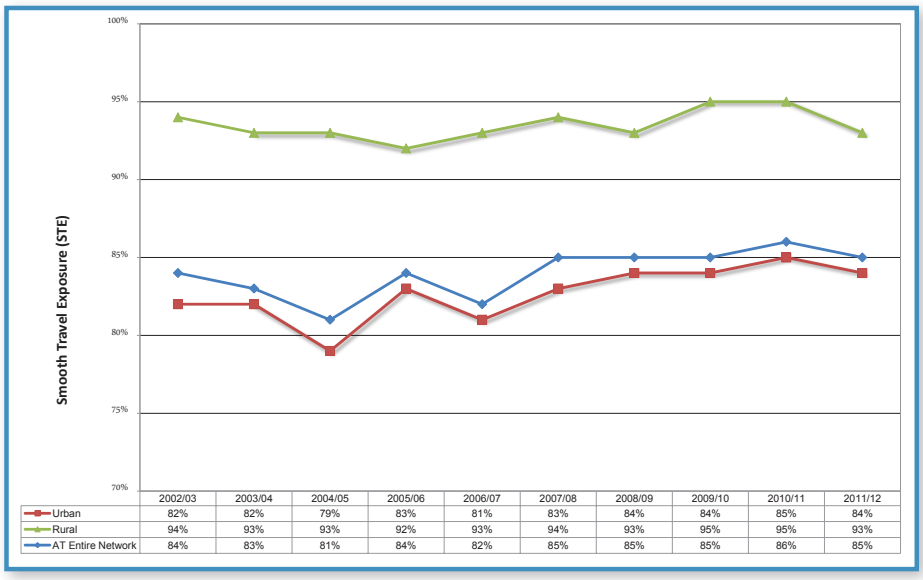
Key issues	Response
Development in formerly rural and semi-rural areas is leading to traffic loadings unsuitable for some road pavements	Liaise closely with Auckland Council RMA planning and administration staff to ensure that effects of developments outside their property boundaries are fully considered in all RMA decisions
The effects on specific routes of recent changes of the land transport rule: vehicle mass and dimensions for HPMVs (High Productivity Motor Vehicles)	Carefully review all applications for use of local roads by HPMVs. Continue to monitor potential HPMV routes for unauthorised use by HPMVs
Level of service is not consistent throughout the network and requires harmonisation	Improvement plan includes level of service harmonisation across the Auckland Transport Network
Current levels of service	**Target levels of service (indicative)**
79% of residents very satisfied, satisfied or neutral about the quality of roads in the Auckland region	Not less than 75% of residents very satisfied, satisfied or neutral about the quality of roads in the Auckland region
79-95% Urban Smooth Travel Exposure	Maintain or improve on baseline (79-95%) Urban Smooth Travel Exposure
88% vehicle users consider the network to be safe	Percentage of vehicle users who consider the network to be safe
85% maintained for inter-peak travel times (for agreed strategically important arterial routes)	85% maintained for inter-peak travel times (for agreed strategically important arterial routes)

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity			■	
Asset age		■		
Condition			■	
Performance			■	

- The current overall confidence level of asset data in terms of road pavements is considered reliable except for pavement base age which is unknown for 36% of the network.

Road pavements condition trend



	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Urban	82%	82%	79%	83%	81%	83%	84%	84%	85%	84%
Rural	94%	93%	93%	92%	93%	94%	93%	95%	95%	93%
AT Entire Network	84%	83%	81%	84%	82%	85%	85%	85%	86%	85%

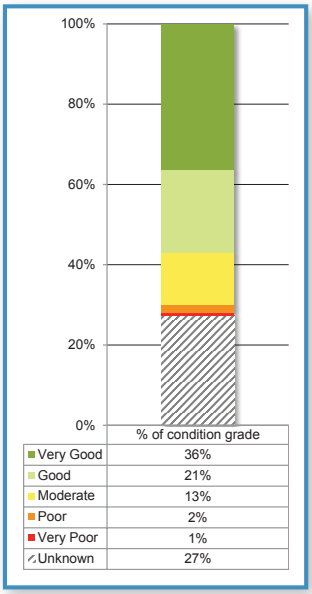
- The graph shows that 85% of vehicle kilometres travelled (VKT) were on smooth roads. It shows a steady increasing trend in Smooth Travel Exposure (STE) since 2006 and a slight decrease in the last year
- STE is a measurement of road roughness scaled by traffic volume to reflect usage for sealed rural and urban roads. It is widely accepted as a key measure that indicates the health of the network.

8.2 Bridges and structures

Bridges and structures network assets

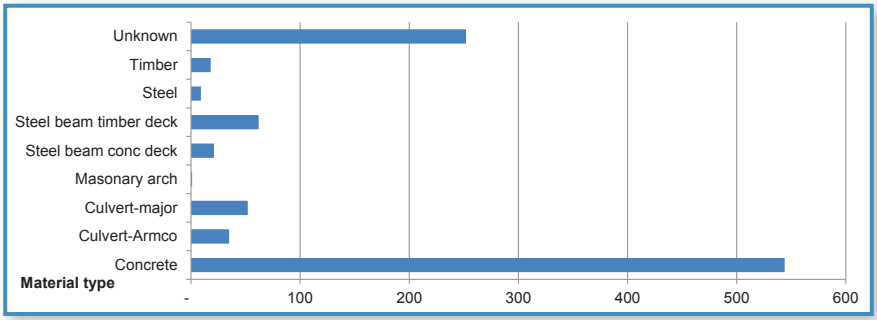
592 bridges, 356 major culverts and 46 footbridges region wide
$537 million replacement value
70% of network is in moderate or better condition (96% of known assets)
3% of the network is in poor or very poor condition (4% of known assets)
27% unknown condition data
Bridges and structures represent 3% of the total road network expenditure

Condition profile

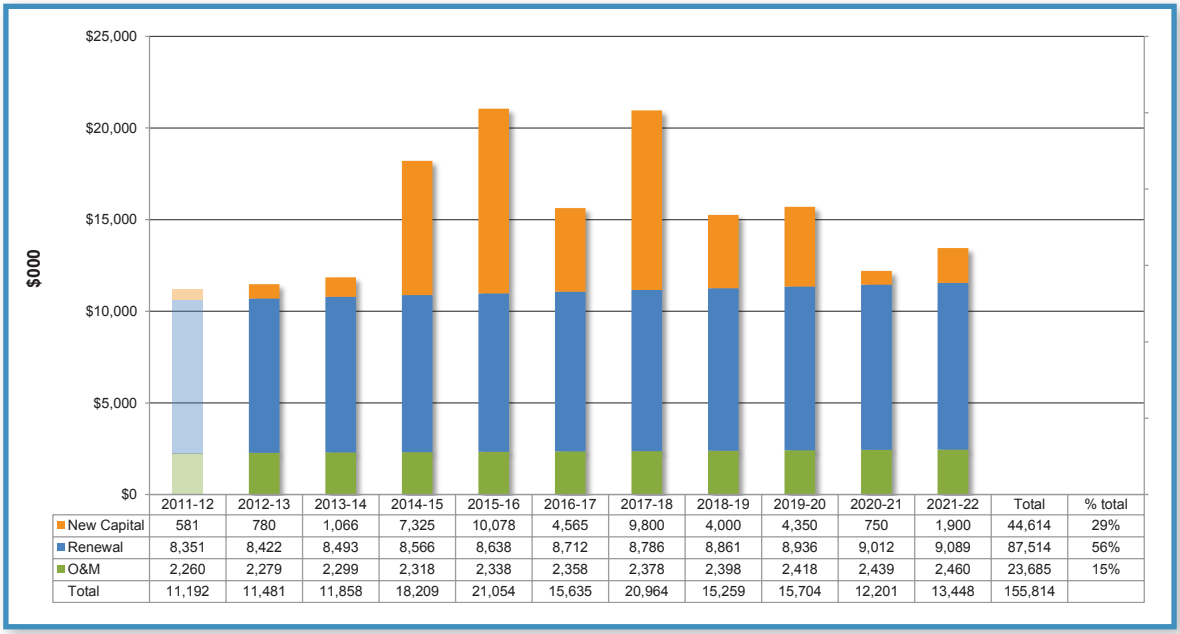


	% of condition grade
Very Good	36%
Good	21%
Moderate	13%
Poor	2%
Very Poor	1%
Unknown	27%

Bridges material profile



Bridges and structures 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	581	780	1,066	7,325	10,078	4,565	9,800	4,000	4,350	750	1,900	44,614	29%
Renewal	8,351	8,422	8,493	8,566	8,638	8,712	8,786	8,861	8,936	9,012	9,089	87,514	56%
O&M	2,260	2,279	2,299	2,318	2,338	2,358	2,378	2,398	2,418	2,439	2,460	23,685	15%
Total	11,192	11,481	11,858	18,209	21,054	15,635	20,964	15,259	15,704	12,201	13,448	155,814	

- **10-year total for operations and maintenance, renewals and new works needs is $156 million.**

Long term plan

- The approved Long Term Plan provides $80.8 million 10 year total for O&M and renewals
- This represents a funding gap between AMP and LTP of zero for O&M and $30.4 million (35% reduction) for renewals
- The impacts of this funding gap are:
  - a reduction of approximately 17 bridge renewals over the 10 years of the plan
  - insufficient budget to reduce the current levels of deferred renewals
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
High Productivity Motor Vehicles (HPMV) operation may lead to greater loadings and higher risks on bridges on the specific routes	**Identify permitted High Capacity Vehicle (HCV) routes. A list of possible HCV routes is being considered for inclusion in the overweight/over-dimension permit system**
The condition and integrity of structures on Lifeline routes is essential for public safety and civil defence	**Programme of seismic screening and risk assessment is in place for structures on the Lifeline routes. Review of earthquake risk associated with bridge assets**
Incomplete or inconsistent bridge inventory data including a significant number of bridges with unknown construction dates	**Improve bridge data, including accuracy of estimated construction dates**

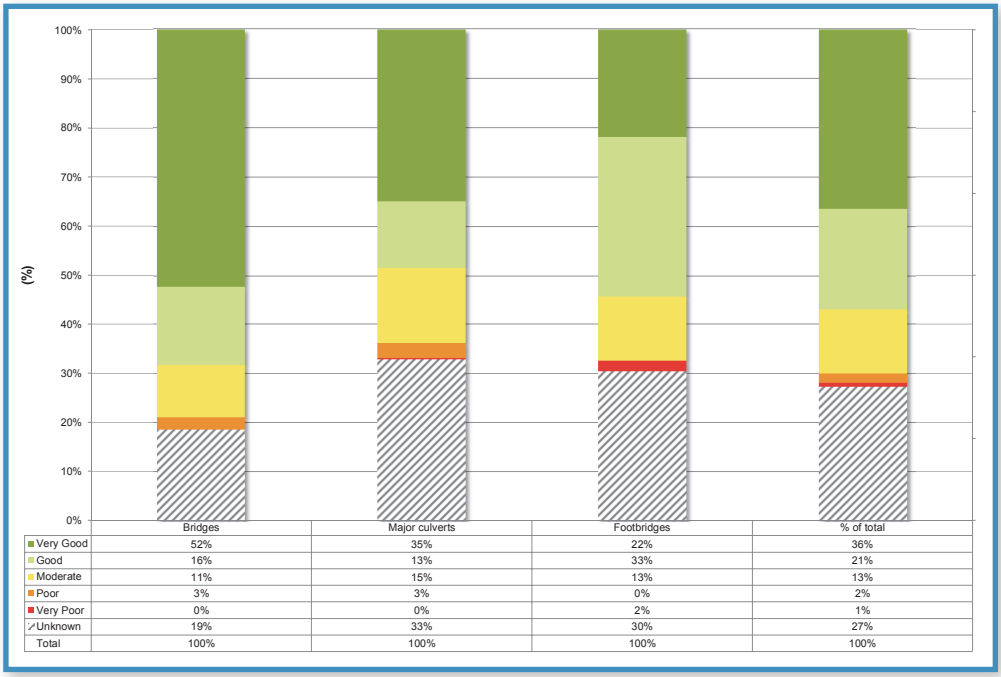
Current levels of service	Target levels of service (indicative)
70% (96% of known assets) of bridges and major culverts in moderate or better condition (condition grade 3 or better)	**Percentage of bridges and major culverts in moderate or better condition (condition grade 3 or better)**
Percentage compliance with maintenance and cleaning schedules for bridges, traffic control structures and major culverts	**100% compliance with maintenance and cleaning schedules for bridges, traffic control structures and major culverts**
100% compliance with no high risk locations left unprotected	**100% compliance with no high risk locations left unprotected**

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- **Inconsistent methods of recording/describing data, including bridge materials, and some data is incorrect such as bridge lengths.**

Bridges and structures condition by network area



	Bridges	Major culverts	Footbridges	% of total
Very Good	52%	35%	22%	36%
Good	16%	13%	33%	21%
Moderate	11%	15%	13%	13%
Poor	3%	3%	0%	2%
Very Poor	0%	0%	2%	1%
Unknown	19%	33%	30%	27%
Total	100%	100%	100%	100%

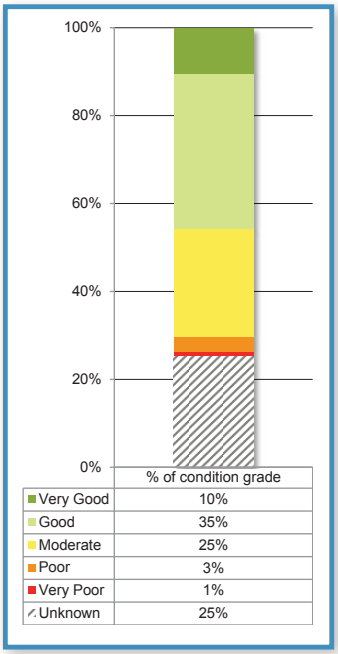
- **Major culverts have the most unknown condition information at 33%, particularly in the South area.**

8.3 Retaining wall

Retaining wall network assets

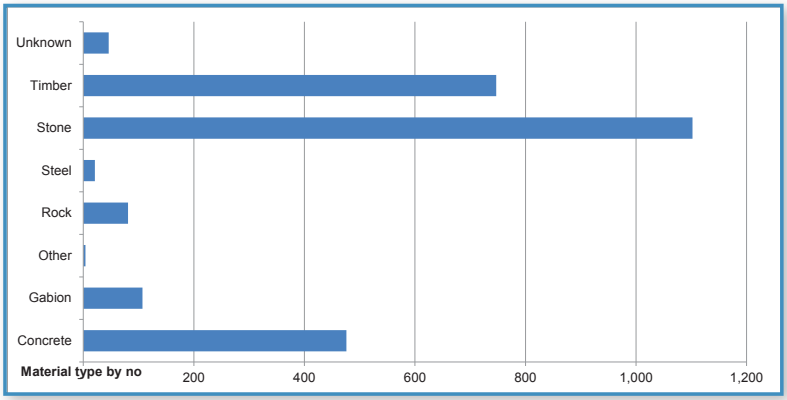
2,584 retaining walls region wide
$239 million replacement value
70% of network is in moderate or better condition (95% of known assets)
4% of network is in poor or very poor condition (5% of known assets)
25% unknown condition data
Bridges and structures (including retaining walls) represent 3% of the total road network expenditure

Condition profile

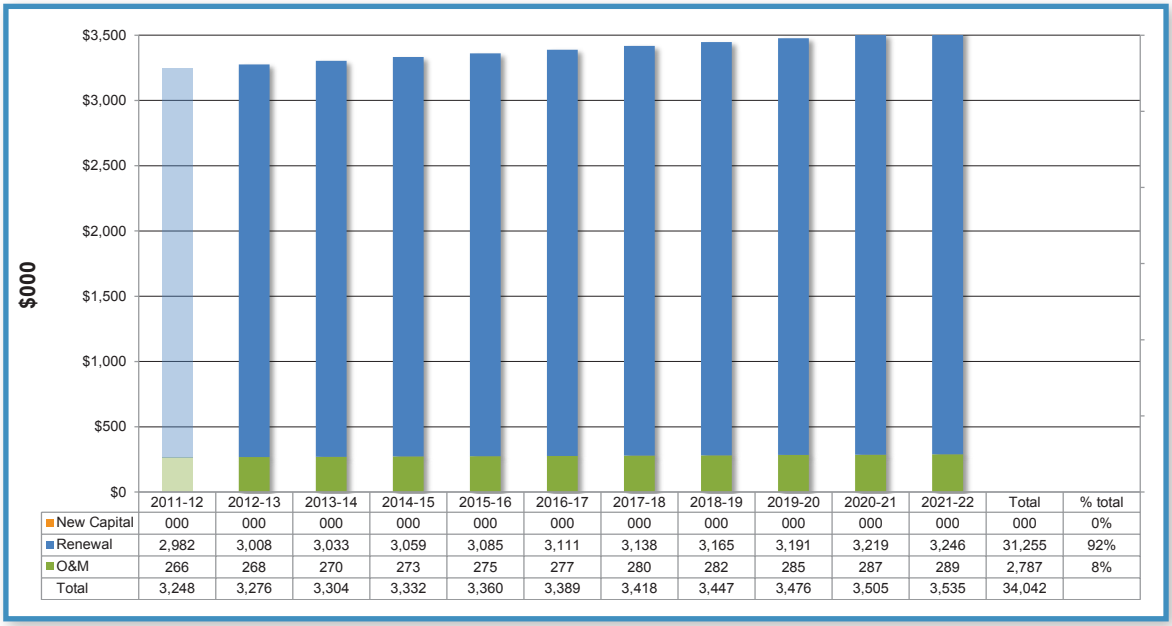


	% of condition grade
Very Good	10%
Good	35%
Moderate	25%
Poor	3%
Very Poor	1%
Unknown	25%

Material profile



Retaining wall 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	000	000	000	000	000	000	000	000	000	000	000	0%
Renewal	2,982	3,008	3,033	3,059	3,085	3,111	3,138	3,165	3,191	3,219	3,246	31,255	92%
O&M	266	268	270	273	275	277	280	282	285	287	289	2,787	8%
Total	3,248	3,276	3,304	3,332	3,360	3,389	3,418	3,447	3,476	3,505	3,535	34,042	

- **10-year total operations and maintenance and renewals needs is $34 million.**

Long Term Plan

- The approved Long Term Plan provides $23.2 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of zero for O&M and $10.8 million (35% reduction) for renewals
- The impacts of this funding gap are:
  - a reduction of approximately 300 retaining wall renewal projects over the 10 years of the plan
  - insufficient budget to reduce the current levels of deferred renewals
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
Incomplete data and asset knowledge of retaining walls and sea walls	Develop programme for detailed inspections of known and unknown retaining walls and sea walls
Ownership of retaining walls on private properties. This may take significant time to resolve	Develop ownership guidelines, investigate and reconcile ownership using data from annual condition survey (found assets)
Condition integrity of structures on Lifeline routes is essential for public safety and civil defence, as required by Auckland Engineering Lifeline Group	Develop programme of seismic screening and risk assessment for structures on the Lifeline routes. A corrosion management study along critical coastal routes should also be undertaken

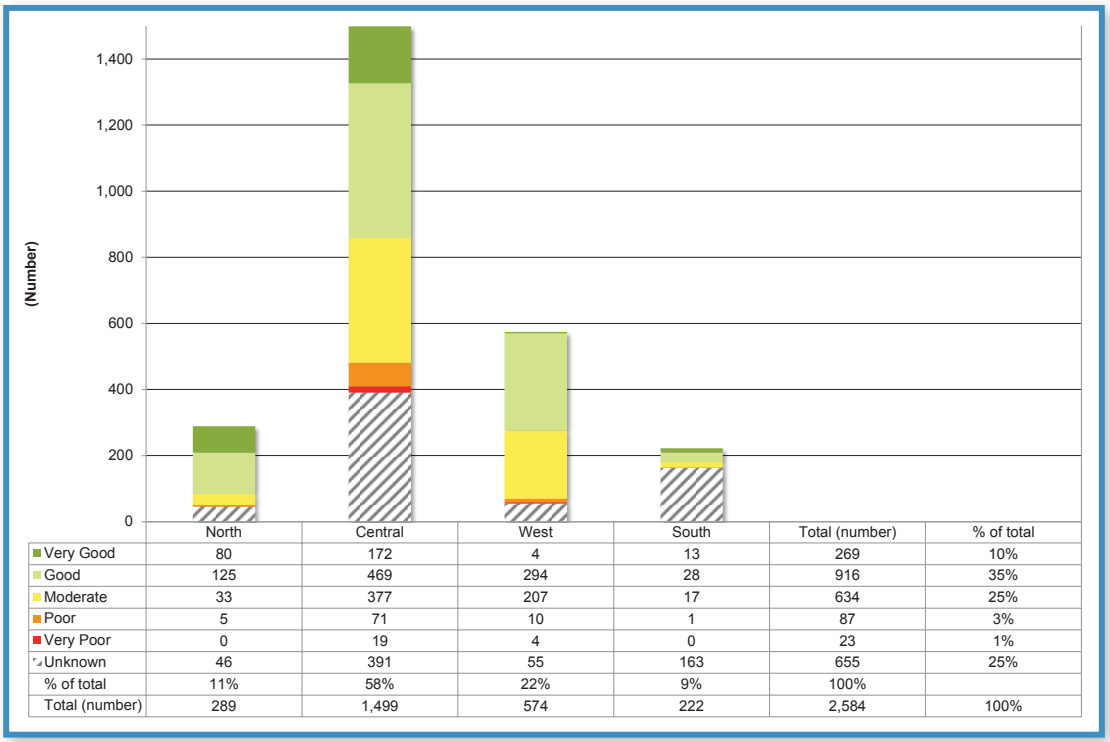
Current levels of service	Target levels of service (indicative)
20 slips classified as low, medium, high risk	20 slips classified as low, medium, high risk
<=5% of drainage openings not functioning in retaining walls	<=5% of drainage openings not functioning in retaining walls

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity		■		
Asset age		■		
Condition			■	
Performance	■			

- Asset description and condition data sets are not complete for the known retaining wall assets.

Retaining wall condition by network area



	North	Central	West	South	Total (number)	% of total
Very Good	80	172	4	13	269	10%
Good	125	469	294	28	916	35%
Moderate	33	377	207	17	634	25%
Poor	5	71	10	1	87	3%
Very Poor	0	19	4	0	23	1%
Unknown	46	391	55	163	655	25%
% of total	11%	58%	22%	9%	100%	
Total (number)	289	1,499	574	222	2,584	100%

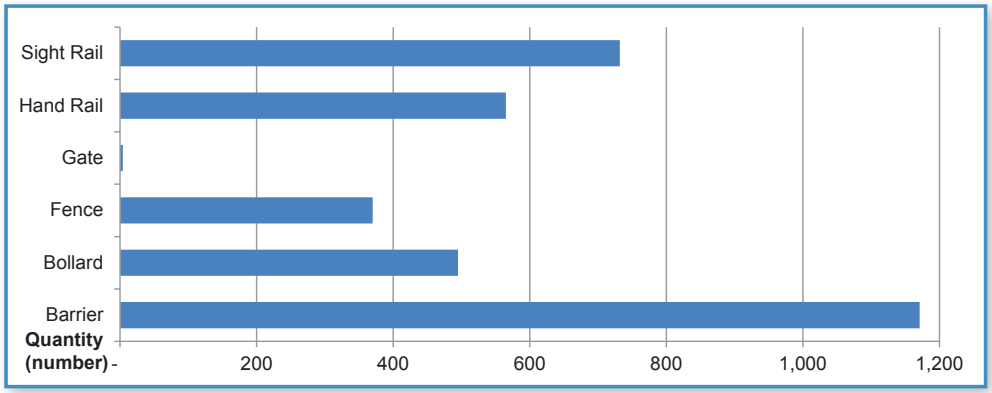
- The central area has the highest amount of unknown condition information at 58%.

8.4 Corridor structures

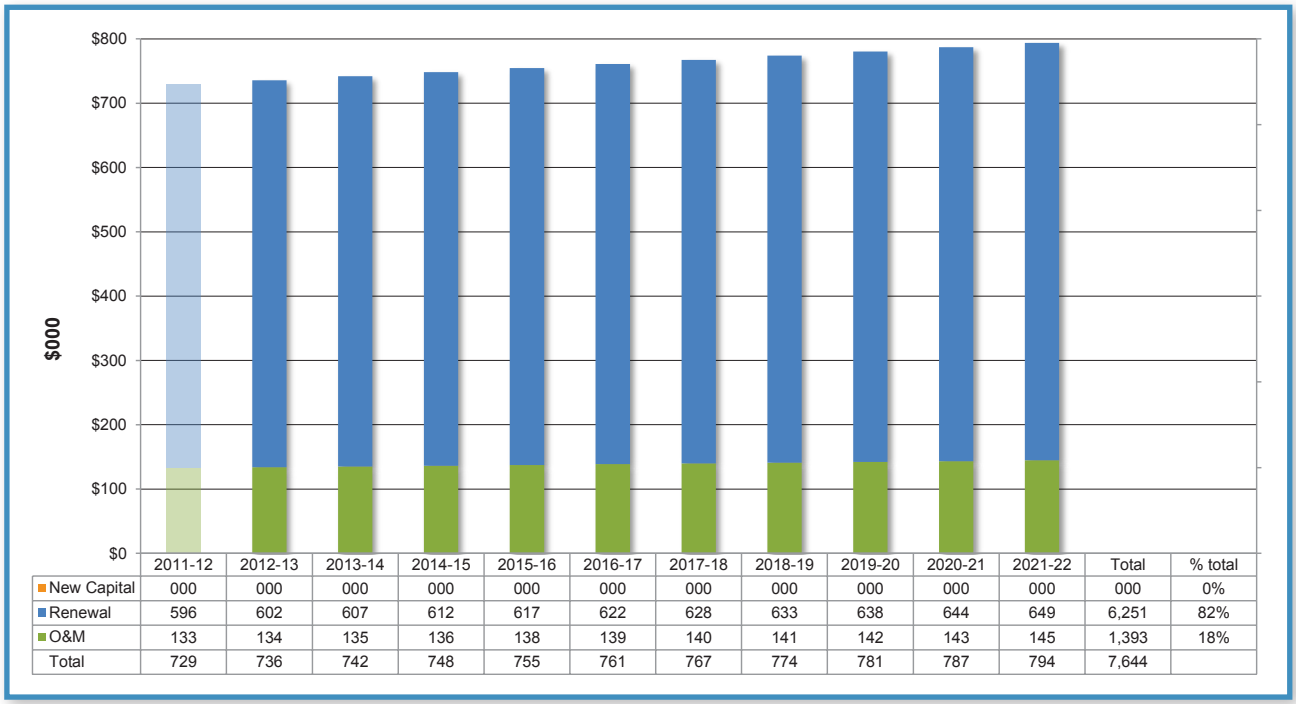
Corridor structures network assets

55km of roadside barriers and 10 gantries region wide
$47 million replacement value
78% unknown data
Bridges and structures (including corridor structures) represent 3% of the total road network expenditure

Railings and fences asset type



Corridor structures network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	000	000	000	000	000	000	000	000	000	000	000	0%
Renewal	596	602	607	612	617	622	628	633	638	644	649	6,251	82%
O&M	133	134	135	136	138	139	140	141	142	143	145	1,393	18%
Total	729	736	742	748	755	761	767	774	781	787	794	7,644	

- **10-year total for corridor structures renewals and operations and maintenance is $7.6m.**

Long Term Plan

- The approved Long Term Plan provides $6.4 million 10-year total for O&M and renewals
- An apparent O&M variance of +$925,000 between AMP and LTP is not an increase in O&M, but rather a re-allocation from corridor fixtures to corridor structures
- There is a funding gap between AMP and LTP of $2.2 million (35% reduction) for renewals
- The impacts of this funding gap are:
  - a reduction of approximately 300 corridor structures renewals over the 10 years of the plan
  - insufficient budget to reduce the current levels of deferred renewals
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
Unreported and untraceable damage caused by vehicle crashes and vandalism inflicting additional costs	Continued close liaison with the New Zealand Police and reporting by the public
Maintain focus on the condition and integrity of structures on lifeline routes essential for public safety and civil defence	Develop a risk register in alignment with AS/NZS IS0: 31000:2009 to include risks associated with asset groups, such as pavements, bridges, footpaths
Unreported damage to mode separation structures creating unsafe road environment	Contractor, public and police reporting. Services reporting. Regular inspection regime

Current levels of service

There are currently no levels of service specific to corridor structures. This will be reviewed as part of the levels of service improvement plan with a focus on asset safety and condition.

Corridor structures are specifically designed and maintained to:

- **Help reduce the likelihood of significant adverse effects resulting from errors in vehicle driving, walking or cycling**
- **Provide physical separation and/or reduced traffic speeds both between traffic flows and between different types of road users in situations with elevated crash risks**
- **Improve road users visibility of signs**
- **Monitor the behaviour of traffic and people to allow early intervention if unsafe situations develop**
- **Enhance the visual environment through use of ornamental features in appropriate locations.**

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

There is variable consistency in how RAMM tables store and describe corridor structure assets.

Corridor structures condition

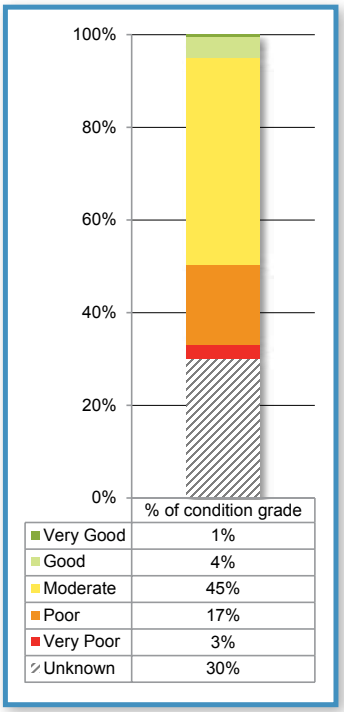
- **Only 22% of the railing asset condition is recorded in RAMM with the balance in "unknown" condition**
- **Therefore no statement can currently be made on the overall condition of corridor structures.**

8.5 Parking

Parking network assets

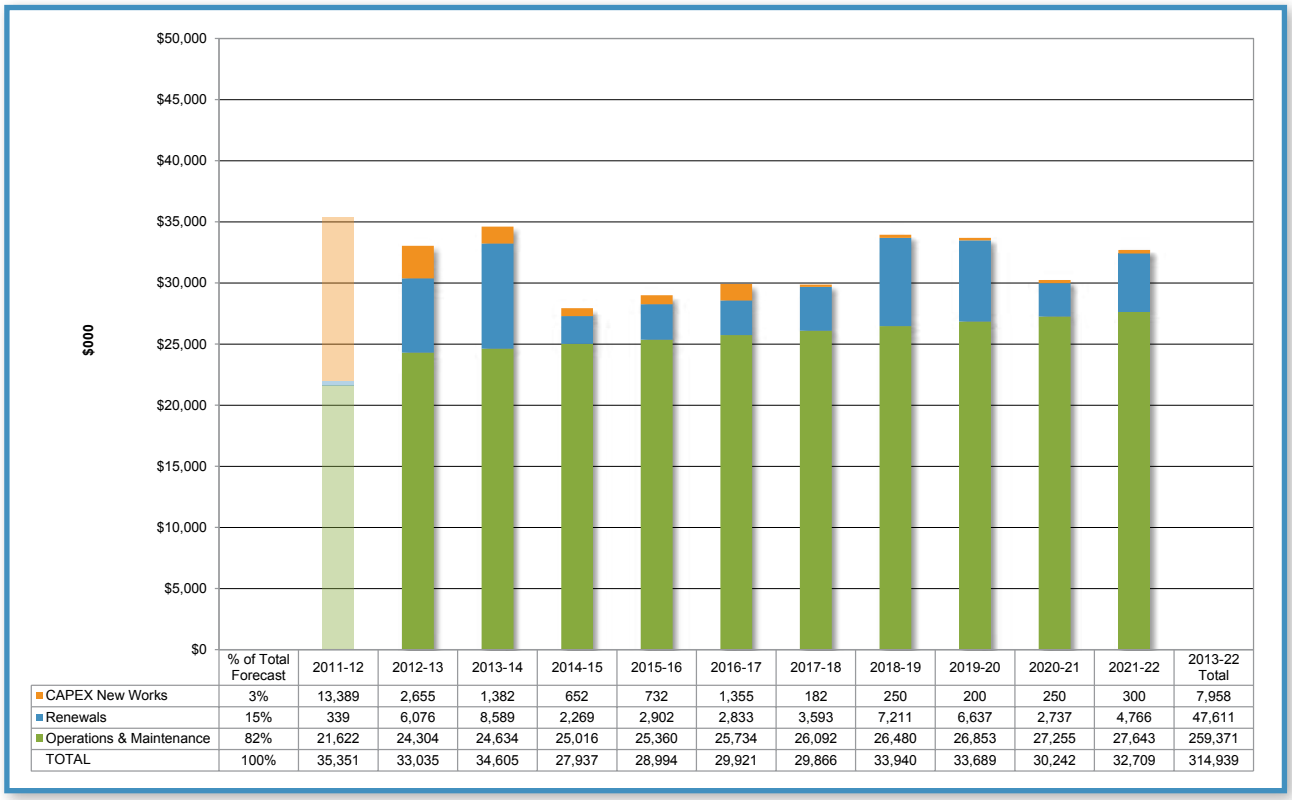
On-street parking (unrestricted, restricted and pay and display) 171 off-street car parks including 12 buildings and 20 park-and-rides, parking equipment, signage and devices for parking wardens
$42 million replacement value (not including parking buildings)
75% user satisfaction with access to parking
85% of customers satisfied with level of personal security
50% of network is in moderate or better condition (71% of known assets)
20% of the network is in poor or very poor condition (29% of known assets)
30% unknown asset condition
Parking represents 5% of the total road network expenditure

Condition profile off-street carparks



	% of condition grade
Very Good	1%
Good	4%
Moderate	45%
Poor	17%
Very Poor	3%
Unknown	30%

Parking 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	3%	13,389	2,655	1,382	652	732	1,355	182	250	200	250	300	7,958
Renewals	15%	339	6,076	8,589	2,269	2,902	2,833	3,593	7,211	6,637	2,737	4,766	47,611
Operations & Maintenance	82%	21,622	24,304	24,634	25,016	25,360	25,734	26,092	26,480	26,853	27,255	27,643	259,371
TOTAL	100%	35,351	33,035	34,605	27,937	28,994	29,921	29,866	33,940	33,689	30,242	32,709	314,939

Long Term Plan

- The approved Long Term Plan provides $287.3 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of $18.4 million (7% reduction) for O&M
- An apparent funding gap of $1.3 million (3% reduction) for renewals is not a reduction, but rather a re-allocation from parking signs and markings to road signs and markings
- The impact of this funding gap is:
  - a potential reduction of operations and maintenance programmes that may impact LOS
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
Uncertainty in ownership and responsibilities of some parking assets, buildings and facilities	**Clarify exact ownership and responsibility of some parking buildings and facilities, such as those not on Auckland Transport road reserve land, associated with public transport facilities, parks or Auckland Council property groups**
Lack of certainty and consistency information upon which to base asset planning and renewals analysis, therefore the proposed work programme is based on historical practices	**Establish better data collection and systems to ensure all data collected contains all relevant information**

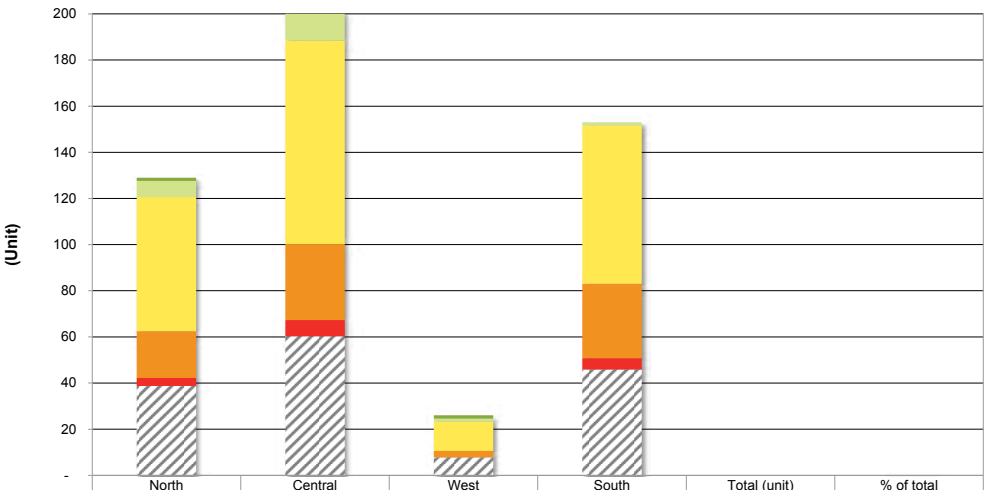
Current levels of service	Target levels of service (indicative)
75% user satisfaction with access to parking	**80% user satisfaction with access to parking**
85% of customers satisfied with level of personal security	**85% of customers satisfied with level of personal security**

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- **There is insufficient parking assets data in SPM database upon which to base a reliable renewals analysis**
- **To address this, there is an ongoing improvement task of data collection for parking assets.**

Off-street car parks condition by network area (not including buildings or park-and-ride)



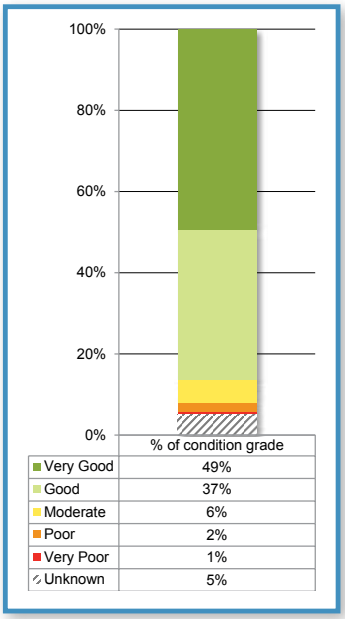
	North	Central	West	South	Total (unit)	% of total
Very Good	1	0	1	0	3	1%
Good	7	13	1	1	22	4%
Moderate	58	88	13	69	228	45%
Poor	20	33	3	32	88	17%
Very Poor	4	7	0	5	15	3%
Unknown	39	60	8	46	153	30%
% of total	25%	39%	5%	30%	100%	
Total (unit)	129	201	26	153	509	100%

8.6 Footpaths

Footpaths network assets

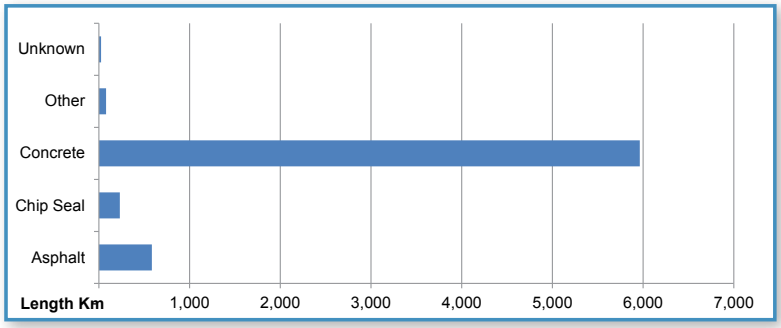
6,879km of footpaths region wide
$666 million replacement value
92% of footpath are in moderate or better condition (97% of known assets)
3% of network is in poor or very poor condition (3% of known assets)
Estimated 6% current backlog
5% unknown condition data
Footpaths represent 6% of the total road network expenditure

Condition profile

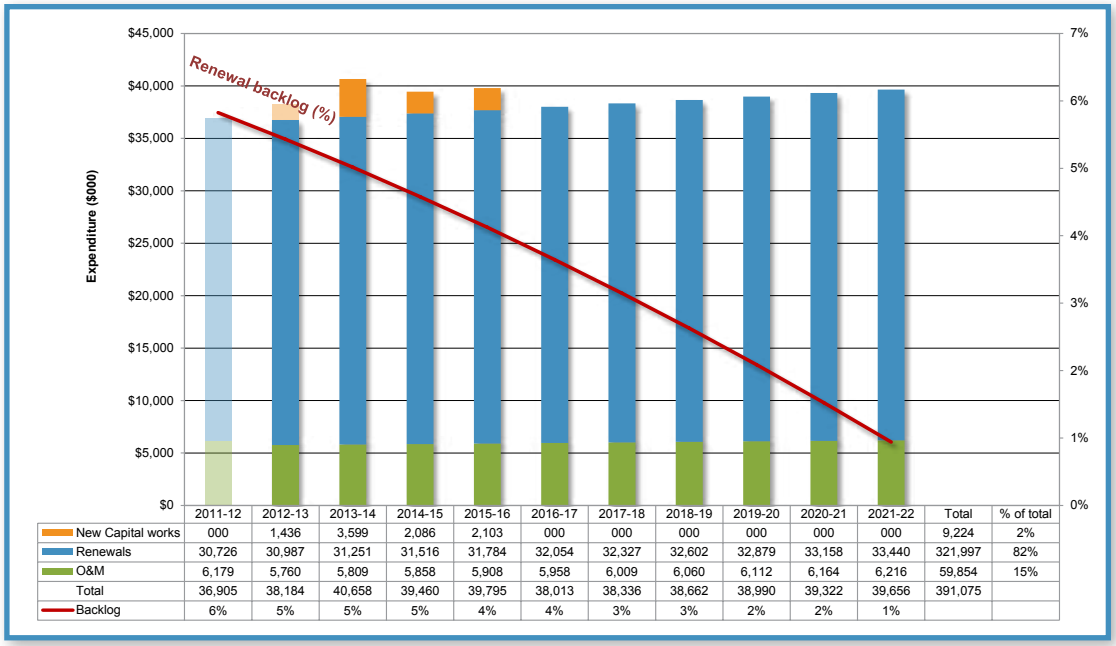


% of condition grade	
Very Good	49%
Good	37%
Moderate	6%
Poor	2%
Very Poor	1%
Unknown	5%

Material profile



Footpath 10-year network needs and backlog profile



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% of total
New Capital works	000	1,436	3,599	2,086	2,103	000	000	000	000	000	000	9,224	2%
Renewals	30,726	30,987	31,251	31,516	31,784	32,054	32,327	32,602	32,879	33,158	33,440	321,997	82%
O&M	6,179	5,760	5,809	5,858	5,908	5,958	6,009	6,060	6,112	6,164	6,216	59,854	15%
Total	36,905	38,184	40,658	39,460	39,795	38,013	38,336	38,662	38,990	39,322	39,656	391,075	
Backlog	6%	5%	5%	5%	4%	4%	3%	3%	2%	2%	1%		

- **The proposed renewals investment of on average $34 million per year is sufficient to reduce the footpath renewals backlog from 6.3% ($81m) to 0.2% ($2m) by 2022 (shown as the red line).**

Long Term Plan

- The approved Long Term Plan provides $374.2 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of zero for O&M and $7.7 million (2% reduction) for renewals
- The impacts of this funding gap are:
  - a reduction of approximately 50km of footpath renewals over the 10 years of the plan
  - insufficient budget to reduce the current levels of deferred renewals
- The consequences resulting from these variances will be monitored and reported as appropriate.

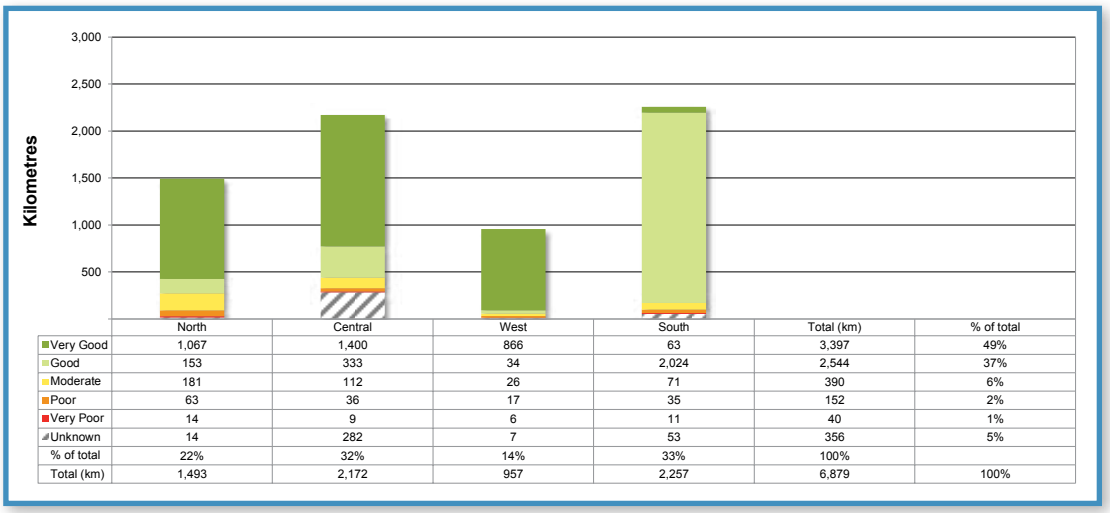
Key issues	Response
Policy change in favour of concrete footpaths in the central area, requiring substantial renewals	67% of the region's footpaths renewals funds has been directed in the Central area to 32% of footpaths
In some instances there can be pressure on the footpaths budgets for special non-renewal work such as city centre streetscape upgrades, which may result in reduction of funds for footpaths renewal programme	Review a regional approach for prioritisation and confirm the allocation of funds
Footpaths and associated facilities will become more significant as 'greener', healthier transport choices become more popular	Develop policies and strategies to promote the use of footpaths and shared cycleways
Current levels of service	**Target levels of service (indicative)**
92% (97% of known assets) of footpaths in moderate condition (grade 3) or better	95% of footpaths in moderate condition (grade 3) or better
76% of residents very satisfied, satisfied or neutral about the quality of footpaths in their local area	Not less than 75% of residents very satisfied, satisfied or neutral about the quality of footpaths in their local area
5,297 walking trips are made into the city centre during the morning peak	2% increase each year in walking trips into the city centre during the morning peak each year (until 2014/15)

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- The table shows the confidence of footpath assets information held in the RAMM database.

Footpath condition by network area



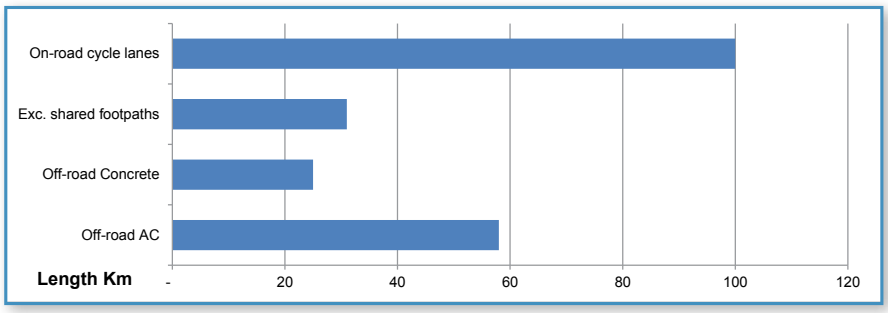
	North	Central	West	South	Total (km)	% of total
Very Good	1,067	1,400	866	63	3,397	49%
Good	153	333	34	2,024	2,544	37%
Moderate	181	112	26	71	390	6%
Poor	63	36	17	35	152	2%
Very Poor	14	9	6	11	40	1%
Unknown	14	282	7	53	356	5%
% of total	22%	32%	14%	33%	100%	
Total (km)	1,493	2,172	957	2,257	6,879	100%

8.7 Cycleways

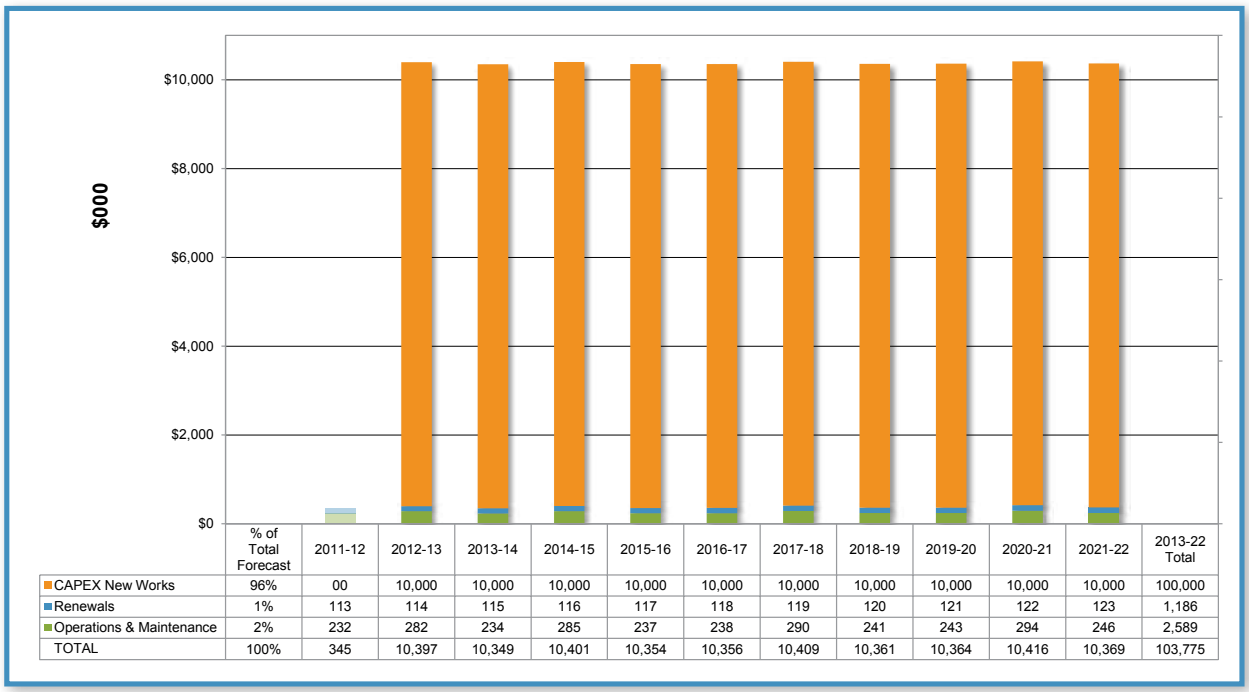
Cycleways network assets

Off-road cycleways 83km, shared footpaths with cyclists 31km, on-road cycle lanes 100km
$33.7 million replacement value
70% of cycleways are asphalt and are generally assumed to be in moderate to good condition, with some in poor condition
68% of off-road, 65% on-road users satisfied, with the condition of cycleways
21% of cyclists consider the network to be safe
Cycleways represent 2% of the total road network expenditure

Regional cycleway network



Cycleways 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	96%	00	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,000
Renewals	1%	113	114	115	116	117	118	119	120	121	122	123	1,186
Operations & Maintenance	2%	232	282	234	285	237	238	290	241	243	294	246	2,589
TOTAL	100%	345	10,397	10,349	10,401	10,354	10,356	10,409	10,361	10,364	10,416	10,369	103,775

- **Cycleways expenditure that is combined with other budgets such as footpaths, structures, road corridor improvements and streetscape upgrade projects are not included above**
- **Cycleways expenditure is normally subsidised by NZTA, and funded by ratepayers.**

Long Term Plan

- The approved Long Term Plan provides $3.8 million 10 year total for O&M and renewals
- This represents a zero funding gap between AMP and LTP for both O&M and renewals
- There are no LTP funding impacts or consequences.

Key issues	Response
There is a perceived high risk and incidence of serious and fatal injury involving vehicles and cyclists. This is due to the increase in the number of young cyclists around schools, adult commuter cyclists and general vulnerability of cyclists in a mixed mode traffic environment	Adopt and implement measures to improve cyclist safety. Promote public awareness of these measures Education of driver, cyclist and pedestrian behaviour to address this
Cycleways and associated facilities will become more significant as 'greener', healthier transport choices become more popular	Develop policies and strategies to promote the use of cycleways
RAMM information is uncertain and cycleways data may be 'lost' in the other categories of data such as footpaths and carriageway data	Confirm and implement a regional approach to the collection and storage of data for cycleways and facilities
There is difficulty in finding appropriate cycle corridors. Steep and narrow topographical constraints in some northern and western areas affect the quality, cost and feasibility of on-street and off-street cycleways	Confirm a regional policy, strategy or standard for this issue Adopt optimised decision to prioritise challenging or expensive options

Current levels of service	Target levels of service (indicative)
76% of cycleways in moderate condition (grade 3) or better	95% of cycleways in moderate condition (grade 3) or better
68% of off-road and 65% on-road user satisfaction with the condition of cycleways	80% of off-road and on-road user satisfaction with the condition of cycleways
12,970 cycle trips into the city centre (inbound cycle counts) in morning peak	2% annual growth in cycle trips into the city centre (inbound cycle counts) in morning peak

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

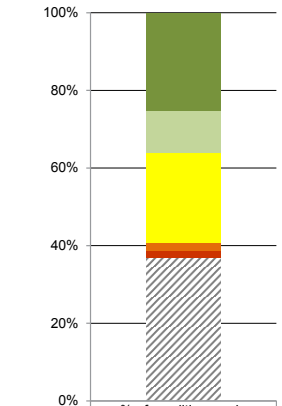
- The table above shows the confidence of cycleway assets information held in the RAMM database
- The overall confidence level of the region's cycleways and cycling facilities asset information is 'uncertain' because it has not been consistently collected and captured into RAMM
- Most cycleways across the region were constructed in the last 15 years. It is generally considered that the cycleway network is about a quarter of the way through its life and therefore the average remaining useful life of the cycleway network is in the order of 10 to 20 years.

8.8 Street lighting

Street lighting network assets

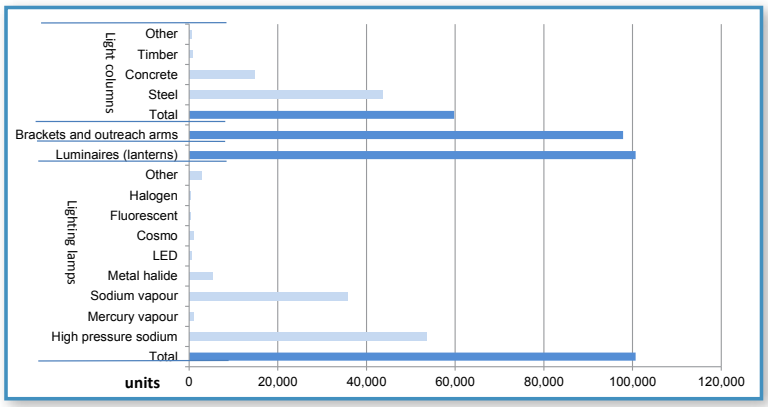
Approximately 60,000 columns, 98,000 brackets and 100,000 lanterns, illuminating 4,400km of urban roads and 6,800km footpaths
$165 million replacement value
59% of network is in moderate or better condition (94% of known assets)
4% of network is in poor or very poor condition (6% of known assets)
<2% of street lights with one or more defects
Estimated 9% current backlog
37% unknown condition data
Street lighting represents 5% of the total road network expenditure

Condition profile

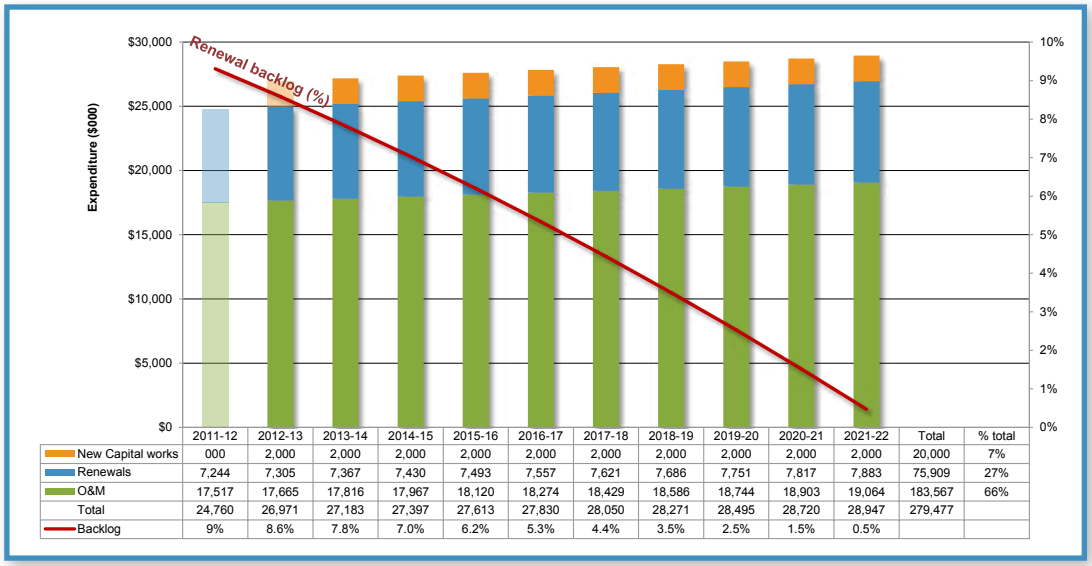


% of condition grade	
Very Good	25%
Good	11%
Moderate	23%
Poor	2%
Very Poor	2%
Unknown	37%

Material profile



Street lighting 10-year network needs and backlog profile



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital works	000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	20,000	7%
Renewals	7,244	7,305	7,367	7,430	7,493	7,557	7,621	7,686	7,751	7,817	7,883	75,909	27%
O&M	17,517	17,665	17,816	17,967	18,120	18,274	18,429	18,586	18,744	18,903	19,064	183,567	66%
Total	24,760	26,971	27,183	27,397	27,613	27,830	28,050	28,271	28,495	28,720	28,947	279,477	
Backlog	9%	8.6%	7.8%	7.0%	6.2%	5.3%	4.4%	3.5%	2.5%	1.5%	0.5%		

- The red line shows the percentage of renewal backlog for the street lighting network (assuming the cost of $3,000 per pole set and the current deferred rate of 10%)
- Approximately 69% of the total street lighting OPEX is spent on electricity.

Long Term Plan

- The approved Long Term Plan provides $259.5 million 10-year total for O&M and renewals
- This represents a zero funding gap between AMP and LTP for both O&M and renewals
- There are no LTP funding impacts or consequences.

Key issues	Response
Significant areas of the region are below standard and recommended illumination (lux) levels	New infill street lighting is required particularly at intersections, bends and main roads
Uncertainty in asset data completeness and confidence in information across the region	Implement condition assessment and complete data collection
Considerable electricity usage and costs of streetlights	New technologies are being considered or trialled for dimming lights, LED lanterns and other low discharge lamp technology
More than 50% reliance on Vector and Telecom poles for the streetlight network in the central area	300 poles per year are being replaced through the Vector overhead to underground (OHUG) pole replacement programme

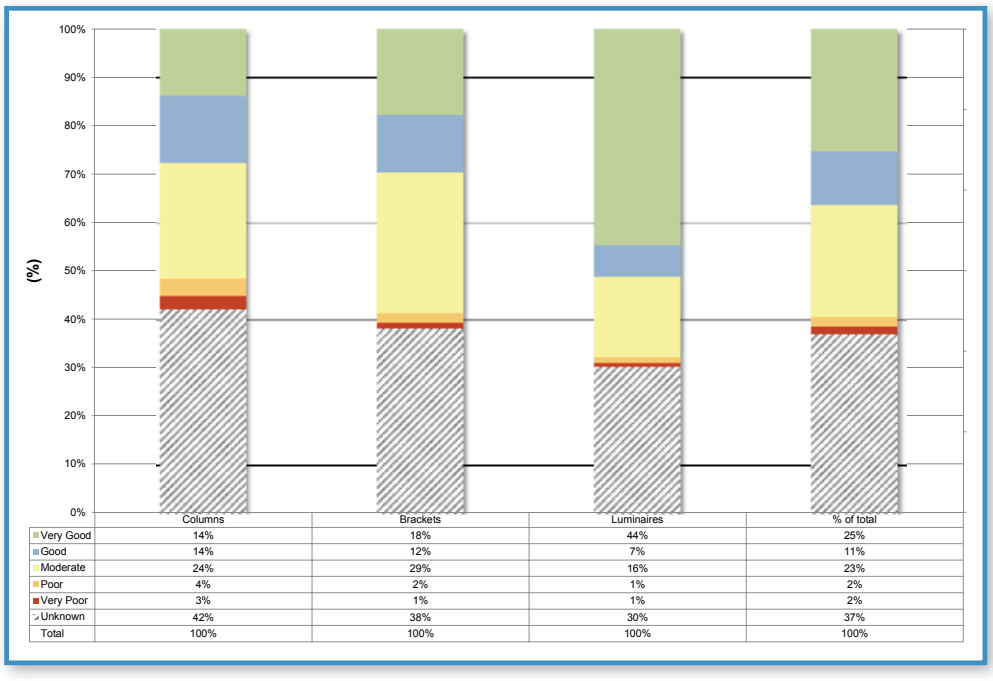
Current levels of service	Target levels of service (indicative)
59% (94% of known assets) of street lighting in moderate condition (grade 3) or better	95% of street lighting in moderate condition (grade 3) or better
50% compliance with average level of illumination on residential streets – 2 lux	100% compliance with average level of illumination on residential streets – 2 lux
5% of network installed with energy efficient street lighting (LED lamps)	15% of network installed with energy efficient street lighting (LED lamps) by year 2014

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- The table shows the confidence of streetlight assets information held in the RAMM database.

Street lighting network condition by asset group



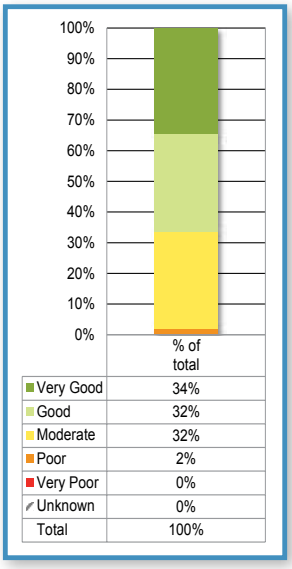
	Columns	Brackets	Luminaires	% of total
Very Good	14%	18%	44%	25%
Good	14%	12%	7%	11%
Moderate	24%	29%	16%	23%
Poor	4%	2%	1%	2%
Very Poor	3%	1%	1%	2%
Unknown	42%	38%	30%	37%
Total	100%	100%	100%	100%

8.9 Traffic systems and operations

Traffic systems and operations network assets

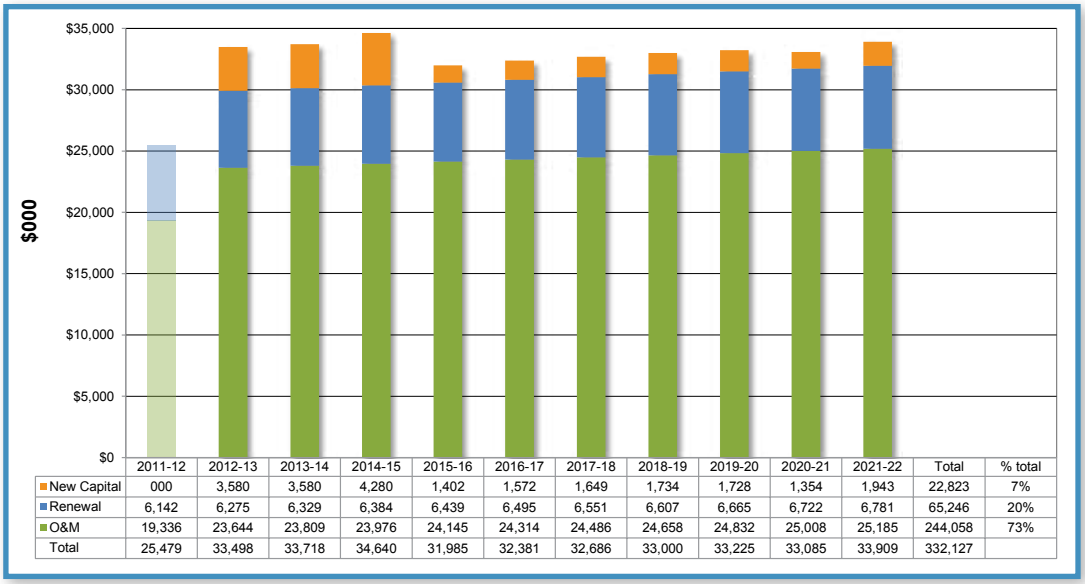
536 signalised intersections, 135 signalised pedestrian crossings and 127 CCTV cameras
$61 million replacement value
98% of traffic systems are in moderate or better condition
All condition data is known
No significant backlog
Asset inventory and condition data is complete
99% of traffic signals are operational on the network at any given time
Traffic systems and operations represent 5.4% of the total road network expenditure

Condition profile



	% of total
Very Good	34%
Good	32%
Moderate	32%
Poor	2%
Very Poor	0%
Unknown	0%
Total	100%

Traffic systems and operations 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	3,580	3,580	4,280	1,402	1,572	1,649	1,734	1,728	1,354	1,943	22,823	7%
Renewal	6,142	6,275	6,329	6,384	6,439	6,495	6,551	6,607	6,665	6,722	6,781	65,246	20%
O&M	19,336	23,644	23,809	23,976	24,145	24,314	24,486	24,658	24,832	25,008	25,185	244,058	73%
Total	25,479	33,498	33,718	34,640	31,985	32,381	32,686	33,000	33,225	33,085	33,909	332,127	

- **An average $33.2 million per year is proposed for traffic systems and operations. This also covers operational expenditure of traffic operations and road safety units.**

Long Term Plan

- The approved Long Term Plan provides $303.5 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of $5 million (2% reduction) for O&M and $876,000 (1% reduction) for renewals. However, the gap of $5 million for O&M is not a shortfall, but rather a re-allocation in the AMP from traffic systems and operations to community transport
- The impacts of this funding gap are:
  - a reduction of 4 signalised intersection renewals and 3 CCTV renewals over the 10 years of the plan
  - insufficient budget to meet projected renewal needs
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
Damage of traffic signal components resulting in signal failures, including vehicle detection loops which suffer frequent damage due to trenching for utility services and road works	Traffic control equipment is monitored and maintained so that damage and failures are remedied within a set response time. New technologies that eliminate the need for underground loops are being considered
Improved levels of service required for pedestrian crossings in key pedestrian routes and more effective and efficient levels of service for other road users	Addition of new signalised intersections to improve pedestrian crossings on key pedestrian routes such as the trialling of countdown timers in Queen Street
Capital investment is required to adopt new technologies such as LED	Further consideration will be required in the LTP process

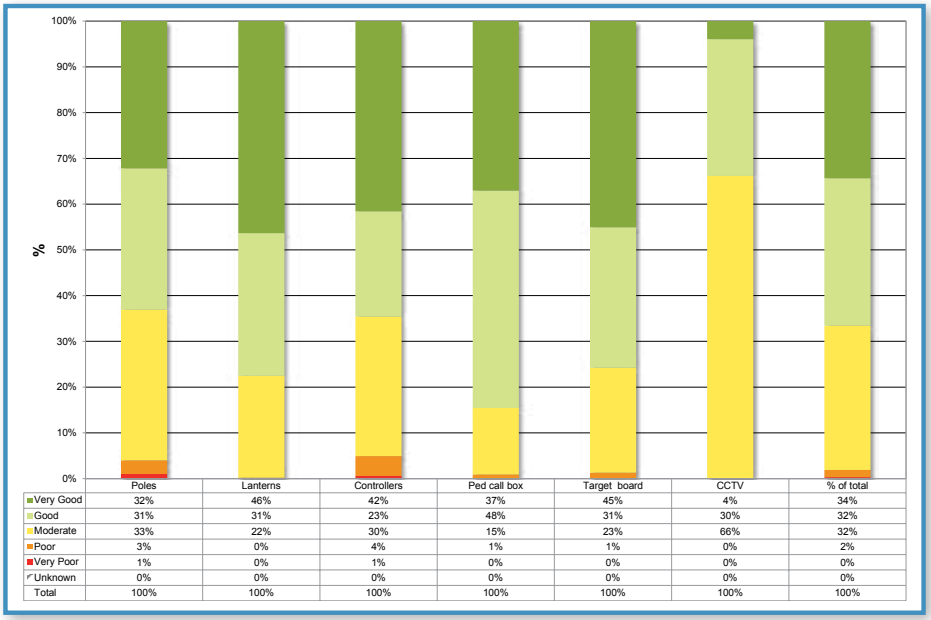
Current levels of service	Target levels of service (indicative)
98% of traffic control systems in moderate condition (grade 3) or better	95% of traffic control systems in moderate condition (grade 3) or better
88% of the response times to signal outages are within standard timeframes	90% of the response times to signal outages within standard timeframes
5% of arterial routes with signal optimisation in place	10% of arterial routes with signal optimisation in place

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- Quantity and condition information is complete. The age is unknown for 8% of poles and 3% of controllers.

Traffic systems – condition of significant components



	Poles	Lanterns	Controllers	Ped call box	Target board	CCTV	% of total
Very Good	32%	46%	42%	37%	45%	4%	34%
Good	31%	31%	23%	48%	31%	30%	32%
Moderate	33%	22%	30%	15%	23%	66%	32%
Poor	3%	0%	4%	1%	1%	0%	2%
Very Poor	1%	0%	1%	0%	0%	0%	0%
Unknown	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%

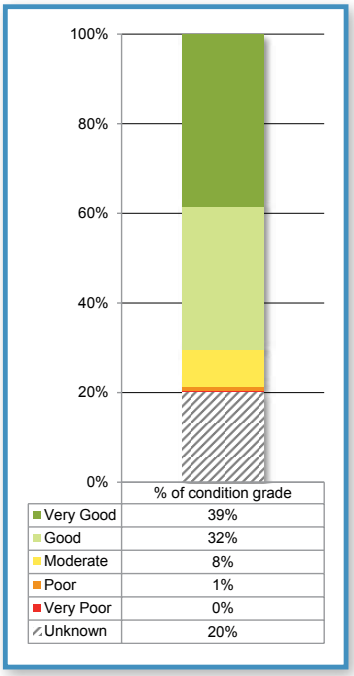
- The above figure shows 98% of all asset components are in moderate or above condition. Condition information is available for 100% of the assets and is updated by regular inspections.

8.10 Signs and road markings

Signs and road marking network assets

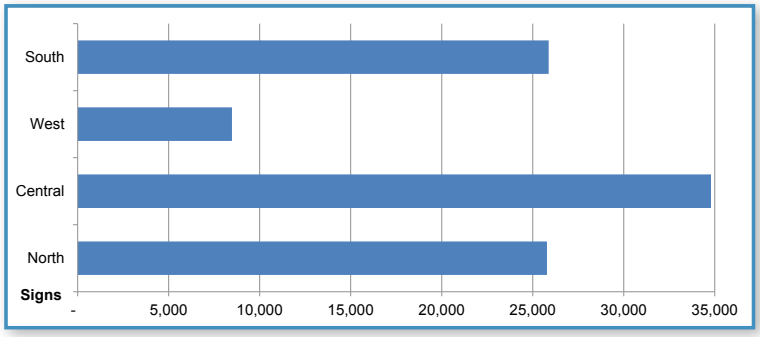
94,935 signs region wide
$31 million replacement value
79% of network is in moderate or better condition (99% of known assets)
1% of network is in poor or very poor condition (1% of known assets)
Estimated 2.9% current backlog
20% unknown condition data
Signs and road markings represent 1% each of the total road network expenditure

Condition profile

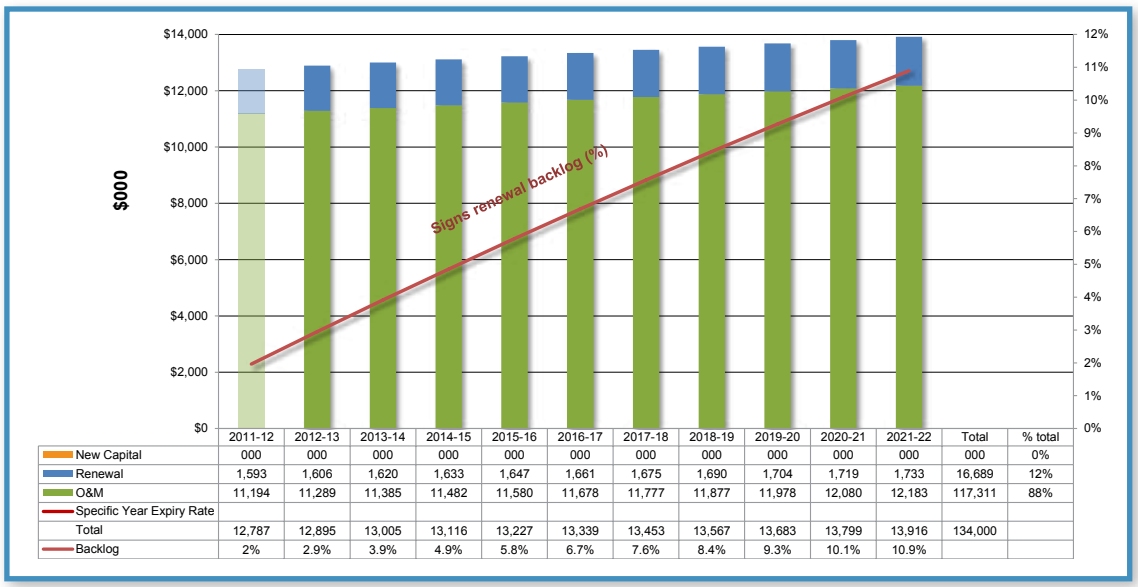


	% of condition grade
Very Good	39%
Good	32%
Moderate	8%
Poor	1%
Very Poor	0%
Unknown	20%

Signs assets by area



Signs and road marking 10-year network needs and backlog profile



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	000	000	000	000	000	000	000	000	000	000	000	0%
Renewal	1,593	1,606	1,620	1,633	1,647	1,661	1,675	1,690	1,704	1,719	1,733	16,689	12%
O&M	11,194	11,289	11,385	11,482	11,580	11,678	11,777	11,877	11,978	12,080	12,183	117,311	88%
Specific Year Expiry Rate													
Total	12,787	12,895	13,005	13,116	13,227	13,339	13,453	13,567	13,683	13,799	13,916	134,000	
Backlog	2%	2.9%	3.9%	4.9%	5.8%	6.7%	7.6%	8.4%	9.3%	10.1%	10.9%		

- 10-year total for signs and road markings renewals and operations and maintenance needs is $134 million
- The proposed renewals investment averaging $1.6 million per year is not sufficient to stop signs renewals backlog increasing from 2.9% ($1.6m) to 10.9% ($1.8m) by 2022 (shown as the red line).

Long Term Plan

- The approved Long Term Plan provides $136.2 million 10-year total for O&M and renewals
- This represents a zero funding gap between AMP and LTP for O&M and renewals
- An apparent variance of +$2.2 million for renewals is not an increase, but rather a re-allocation from parking signs and markings to road signs and markings
- There are no LTP funding impacts or consequences.

Key issues	Response
The number of missing signs is unknown	Undertake a missing sign needs survey as a pro-active contract renewal where forward programmes can be considered
Insufficient ADS at intersections and regional and arterial roads	Review the long term plan for directing goods and people from local networks to regional and strategic locations with adequate ADS or street signage
No inventory information for high performance markings in RAMM	Implement data capture for high performance markings

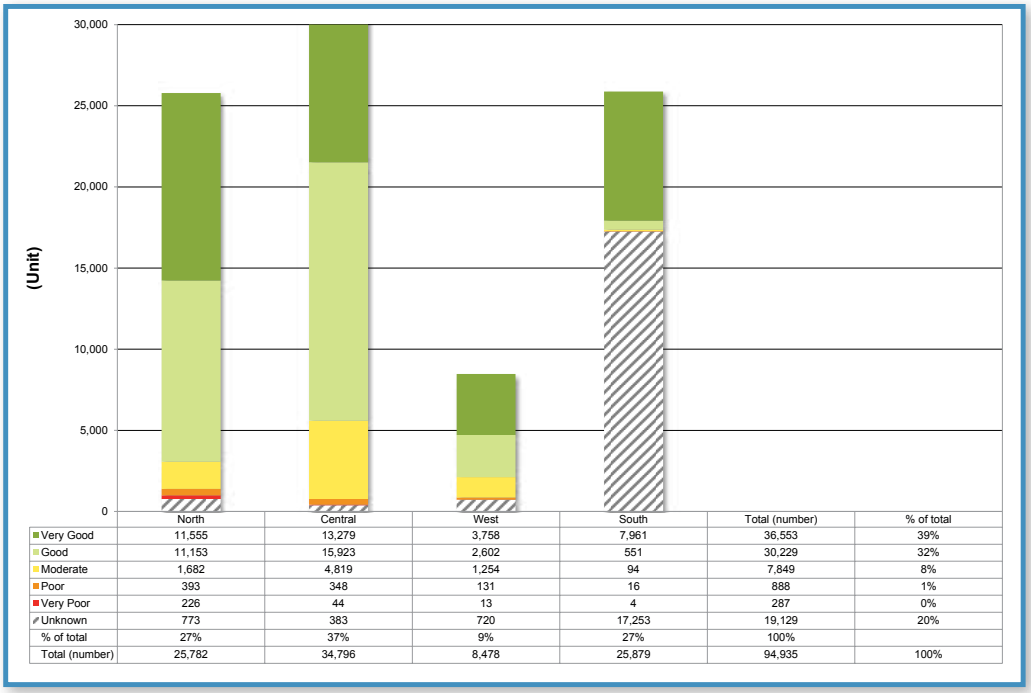
Current levels of service	Target levels of service (indicative)
79% (99% of known assets) of signage in moderate condition (3 grade) or better	95% of signage in moderate condition (3 grade) or better
Percentage of arterial network with real-time information (signage) available	8% of arterial network with real-time information (signage) available
80% of clearly visible street name plates on all major intersections	Percentage of clearly visible street name plates on all major intersections

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity			■	
Asset age		■		
Condition		■		
Performance		■		

- There are good records for asset quantity in RAMM database.

Signs condition by network area



	North	Central	West	South	Total (number)	% of total
Very Good	11,555	13,279	3,758	7,961	36,553	39%
Good	11,153	15,923	2,602	551	30,229	32%
Moderate	1,682	4,819	1,254	94	7,849	8%
Poor	393	348	131	16	888	1%
Very Poor	226	44	13	4	287	0%
Unknown	773	383	720	17,253	19,129	20%
% of total	27%	37%	9%	27%	100%	
Total (number)	25,782	34,796	8,478	25,879	94,935	100%

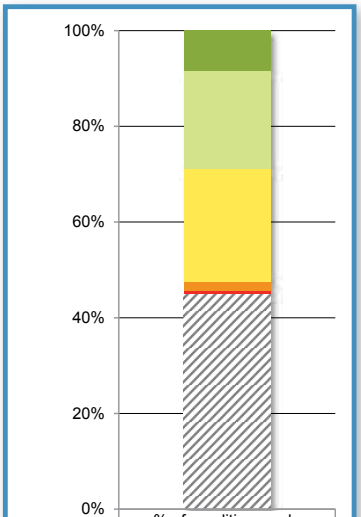
- South area has the largest unknown amount at 67%.

8.11 Drainage

Drainage network assets

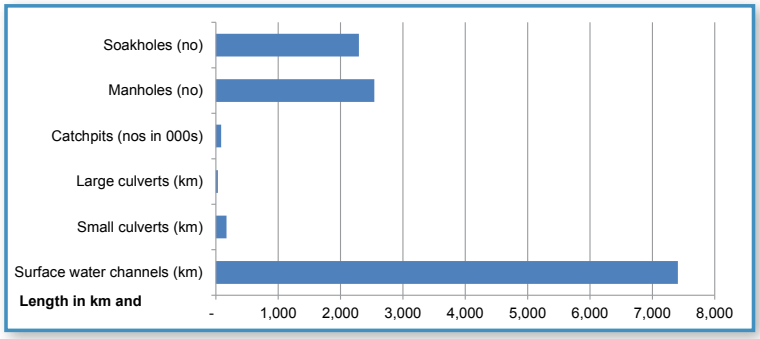
7,409km of surface water channels region wide
$1,919 million replacement value
52% of drainage network is in moderate or better condition (95% of known assets)
2% is in poor or very poor condition (5% of known assets)
Estimated 1.6% current backlog
45% unknown condition
Drainage represents 6% of the total road network expenditure

Condition profile

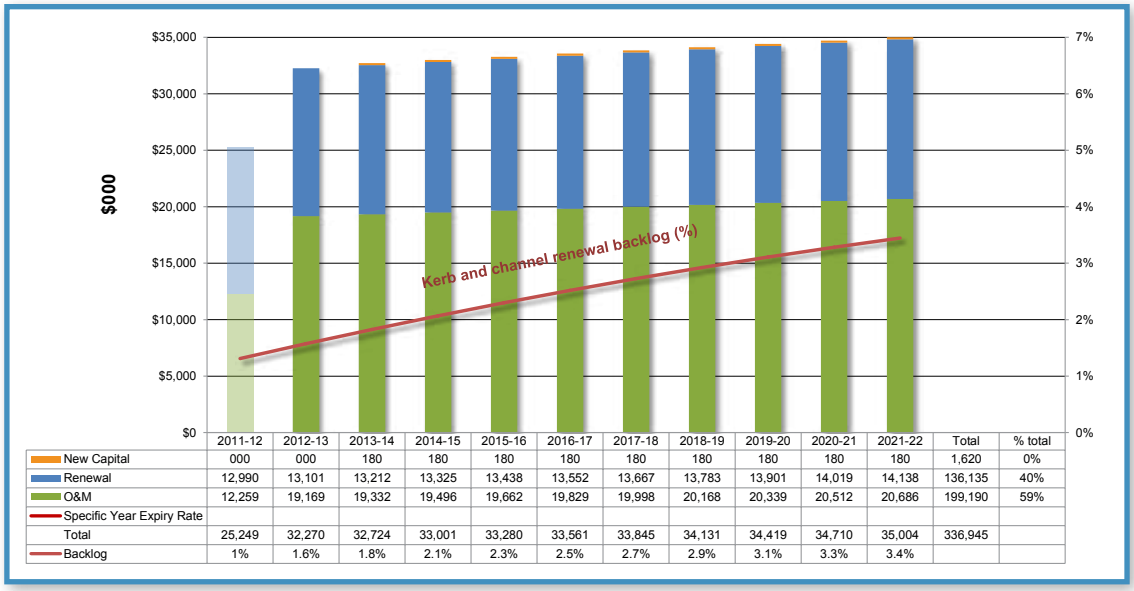


	% of condition grade
Very Good	8%
Good	20%
Moderate	23%
Poor	2%
Very Poor	0%
Unknown	45%

Asset type profile



Drainage 10-year network needs and backlog profile



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	000	180	180	180	180	180	180	180	180	180	1,620	0%
Renewal	12,990	13,101	13,212	13,325	13,438	13,552	13,667	13,783	13,901	14,019	14,138	136,135	40%
O&M	12,259	19,169	19,332	19,496	19,662	19,829	19,998	20,168	20,339	20,512	20,686	199,190	59%
Specific Year Expiry Rate													
Total	25,249	32,270	32,724	33,001	33,280	33,561	33,845	34,131	34,419	34,710	35,004	336,945	
Backlog	1%	1.6%	1.8%	2.1%	2.3%	2.5%	2.7%	2.9%	3.1%	3.3%	3.4%		

- The proposed renewals investment averaging $14 million per year is not sufficient to stop the kerb and channel renewals backlog increasing from 1.6% ($13m) to 3.4% ($14m) by 2022 (shown as the red line)
- 10-year total for operations and maintenance, renewals and new works needs is $337 million.

Long Term Plan

- The approved Long Term Plan provides $252.4 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of $82.9 million (42% reduction) for O&M and a zero variance for renewals
- The impacts of this funding gap are:
  - a potential reduction of operations and maintenance programmes that may impact LOS
  - poor appearance of road channels and catchpits and reduced ability to drain stormwater from road carriageways
  - increased road surface flooding and associated consequences on road users and adjacent properties
- The consequences resulting from these variances will be monitored and reported as appropriate.

Key issues	Response
Frequency and timing of street sweeping and cleaning not adequately coordinated resulting in increased customer enquiries	Hold regular coordination meetings between Auckland Transport, Auckland Council and contractors
Significant growth in non-traditional drainage systems such as rain gardens in new developments which will have higher maintenance costs than conventional systems	Develop forecasts based on the Auckland Plan and understand these effects
Potential increased number of storms/rainfall resulting in greater overland flows and customer complaints of flooding with climatic change	Consider at the time of renewal as an opportunity to address capacity issues

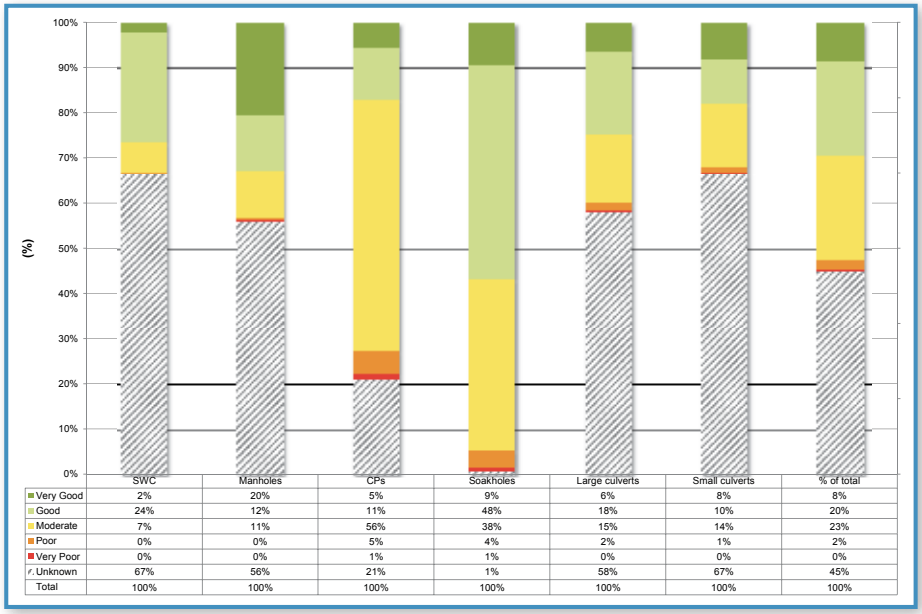
Current levels of service	Target levels of service (indicative)
52% (95% of known) of drainage network in moderate condition (grade 3) or better	95% of drainage network in moderate condition (grade 3) or better
Percentage compliance with drainage maintenance repair response timeframes	100% compliance with drainage maintenance repair response timeframes
Percentage coverage of environmentally significant catchments with appropriate treatment	Percentage coverage of environmentally significant catchments with appropriate treatment

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- Condition data sets are not complete for catchpits, manholes and culverts.

Drainage condition by asset group



	SWC	Manholes	CPs	Soakholes	Large culverts	Small culverts	% of total
Very Good	2%	20%	5%	9%	6%	8%	8%
Good	24%	12%	11%	48%	18%	10%	20%
Moderate	7%	11%	56%	38%	15%	14%	23%
Poor	0%	0%	5%	4%	2%	1%	2%
Very Poor	0%	0%	1%	1%	0%	0%	0%
Unknown	67%	56%	21%	1%	58%	67%	45%
Total	100%	100%	100%	100%	100%	100%	100%

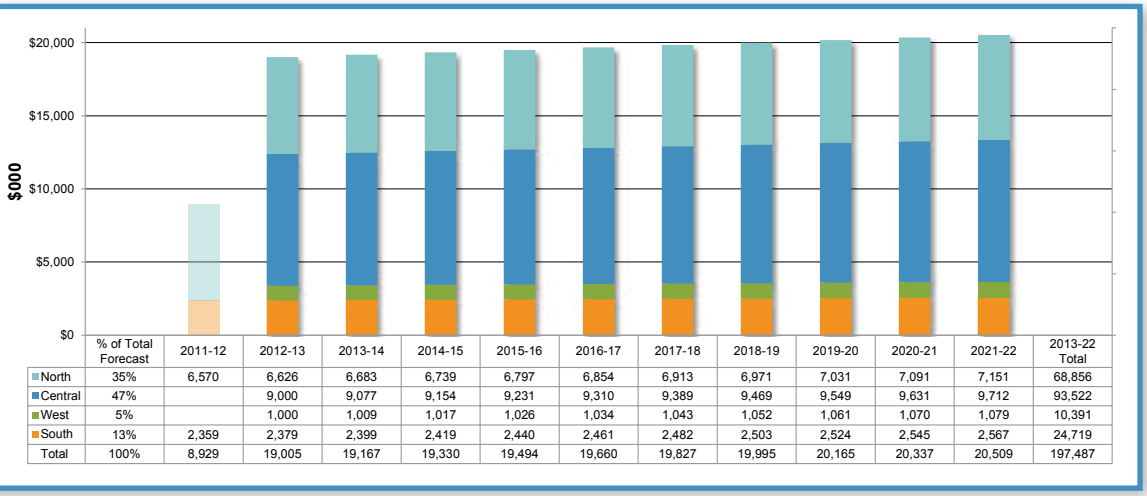
- Generally drainage assets have a significant amount of unknown condition information except for soakholes.

8.12 Street vegetation

Street vegetation activity

Roadside urban 4,416km, rural 2,811km. Footpaths 6,879km
Weeds and noxious weeds control
170,000 street trees, numerous street gardens, grassed areas maintenance
Asset valuation is not applicable
Street vegetation represents 10% of the total road network operations and maintenance expenditure

Street vegetation 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
North	35%	6,570	6,626	6,683	6,739	6,797	6,854	6,913	6,971	7,031	7,091	7,151	68,856
Central	47%		9,000	9,077	9,154	9,231	9,310	9,389	9,469	9,549	9,631	9,712	93,522
West	5%		1,000	1,009	1,017	1,026	1,034	1,043	1,052	1,061	1,070	1,079	10,391
South	13%	2,359	2,379	2,399	2,419	2,440	2,461	2,482	2,503	2,524	2,545	2,567	24,719
Total	100%	8,929	19,005	19,167	19,330	19,494	19,660	19,827	19,995	20,165	20,337	20,509	197,487

- **There are no capital renewals or new works allocated to street vegetation**

Long Term Plan

- The approved Long Term Plan provides $93.6 million 10-year total for O&M and renewals
- This represents a funding gap between AMP and LTP of $104 million (53% reduction) for O&M and a zero variance for renewals
- The impacts of this funding gap are:
    - a potential reduction of operations and maintenance programmes that may impact LOS
    - poor appearance of road berms
    - encroachment of vegetation may obscure traffic signs and cause deterioration to kerbing, channels and the edge of road carriageways
- The consequences resulting from these variances will be monitored and reported as appropriate.

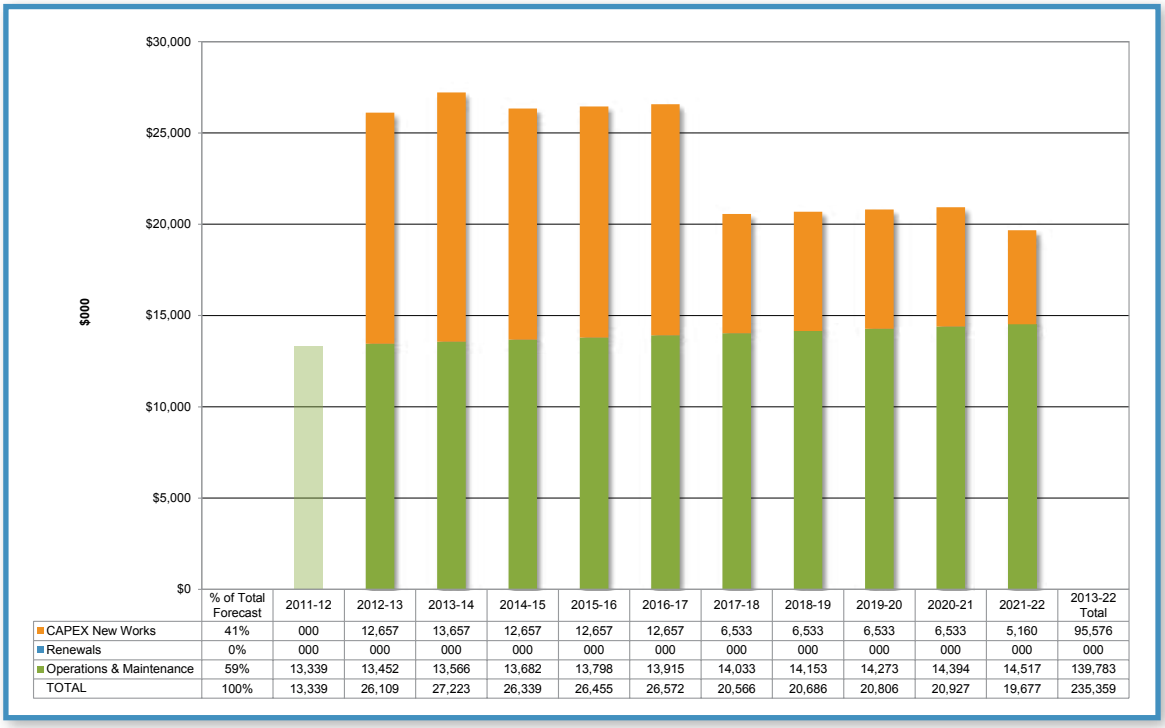
Key issues	Response
Street vegetation that obscures driver visibility of traffic speed signs, warning markers, signals and/or driver visibility around corners – could lead to serious injury and fatal accidents	**Proactive and quick-response reactive inspections and maintenance, signage inspections and safety audits**
Trees falling on roads, berms, footpaths or properties may be hazardous – could lead to serious injury and fatal accidents	**Proactive and quick-response reactive inspections and maintenance**
Various methods, standards and costs of vegetation control across the region. For example 'no chemical' for chemically sensitive residents results in higher costs and/or less effective weed control	**Respect and follow the protocols agreed with stakeholders in each of the different legacy councils, confirm with current Local Boards** **A policy review is underway which may result in a consistent approach across the region**
Urban berms are maintained by adjacent property owners in some areas and Auckland Council or Auckland Transport in other areas	**A policy review is underway which may result in a consistent approach across the region**
Inconsistent responsibilities for vegetation control and maintenance across the region	**As of 1 July 2012 Auckland Transport has responsibility for weed and vegetation control for the whole region**
Regional current and future levels of service have not yet been confirmed for the street vegetation activity	**A policy review is underway to confirm regional service levels. This may result in a consistent approach**

8.13 Community Transport

Community Transport Service

Covers road safety education and promotion, school safety, travel plans and travel planning, cycling and walking region wide
278 travel plans in place
More than 4,000 children regularly use walking school buses
8,417 fewer vehicle trips in the morning peak period (7-9am) for the 2010/11 year
Over 100 road safety campaigns involving over 55,000 participants a year
A reduction of 14 million vehicle trip kilometres in 2011 due to travel planning projects
Bikewise month included 30 events across the region
2,500 people have attended cycle training events
Community Transport represents 4% of the total road network expenditure

Community Transport 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	41%	000	12,657	13,657	12,657	12,657	12,657	6,533	6,533	6,533	6,533	5,160	95,576
Renewals	0%	000	000	000	000	000	000	000	000	000	000	000	000
Operations & Maintenance	59%	13,339	13,452	13,566	13,682	13,798	13,915	14,033	14,153	14,273	14,394	14,517	139,783
TOTAL	100%	13,339	26,109	27,223	26,339	26,455	26,572	20,566	20,686	20,806	20,927	19,677	235,359

- **10-year total for Community Transport operations and maintenance and new works needs is $235 million.**

Long Term Plan

- The approved Long Term Plan provides $152.2 million 10-year total for O&M (no renewals are required)
- This represents a funding gap between AMP and LTP of +$12.4 million for O&M
- $5.0 million of this variance is not an increase but rather a re-allocation in the AMP from traffic systems and operations. The remaining net variance of +$7.4 million (5%) represents an increase in funding for community safety programmes such as safety around schools, alcohol education, young driver education and walking and cycling programmes
- The positive consequences resulting from this variance will be monitored and reported as appropriate

There are no LTP funding impacts or consequences.

Key issues	Response
Increasing congestion on the transport networks, particularly for commuter trips in the morning peak	**Focus travel planning on areas of greatest congestion. Development of regional programmes and local delivery for travel planning and products**
Linkages and integration of travel planning to new transport infrastructure to provide transport choices to ratepayers	**Implement behaviour change programmes associated with new works programme and regional tools to support the operation of the network**
Addressing key road safety needs of the community	**Work with community groups to provide targeted education and promotion programmes. Ensure programmes align with the Regional Road Safety Plan and national programmes**

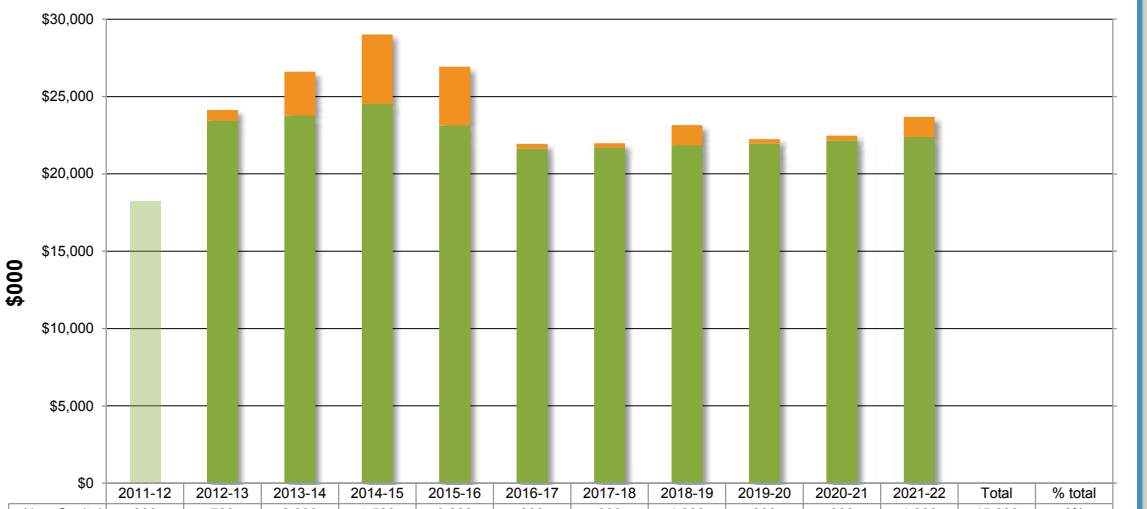
Current levels of service	Target levels of service (indicative)
8,417 morning peak (7-9am) car trips avoided through travel planning initiatives	**9,600 (in 2013/14) morning peak (7-9am) car trips avoided through travel planning initiatives**
278 travel plans in place (schools, workplaces)	**300 travel plans in place (schools, workplaces)**
27% crash reductions on local roads associated with crash reduction programme	**20% crash reductions on local roads associated with crash reduction programme**

8.14 Network management and planning

Network management and planning activity

- Activity management planning
- Asset management systems
- Transport planning
- Corridor access management
- Network management and planning represents 4% of the total road network expenditure

Network management and planning 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	000	700	2,830	4,500	3,800	300	300	1,300	300	300	1,300	15,630	6%
Renewal	000	000	000	000	000	000	000	000	000	000	000	000	0%
O&M	18,207	23,441	23,774	24,518	23,127	21,637	21,679	21,850	21,953	22,169	22,391	226,540	94%
Total	18,207	24,141	26,604	29,018	26,927	21,937	21,979	23,150	22,253	22,469	23,691	242,170	100%

- **10-year total for network management and planning new works and operations and maintenance needs is $242 million.**

Long Term Plan

- The approved Long Term Plan provides $197.5 million 10-year total for O&M (no renewals are required)
- There is a shortfall of $29.1 million (13% reduction) between AMP and LTP for O&M
- The consequences resulting from this variance will be monitored and reported as appropriate.

Key issues	Response
A number of significant issues exist from merging the seven legacy RAMM databases. These differences were in approach, methodology and recorded data in the seven databases. These differences need to be understood, managed and resolved to provide a consistent, single database over time	An independent review was completed in April 2011 and has identified prioritised improvement tasks required for a single RAMM database. These improvement tasks started and will continue into 2012/13 and beyond
Public transport asset records and condition is held in various databases and spreadsheets including SPM Assets	Legacy wharf information held in Opus' Decision support tool was moved into SPM Assets. In future, it is planned to contain all public transport asset records and condition data in SPM Assets
Levels of service and performance management data from the legacy councils, SOI measures and new measures where developed are currently stored in separate spreadsheets with different reporting and end user requirements	In future, store the performance data in SQL management system with a front face in SharePoint

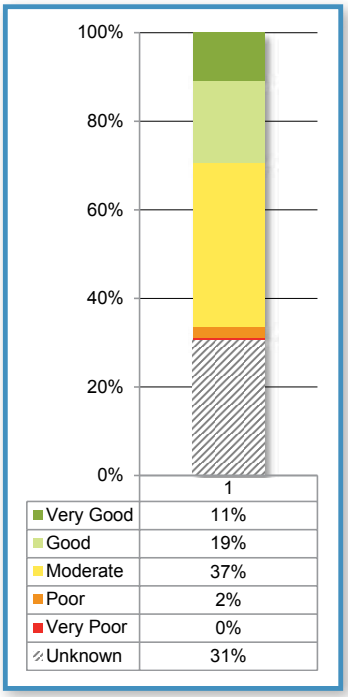
Current levels of service	Target levels of service (indicative)
96% resolution rate for CAR processed within 15 days	95% resolution rate for CAR processed within 15 days
89% resolution rate for CAR processed within 5 days	80% resolution rate for CAR processed within 5 days

8.15 Rail

Rail network assets

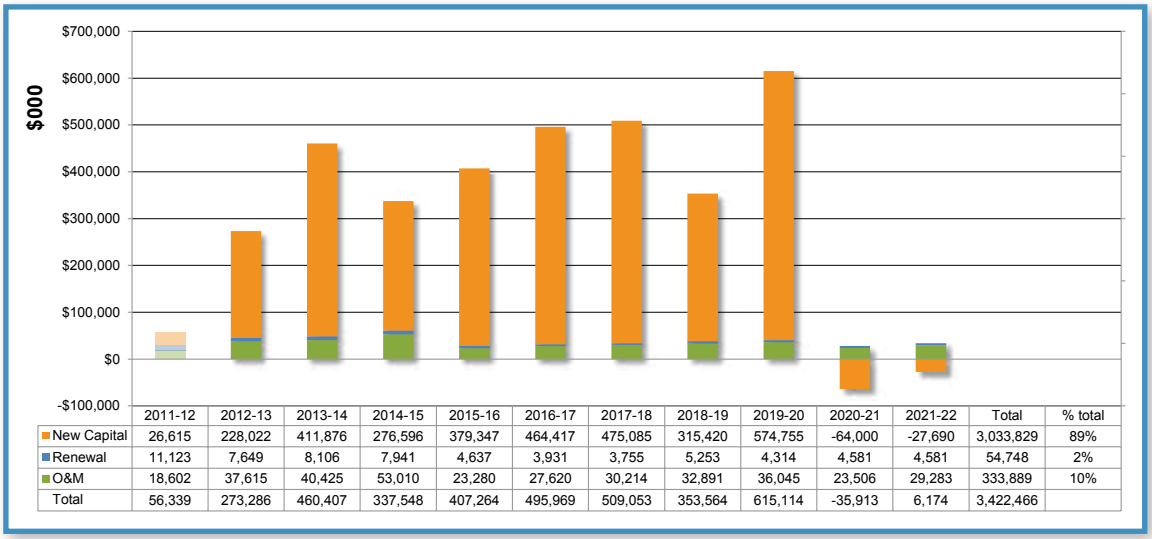
42 rail stations including Britomart Centre Rolling stock 19 motor units and 106 carriages Proposed electrification from 2012/13 including new motor units
$275 million replacement value (buildings $51m, infrastructure $56m, rolling stock $168m)
67% of network is in moderate or better condition (97% of known assets)
2% of network is in poor or very poor condition (3% of known assets)
31% unknown asset condition
Rail represent 52% of the total public transport expenditure

Condition profile



	1
Very Good	11%
Good	19%
Moderate	37%
Poor	2%
Very Poor	0%
Unknown	31%

Rail 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	26,615	228,022	411,876	276,596	379,347	464,417	475,085	315,420	574,755	-64,000	-27,690	3,033,829	89%
Renewal	11,123	7,649	8,106	7,941	4,637	3,931	3,755	5,253	4,314	4,581	4,581	54,748	2%
O&M	18,602	37,615	40,425	53,010	23,280	27,620	30,214	32,891	36,045	23,506	29,283	333,889	10%
Total	56,339	273,286	460,407	337,548	407,264	495,969	509,053	353,564	615,114	-35,913	6,174	3,422,466	

- **Proposed rail capital new works include the City Rail Link ($2.4 billion) and Electric Motor Units (EMU) rolling stock and depot ($491 million)**
- **The assumed growth factor for consequential OPEX and renewals needs to be reviewed**
- **The negative values for capital new works after 2020 are due to the expected re-sale of land associated with City Rail Link project**
- **The scope of rail infrastructure operations and maintenance excludes any service contracts, as these are contained within the Public Transport Services section of the AMP.**

Long Term Plan

- The approved Long Term Plan provides $393 million 10-year total for O&M and renewals
- There is zero funding gap between AMP and LTP for O&M and renewals
- An apparent variance of +$4.3 million for O&M is not an increase, but rather a re-allocation from public transport services to the rail related infrastructure
- There are no LTP funding impacts or consequences.

Key issues	Response
Electrification of the suburban rail corridor will add significant complexity and cost to future maintenance, renewal and redevelopment works	Fast track the remaining station upgrade programme ahead of 2013 electrification
Forecasted increase in rail patronage may cause capacity issues at certain station facilities requiring platform extensions and enhanced passenger flow management	Programme of platform extension underway. Capacity modelling and optimisation at key interchange sites
Enhancement of rail station facilities and the implementation of increased technology has vastly increased maintenance and future renewals liabilities	Ensure whole of life cost evaluation of project proposals and robust lifecycle planning for existing asset portfolio
The performance of the passenger rail facilities and rolling stock against service level measures has not yet been undertaken. The priority of upgrade works beyond the immediate station upgrade programme to 2013 is therefore uncertain	Implement service level performance measurement system and evaluate service level gaps and tactics for remedying these gaps

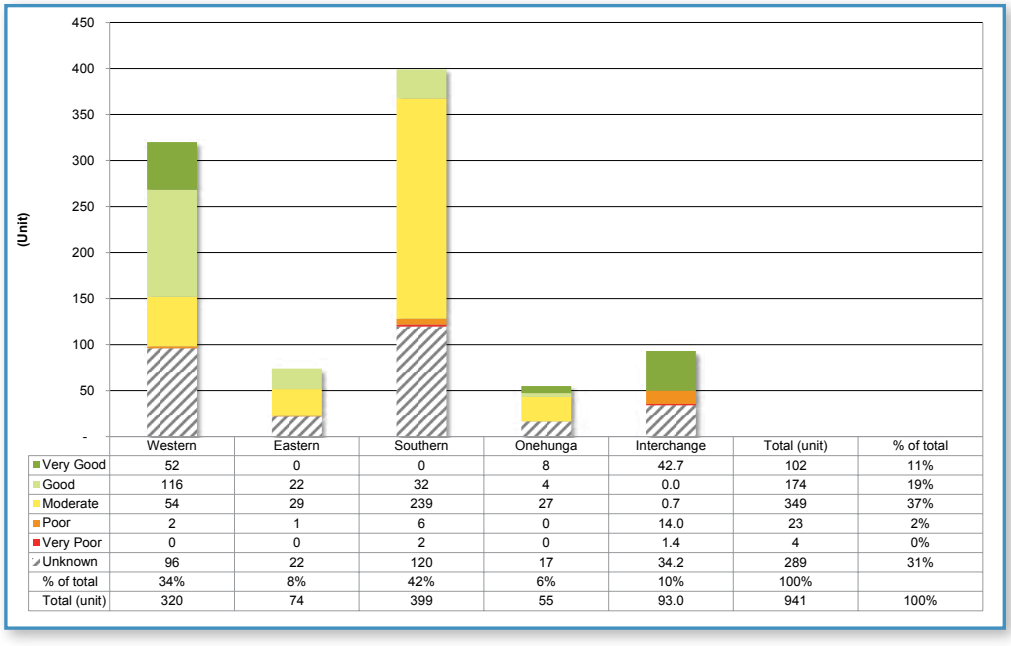
Current levels of service	Target levels of service (indicative)
84% overall customer satisfaction scores for Rapid Transit Network (RTN) and Local Connector Network (LCN) services	Overall customer satisfaction scores for RTN (>85%) and LCN (>80%) services
81.3% service punctuality	83.5% service punctuality
100% service provision (reliability)	99% service provision (reliability)

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- There is insufficient rail network asset data in SPM upon which to base a reliable renewals analysis. To address this there is an ongoing improvement task of data collection for rail assets.

Rail condition by network area



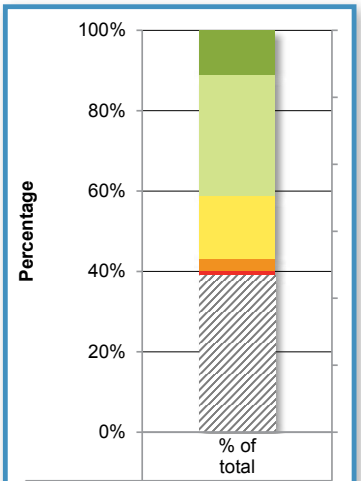
	Western	Eastern	Southern	Onehunga	Interchange	Total (unit)	% of total
Very Good	52	0	0	8	42.7	102	11%
Good	116	22	32	4	0.0	174	19%
Moderate	54	29	239	27	0.7	349	37%
Poor	2	1	6	0	14.0	23	2%
Very Poor	0	0	2	0	1.4	4	0%
Unknown	96	22	120	17	34.2	289	31%
% of total	34%	8%	42%	6%	10%	100%	
Total (unit)	320	74	399	55	93.0	941	100%

8.16 Bus

Bus network assets

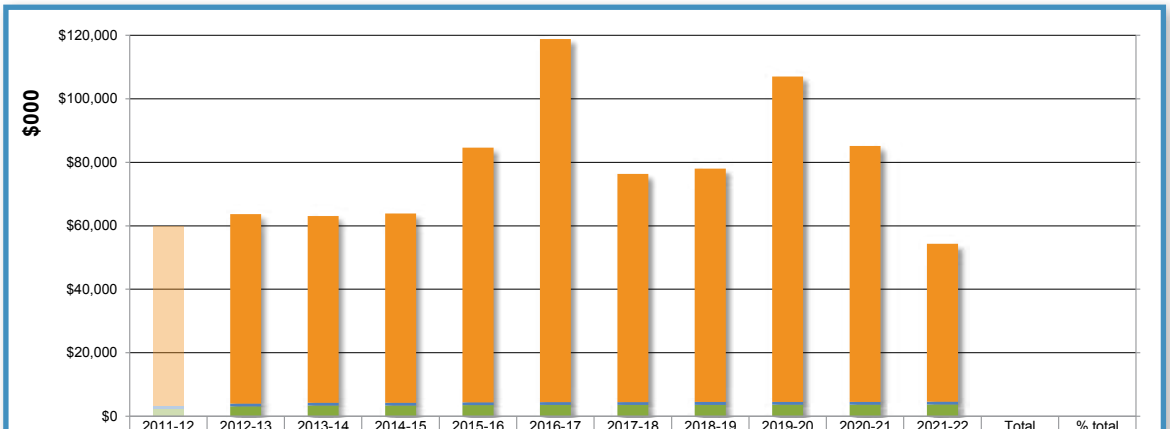
1,554 bus shelters 15 bus stations 5 busway stations
$40 million replacement value (bus shelters $22 million, busway stations $18 million)
57% of network is in moderate or better condition (93% of known assets)
4% of network is in poor or very poor condition (7% of known assets)
39% unknown asset condition
Bus network represent 12% of the total public transport expenditure (excluding contracted services)

Condition profile



	% of total
Very Good	11%
Good	30%
Moderate	16%
Poor	3%
Very Poor	1%
Unknown	39%
Total	100%

Bus 10-year network needs



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	% total
New Capital	56,441	59,633	58,839	59,613	80,233	114,398	71,850	73,526	102,535	80,625	49,745	750,997	94%
Renewal	901	877	878	879	880	881	882	883	884	886	887	8,817	1%
O&M	2,337	3,145	3,357	3,383	3,537	3,563	3,589	3,614	3,640	3,665	3,691	35,184	4%
Total	59,679	63,655	63,074	63,875	84,650	118,842	76,321	78,023	107,059	85,176	54,323	794,998	

- The proposed renewals investment of $750,000 per year for bus shelter renewals appears insufficient to maintain the rate of deterioration and will require a higher level of renewals investment in the longer term
- Proposed bus priority capital development works between 2015 and 2021 include AMETI Panmure and Pakuranga, Dominion Road, Botany Interchange, Lincoln Road, Flatbush to Manukau and Pakuranga Highway QTN
- The assumed growth factor for consequential OPEX and renewals needs to be reviewed
- The scope of bus infrastructure operations and maintenance excludes any service contracts, as these are contained within the Public Transport Services section of the AMP.

Long Term Plan

- The approved Long Term Plan provides $59.8 million 10-year total for O&M and renewals
- There is zero funding gap between AMP and LTP for O&M and renewals
- An apparent variance of +$15.8 million for O&M is not an increase, but rather a re-allocation from Public Transport Services to the bus related infrastructure
- There are no LTP funding impacts or consequences.

Key issues	Response
Improve serviceability issues to address dirtiness, broken glass, vandalism and graffiti	Review current maintenance contract and budgets to ensure required service levels and address local problems and vandalism Analyse site-specific problems and incorporate solutions as part of renewal programme Investigate the use of CCTV at high-risk sites to prevent vandalism and improve safety
Need to improve database management to enhance the maintenance and renewal regime as well as assist in shelter needs analysis	Enter shelter information into a robust AMIS programme to enable performance and condition monitoring
The development of new infrastructure for expanding services	Promote increase in the number of privately funded and maintained bus shelters
Busway station pedestrian overbridges	Assess Auckland Transport's maintenance responsibilities and access arrangements to carry out inspections over motorway

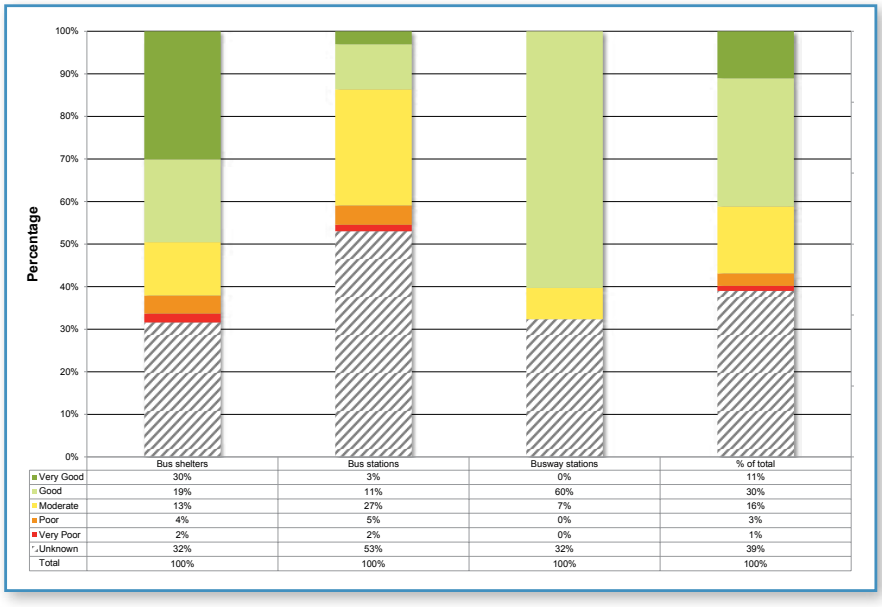
Current levels of service	Target levels of service (indicative)
78% Overall user satisfaction for facility	Percentage of overall user satisfaction for facility
80% of bus shelters in moderate condition (grade 3) or better	95% of bus shelters in moderate condition (grade 3) or better
66% passenger satisfaction rating for ease of transfer between public transport modes	Percentage of passenger satisfaction rating for ease of transfer between public transport modes
72% of public transport passengers with access to real-time service information	89% of public transport passengers with access to real-time service information

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- There is insufficient bus network assets data in SPM upon which to base a reliable renewals analysis.

Bus condition by asset type



	Bus shelters	Bus stations	Busway stations	% of total
Very Good	30%	3%	0%	11%
Good	19%	11%	60%	30%
Moderate	13%	27%	7%	16%
Poor	4%	5%	0%	3%
Very Poor	2%	2%	0%	1%
Unknown	32%	53%	32%	39%
Total	100%	100%	100%	100%

8.17 Wharves

Wharf network assets

22 wharves
4 wharf terminal buildings

$74 million replacement value

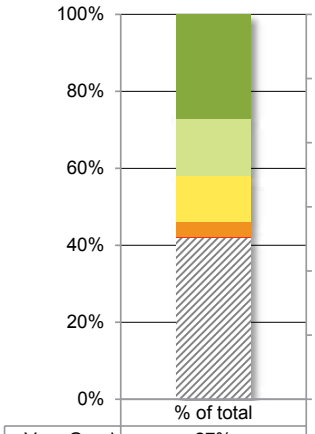
54% of network is in moderate or better condition (93% of known assets)

4% of network is in poor or very poor condition (7% of known assets)

42% unknown asset condition

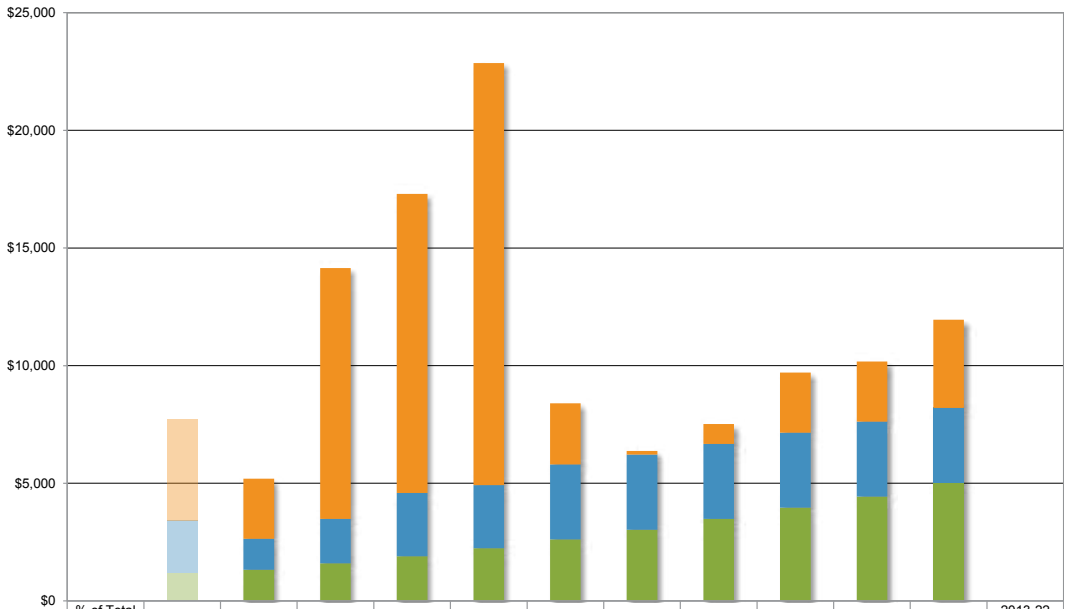
Wharf represent approximately 2% of the total public transport expenditure

Condition profile



	% of total
Very Good	27%
Good	15%
Moderate	12%
Poor	4%
Very Poor	0%
Unknown	42%
Total (unit)	100%

Wharf 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	50%	4,298	2,560	10,663	12,714	17,934	2,600	160	840	2,550	2,550	3,750	56,321
Renewals	24%	2,246	1,314	1,889	2,689	2,689	3,189	3,189	3,189	3,189	3,189	3,189	27,713
Operations & Maintenance	26%	1,175	1,326	1,597	1,899	2,236	2,614	3,029	3,489	3,966	4,433	5,016	29,604
TOTAL	100%	7,720	5,199	14,148	17,301	22,860	8,402	6,378	7,517	9,705	10,172	11,955	113,638

- The proposed renewals investment of an average $2.8 million per year for wharf renewals appears insufficient to maintain the rate of deterioration and will require a higher level of renewals investment in the longer term
- Proposed capital development works between 2013 and 2016 include wharves at Bayswater, Beach Haven, Half Moon Bay, Downtown Queens Wharf extension, Hobsonville Point and Shoal Bay (Tryphena)
- The assumed growth factor for consequential OPEX and renewals needs to be reviewed
- The scope of wharf infrastructure operations and maintenance excludes any service contracts, as these are contained within the Public Transport Services section of the AMP.

Long Term Plan

- The approved Long Term Plan provides $57.3 million 10-year total for O&M and renewals
- This represents zero funding gap between AMP and LTP for O&M and renewals
- There are no LTP funding impacts or consequences.

Key issues	Response
Performance measurement of passenger ferry facilities and ferry schedules against level of service has not yet been undertaken	Implement level of service performance measurement system and evaluate levels of service gaps and tactics for remedying these gaps
Due to the absence of performance measurement, the priority of upgrade works beyond the immediate upgrade programme to 2013 is uncertain	Improvement plan task to implement level of service performance measurement system and evaluate levels of service gaps and tactics for remedying these gaps
An increase in services via the Ferry Terminal Network Development map may cause capacity issues at the Downtown Ferry Centre requiring wharf configurations and enhanced passenger flow management	Strategic review and recommendations surrounding demand, future demand and capacity to be completed to inform investment options
Reliable asset planning and renewals analysis of wharf network assets is hindered by lack of data	An ongoing improvement task of data collection for wharf assets

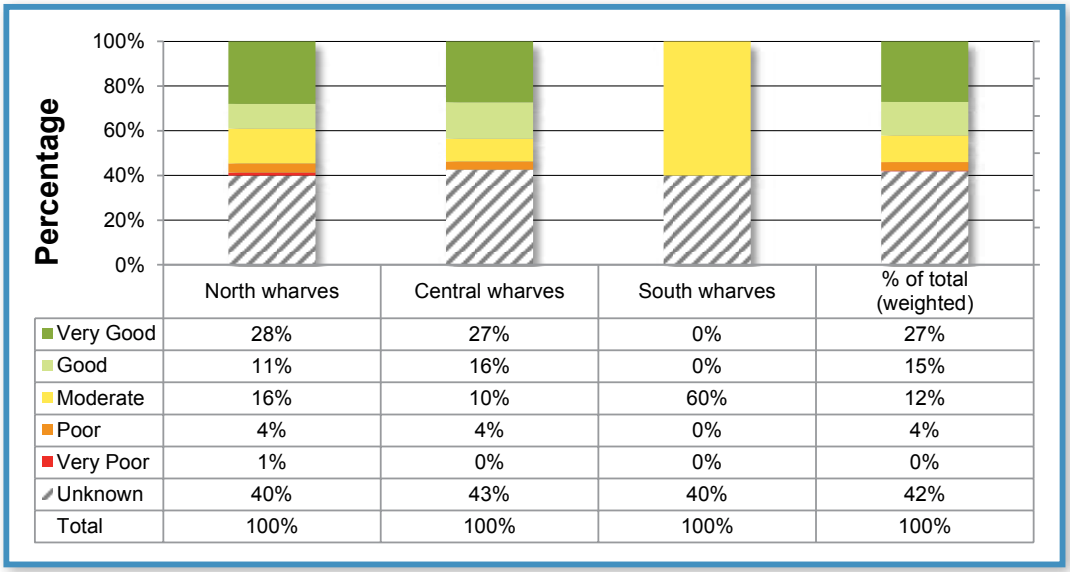
Current levels of service	Target levels of service (indicative)
90% overall customer satisfaction scores for ferry QTN and LCN services. Total of "good", "very good" or "excellent"	>80% overall customer satisfaction scores for ferry QTN and LCN services. Total of "good", "very good" or "excellent"
54% of wharves in moderate condition (grade 3) or better	95% of wharves in moderate condition (grade 3) or better
82% rating of personal safety at facilities	To be determined

Information confidence

	Very uncertain	Uncertain	Reliable	Highly reliable
Asset descriptors and quantity				
Asset age				
Condition				
Performance				

- There is insufficient wharf network assets data in SPM upon which to base a reliable renewals analysis. To address this there is an ongoing improvement task of data collection for wharf assets.

Wharf condition by asset type



	North wharves	Central wharves	South wharves	% of total (weighted)
Very Good	28%	27%	0%	27%
Good	11%	16%	0%	15%
Moderate	16%	10%	60%	12%
Poor	4%	4%	0%	4%
Very Poor	1%	0%	0%	0%
Unknown	40%	43%	40%	42%
Total	100%	100%	100%	100%

8.18 Public Transport Services

Public Transport Services activity

205 service contracts for the operations of bus, rail and ferry services

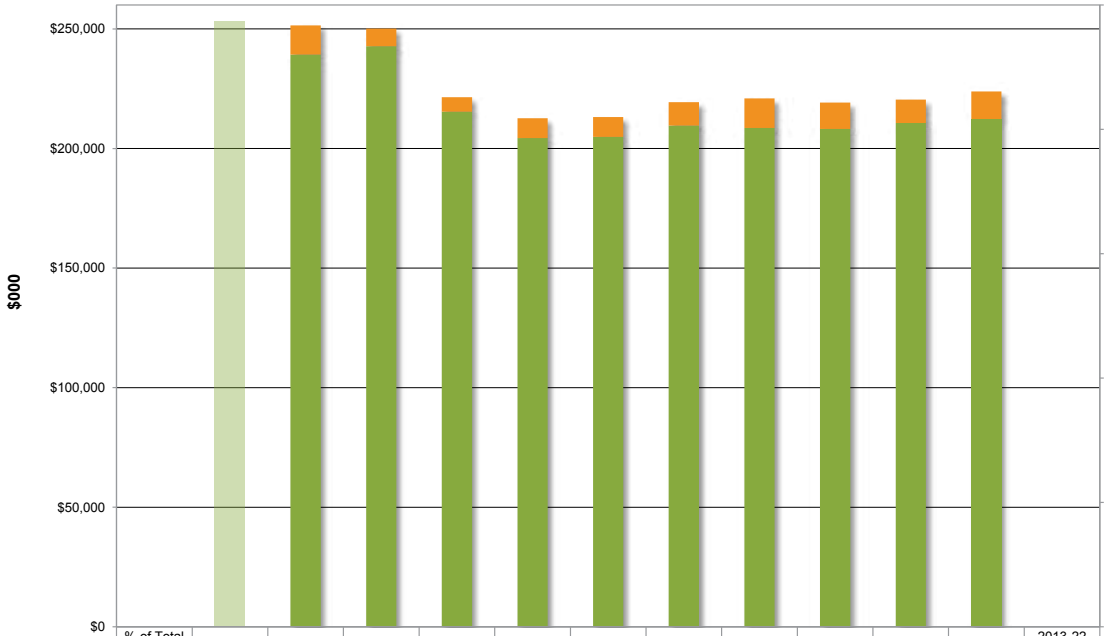
70 million passenger journeys over the last 12 months

Targeted services such as total mobility schemes, 28 school bus contracts and major event services

Network design and commercial services
Branding and information including call centre operations
Operational matters generic to all public transport services

Public Transport Services represents approximately 34% of the total public transport expenditure

Public Transport Services 10-year network needs



	% of Total Forecast	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2013-22 Total
CAPEX New Works	4%	000	12,193	7,403	6,104	8,308	8,311	9,814	12,367	11,070	9,824	11,578	96,970
Operations & Maintenance	96%	253,005	239,281	242,718	215,363	204,353	204,869	209,546	208,556	208,170	210,628	212,299	2,155,782
TOTAL	100%	253,005	251,474	250,121	221,467	212,661	213,180	219,360	220,923	219,240	220,452	223,877	2,252,752

- **The scope of Public Transport Services excludes any infrastructure operations and maintenance, as these are contained within the Bus, Rail and Wharf Lifecycle Management Plan sections of the AMP.**

Long Term Plan

- The approved Long Term Plan provides $2.11 billion 10-year total for O&M and renewals
- There is zero funding gap between AMP and LTP for O&M and renewals
- An apparent funding gap of $43.1 million for O&M is not a reduction, but rather a re-allocation from public transport services to bus and rail related infrastructure as well as a re-assessment of fare and lease recoveries
- There are no LTP funding impacts or consequences.

Key issues	Response
Revenue risk on gross contracted services where farebox revenue does not meet the cost of the service provided	Provide appropriate risk allocation between Auckland Transport and operators
Services not keeping up with demand	Continual monitoring and review of services and patronage to match demand, and respond to new service opportunities
Operators not performing to required standards	New Public Transport Operating Model (PTOM) contracts rolled out for operators will see better management of operators standards
Reliable asset planning and renewals analysis of wharf network assets is hindered by lack of data	An ongoing improvement task of data collection for wharf assets

Current levels of service	Target levels of service (indicative)
72% of public transport passengers with access to real-time service information	89% of public transport passengers with access to real-time service information
50% of public transport stops with service information	56% of public transport stops with service information
22% of service trips with disability access	21% of service trips with disability access
87% service punctuality – bus, rail and ferry	85% service punctuality – bus, rail and ferry

Glossary of terms

Acronym or Term	Meaning
ADS	Advanced destination signs
Asset	A physical component of a facility which has value, enables services to be provided and has an economic life of greater than 12 months
Asset Management (AM)	The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner
Asset Management Plan (AMP)	A plan developed to manage one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost effective manner to provide a specified level of service. A significant component of the plan is a long-term cash flow projection for the activities
Busway	Dedicated bus lanes which run alongside the Northern Motorway and form part of the Rapid Transit Network, along with rail
CAR	Corridor Access Requests made by utility operators to access road corridors
ETS	Emissions Trading Scheme
CCTV cameras	Closed-circuit television cameras for safety monitoring
GPS	Government Policy Statement
HCV	High capacity vehicle
HPMV	High productivity motor vehicles
Integrated Transport Plan (ITP)	The 30-year transport plan that coordinate the investment and other activities of Auckland's transport network providers. The plan communicates how the vision and targets of the Auckland Plan will be addressed for each of the 10-year periods to 2041
KPI	Key performance indicator
Level of Service (LOS)	The defined service quality for a particular activity or service area (i.e. interior) against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, regulatory & environmental acceptability and cost
Long Term Plan (LTP)	Auckland Council's Long Term Plan
OPEX	Operating expenditure
RAMM	Road Assessment and Maintenance Management system; Roading AMS, developed as an asset inventory and treatment selection tool
NZTA	New Zealand Transport Agency
O&M	Operations and Maintenance
SOI	Auckland Transport's Statement of Intent
Travel Demand Management (TDM)	The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand

www.aucklandtransport.govt.nz

Auckland Transport's Call Centre operates 24 hours, seven days a week
Phone +64 9 355 3553
Fax +64 9 355 3550

Visit our Head Office
6 Henderson Valley Road, Henderson,
Auckland 0612
Private Bag 92 250, Auckland 1142

Auckland Transport
An Auckland Council Organisation