2018-2028 TRANSPORTATION ASSET MANAGEMENT PLAN

He Rautaki Whakahaere Rawa mō Ngā Ara Kawenga

TRAFFIC SERVICES

NGĀ RATONGA WHAKAHAERE ARARAU

VOLUME FIVE | PUKAPUKA TUARIMA

Mountain to Sea
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1. INTRODUCTION

This volume provides details of the asset lifecycle management for the **Traffic Services** asset category of the Transportation AMP. The framework and key elements of the overall asset management plan are outlined in the table below.

Table 1 Asset management document structure

No.	Document Name	Key Document Contents
1	Long Term Plan (LTP)	Infrastructure Strategy • Strategic Framework • Guiding Themes • High Level Information for Each Asset Class Council Services • High Level Information • Levels of Service • Financial Plan
2	Asset Management Strategy	General Asset Management Principles and Overview
3	Asset Class General Volumes	General Information and Glossary about each asset class • Executive Summary • Introduction • Levels of Service • Future Demand • Risk Management Plan • Financial Summary • Plan Improvement and Monitoring
4	Asset Category Lifecycle Management Volumes	Asset Life Cycle Management for each asset category within each asset class • Description • Condition • Remaining Lives • Valuation • Operations & Maintenance • Renewals • Acquisition and Augmentation • Disposals • Annual Work Plan • Risk Management • Financial Summary • Improvement Plan

Purpose and Key Issues

Traffic services include:

- traffic signs;
- road facilities – markings, edge marker posts, RRPMs, local area traffic management devices, speed humps, traffic islands;
- traffic signals; and
- street lighting (including festive and CBD lights).

Traffic signs provide guidance, delineation, warning, direction and information that is easy to see and understand and contributes to the safety and efficiency of the roading system.

For convenience, edge marker posts and sight and guard-rails are included in this category, as both also provide information to road users (as well as protection in the case of guard-rails). The key issues relating to signs are:

- Traffic signs are a relatively low cost but high visibility / high risk asset group. Their consistency and effectiveness can greatly affect driver behaviour.
- Vegetation, street furniture and other obstructions can impair the visibility of signs.
- Sign information is stored in RAMM.
- Excessive signage can create confusion and visual pollution.
- The cleanliness and visibility of edge marker posts (EMPs).

Traffic facilities aid safe and orderly movement of traffic and contribute to the safety and efficiency of the roading system. Road markings include all measures applied or attached to the road surface to guide and regulate the movement of traffic. This includes various paint types and adhesive materials as well as raised reflective pavement markers (RRPMs). The key issues relating to road markings are:

- Quality of markings, quality control of painted marking thickness.
- The need for consistent delineation of cycle ways (refer to New Plymouth Cycle Strategy 2007 and MOTSAM).
- Maintaining minimum visibility / reflectivity.

Traffic signals provide traffic control facilities at major road intersections to reduce the potential for crashes and optimise the flow of traffic. They also regulate, guide and warn traffic including pedestrians. Their effectiveness depends on their design, maintenance, and construction. It also depends on effective coordination between signals if connected to SCATS[1], and correct interpretation and timely reactions by road users.

There are 22 intersections currently linked to the SCATS system. Present in urban New Plymouth only, traffic signals are 'active' assets in that as well as maintenance and renewal, they require proactive management and operation. The key issues relating to traffic signals are:

- Selecting appropriate intersections for operating traffic signals in a way that minimises long-term costs and maintains stated levels of service.
- Considering other appropriate treatment options which may be cheaper to operate but can deliver similar key road user benefits (e.g. safety).
- Most are state highway traffic signals, owned by NZTA and managed by us.
- Coordination between signals to achieve minimum total system delays and safety objectives.
- Facilitating the impact of the right hand rule change e.g two intersections were provided with right turn arrows to alleviate the backing up of traffic

Street lighting provides ambient illuminance levels on streets for safe and efficient movement of vehicles, cycles and pedestrians and contributes to general security. The key issues relating to street lights are:

- Reviewing lighting type to achieve efficiency and energy savings whilst providing an acceptable level of service and embracing new technology where supported by a business case.
- The desire for continuous and reliable under-veranda lighting in the New Plymouth CBD and for similar lighting to be applied to the Inglewood and Waitara CBD areas.
- The need for lighting consistency, especially at intersections.

The **stock effluent disposal facility** on SH3 at Ahititi provides a means for stock haulage traffic to dispose of effluent in a safe and environmentally acceptable way. The key issue relating to the stock effluent facility is:

- Meeting TRC resource consent conditions

1 Sydney Coordinated Adaptive Traffic Systems – computer based software package to optimise traffic flow

Levels of Service

The levels of service and investment KPIs for the operations, maintenance, renewals and minor improvement of the Transportation system are included in Section 6 of the Transportation Strategic Case (General Volume). The investment KPIs are developed from the problem statements and benefits in the Programme Business Cases (PBCs) included in the Appendices of the Transportation Strategic Case (General Volume). The investment KPIs applicable to Traffic Services are summarised in Table 2.

Table 2 Traffic services investment KPI summary

Problems	Benefits	Investment KPIs (PBC for each one)
• The changing expectations of the community requires a reprioritisation of investment to meet the agreed and future Level of Service for all transport modes. • Growth in the movement of people and goods on key corridors will result in increasing travel time unreliability during peak periods. • Geology, weather and climate activity plus some sub-standard assets results in a high level of full and partial closures of the network impacting lifelines and economic viability. • Driver behaviour, safe system approach and other factors are resulting in a high proportion of Death and Serious Injury crashes for vulnerable road users.	• An easy to understand and efficient (economically viable) network for all transport modes • A resilient network • A safe network	1. Network Availability 2. Customer Satisfaction 3. Maintain Travel Time Reliability with Increased Activity 4. Value for Money 5. Response Times 6. Network Audit of Condition 7. Crashes

The particular measures used to monitor the performance of Traffic Services assets are shown in Table 3. More details about the measures are included in the Programme Business Cases included in the Transportation Strategic Case (General Volume).

Table 3 Traffic services O&M KPIs

KPI No	KPI	Baseline Performance	Target Performance
2.1	Count of complaints recorded by Contact Centre	33 per annum average 2011/12 – 2016/17	<=40 per annum
5.1	LoS 5 – respond to requests in reasonable timeframe	Current performance is 95%	Maintain at 95%

Related legislation, codes and standards

All traffic signs are designed and located to meet NZTA requirements detailed in 'Manual of Traffic Signs and Markings - Part 1 Traffic Signs' and 'RTS 2 Guidelines for Street Name Signs'. Our specific practices for street nameplates include the following:

- At least one street name blade is used to mark each street at urban intersections, except when a minor street meets a major street (the latter is often not marked).
- Street nameplate signs are reflective, have blue with white lettering and the NPDC logo (selected for having the best visibility characteristics).
- Longer names use a longer blade, mid-mounted on the post.
- Rural name blades use 150mm high lettering; urban use 100mm.
- We generally indicate no-exit streets and roads with signage.

Both urban and rural road markings should conform to the 'Manual of Traffic Signs and Markings (MOTSAM) Part 2: Markings'. All rural roads must also comply with 'RTS 5 – Guidelines for Rural Road Marking and Delineation'.

Traffic signals are designed, located and operated in accordance with the Austroads 'Guide to the Design of Traffic Signal Installations'. Upgrades are carried out to Austroads standards. In December 2007, we adopted the 'New Plymouth Traffic Signals – Corridor Management Plan' to record the policies and strategies used to operate and manage the traffic signals in the district. Details of local design policies and SCATS linking of signals are included in the September 2010 update.

We are progressively moving to the new street lighting standard AS/NZS 1158 through the major upgrade programme adopted when funds were made available in 1995.

Stock effluent disposal facilities must meet TRC consent conditions. Currently, the installation at Ahititi has been issued with a TRC abatement notice (this is discussed in Section 2.6 Renewals Plan).

Future Demand

Future demand and growth in the district is addressed in our report Keeping New Plymouth Moving and Growing. This report includes Investment Logic Maps (ILMs) and a series of problem statements, benefits and investment KPIs for growth. These are summarised in Table 4.

Table 4 Traffic services growth investment KPIs

Problems	Benefits	Investment KPIs (PBC for each one)
• Capacity limitations of key and strategic arterial routes do not meet current demand and will not support future growth. • Natural landforms, arterial layout and poor alternative mode permeability are limiting city connectivity. • Complex roads and a high number of modal conflict points are driving high actual and perceived personal and collective risk. • A lack of viable alternative routes during a major event results in significant delays and risk of transport and utility severance.	• Improved transport network performance • Improved safety outcomes • Improved economic outcomes for the district • More viable transport choices	• Effectiveness • Network Availability • Improved Infrastructure Quality • Improved actual safety • Improved safety perception • Business investment • Transport network supports future growth • Increased use of alternative modes • Improved community perception • Improved alternative mode infrastructure

Note: All financial forecasts are shown in inflation adjusted dollar values.

2. LIFECYCLE MANAGEMENT PLAN

2.1 Asset Description

2.1.1 Traffic Signs

Signs contain a variety of information including:

- Regulation instructions that road users are required to obey.
- Warnings of temporary or permanent hazards which may not be self-evident.
- Directions and distances to destinations.
- An indication of road user services and tourist features/establishments.
- Other information of general interest to road users.

Some of our older signs are non-reflective. There is no data currently available on the number of non-reflective signs. However the new standard has been in place since 1990 and we estimate that currently, about 70-90% of urban signs are reflective and close to 100% of all rural signs are reflective.

The numbers of different types of signs are shown in Table 5.

Table 5 Sign types

Sign Type	Number
Guide	145
Hazard Markings	1,185
Information General	68
Information Miscellaneous	293
Information signs (street name signs)	3,134
Local Authority	76
Miscellaneous	14
Motorist Services	81
Permanent Warning	2,202
Regulatory General	2,368
Regulatory Heavy Vehicle	28
Regulatory Parking	1,491
Tourist	87
Warning Miscellaneous	6
Total	11,178

2.1.2 Road Facilities

Materials used are:

- Waterborne and chlorinated rubber paints.
- Reflective materials added to painted markings.
- Raised reflective pavement markers (RRPMs).

The approximate lengths and number of road markings are shown in Table 6.

Table 6 Road facility types

Component	Quantity
Road Marking Lines	435 km
RRPMs	1,140 No
Give Way/Stop	440 No
Parking/Stopping	5,770 No
Utility Markings	497 No
Symbols	940 No

Types of road markings on the network are shown in Table 7.

Table 7 Road marking types

Non intersection markings	Intersection markings	Miscellaneous markings
• centre lines and lane lines • edge lines and shoulder markings • no overtaking lines/passing lines • median markings • cycle lanes with green surface • parking demarcation areas and with blue surface for disability parks • bus stops • no stopping lines	• centre lines/edge lines/lane lines • lane arrows • wait lines/ continuity lines • cycle lanes • border lines/ diagonal lines • no stopping lines	• messages and symbols • pedestrian crossings • railway level crossings • raised pavement markers • Speed humps

To delineate rural roads we use edge marker posts made of plastic or similar flexible material. All components must be able to resist the weather and seasonal effects of the climate and be able to re-stand after being run over by a car.

TNZ P/14 is the specification from NZTA for the installation of reflectorized pavement markers. Where paint marking exist, there should be RRMPs.

To highlight the traffic lanes and improve safety, RRPMs have been installed on many urban arterial and collector streets, especially in areas with substantial volumes of traffic. RRPM installation has also been generated through the Minor Improvements programme. RRPMs are also used on key rural roads (arterials and key collectors) with annual average daily traffic counts greater than 1,000 (RTS 5).

Speed humps prevent speeding in certain road sections that require slow driving speeds, and restrict the entrance of cars to residential areas or school districts. They are mainly installed in urban areas near schools, kindergartens, children's playgrounds, neighborhood parks, housing complexes, shopping facilities, hospitals, etc.
The primary purpose of traffic islands is better and more orderly flow of traffic. They can be also be regarded as a physical barrier for channeling the flow of traffic and reducing the number of conflict points. Traffic islands in their various shapes play an important role in transport planning and knowledge of their effective placement is a 'must know' for a town planner.

Generally constructed of light timber and painted white, sight rails have traditionally been used to highlight hazards such as curves, bridges, culverts, intersections and under slips. Using sight rails to protect road users against higher risk roadside hazards such as bridge abutments and steep banks is generally strongly discouraged. At these sites, a guardrail or other recognised barrier is generally appropriate.

The numbers of other traffic facilities components are shown in Table 8.

Table 8 Other traffic facility types

Component	Count
Long Life Road Markings	1 km
Edge Marker Posts	4,695 No
RRPMs	8,819 No
Safety Devices (Railings)	12,257 m
Speed Humps	36 No
Traffic Islands	5,973 m2

2.1.3 Traffic Signals

We operate traffic signals at 24 (urban) locations, 6 of which are our own installations and the remaining 18 state highway installations. The locations are indicated in table below. The 18 sets managed on behalf of NZTA are located at intersections within the state highway network.

In addition, we operate the SCATS system to coordinate multiple sets of traffic signals. SCATS is programmable, and accordingly, individual intersections can be programmed to respond to changing traffic conditions or be coordinated in groups on key routes to provide 'green waves'.

The system consists of controllers, poles, lanterns, detectors in the pavement, pedestrian pushbuttons and assorted cabling.

The list of traffic signal locations is shown in Table 9.

Table 9 Traffic signal assets

Location	SH/Local	SCATS
Courtenay/Gover	SH	Y
Devon/Dawson	Local	Y
Devon/Smart	SH	Y
Devon East/Hobson	Local	Y
Devon East/Sackville	Local	Y
Devon West/Morley	SH	Y
Eliot/Courtenay	SH	Y
Eliot/Devon	SH	Y
Eliot/Leach	SH	Y
Liardet/Courtenay	SH	Y
Liardet/Devon East	Local	Y
Liardet/Leach	SH	Y
Molesworth/Liardet	SH	Y
Northgate/Devon	SH	Y
Northgate/Mangorei	SH	Y
Powderham/Brougham	SH	Y
Powderham/Dawson	SH	Y
St Aubyn/Dawson	SH	Y
St Aubyn/Egmont	SH	Y
Devon West Pedestrian	SH	Y
Powderham Pedestrian	SH	Y
Gill/Currie	Local	N
Tukapa Pedestrian	Local	N
Vivian/Dawson	SH	Y

2.1.4 Street Lighting

There are 8,039 lanterns and 3,655 columns in the district. Lighting for roads has three categories namely carriageway, amenity and flag lighting. For safety reasons standalone lighting is usually on high poles.

- We own all stand-alone poles.
- Poles that also carry power lines are owned by Powerco.
- NZTA installs and owns the lights on State Highways. We arrange maintenance and power supply which is paid for by NZTA.

Amenity lighting in the roading context includes:

- Under-veranda lighting.
- Any other lighting not directly related to the operation of those roads (e.g. up lighting for street trees, Festival of Lights promotional, etc.).

Table 10 shows the number and type of lanterns installed across the network. Note that these statistics were produced prior to our replacing lanterns with LEDs.

Table 10 Lantern types

Lantern Type	Power (watts)	Number
Low Pressure Sodium	90-135	128
High Pressure Sodium	70	6,537
Low Pressure Sodium	100-250	1,076
Metal Halide	70 -250	111
Belisha Beacon		24
Decorative Lighting		163
Total		8,039

Around 4,240 lanterns are attached to poles owned by others (e.g. Powerco). Therefore, these assets are influenced by the undergrounding strategies of others, and could require us to provide new poles.

The other assets making up the street lighting system are listed in Table 11.

Table 11 Other street lighting assets

Component	Count
Columns	3,655 No
Brackets	4,268 No
RRPMs	8,819 No
Cables	146.5 km
Control Points	343 No

The number and type of festive lights assets are shown in Table 12.

Table 12 Festive lights types

Festive Lights Types	No of
Chimney	1
Dairy Farming	4
Decorative Wreath	1
Fantail	2
Fishing	1
Kiwi Santa /Cyclist	1
Kiwi Santa /Fisherman	1
Kiwi Santa / Golfer	1
LED at Clocktower	1
LED Pohutukawa	3
LED Silver Fern	4
LED Snowflake	8
Mountain / Maori	1
Poinsettia Flower	2
Rig / Lake	1

Festive Lights Types (Cont.)	No of
Sailing	1
Sals (triple Rod)	13
Sand Tools	1
Santa / Reindeer	1
Spinning Wheel	7
Star (Lookout)	1
Stony River	1
Street Crossing Curtain	4
Surfer (Single Side)	3
Surfing	2
Wave	6
Windwand / Lake	2
Xmas Tree	21
TOTAL	95

2.1.5 Stock Effluent Facilities

As mentioned, there is one stock effluent facility in the district, located on SH3 at Ahititi.

The data on the quantity and type of the assets presented in this AMP is classed as grade **B – Reliable** due to our well maintained and updated asset inventory in RAMM.

2.2 Asset Condition

In general, we assess the condition of traffic services assets during maintenance and inspections. We plan repairs and renewals based on these observations.

2.2.1 Traffic Signs

Three key criteria for effective performance of traffic signs are visibility (affected by cleanliness and, at night, reflectivity), and readability (influenced by letter size and style and location).

In 1998, we reviewed the reflectivity of permanent regulatory, warning and information guidance signs. While the results were somewhat inconclusive in terms of measurements (for example, due to the effect of cleanliness), a number of recommendations were made in relation to the type of material used for signs.
The recommendations related particularly to the use of Class 1A (Diamond Grade), Class 1 (High Intensity) and Class 2 (Engineering Grade) in various signs, and their expected lives. Recommendations were that existing Class 2 signs be replaced with Class 1 and that Class 2 signs be used only for parking signs. Class 1A was recommended for use only in special situations. The only non-reflective signs are parking signs.

There is no ongoing record of sign conditions and we do not conduct formal condition ratings. An informal condition grading system is included as part of the maintenance contract.

2.2.2 Road Facilities

The condition of road facilities depends on the quality and type of materials and their application, as well as accurate placement. We perform annual night time surveys to identify RRPMs requiring maintenance and renewal. There is no condition rating system in place for road markings. We do require a means of measuring the effectiveness and visibility of markings in order to optimise future performance and to ensure that national standards and user needs are met.

2.2.3 Traffic Signals

The physical condition of traffic signals is monitored via the SCATS system (where connected to SCATS) and via monthly checking as part of the traffic signals maintenance contract.

2.2.4 Street Lighting

There is limited age and condition data available for street lighting. We do need information about our poles, lanterns and fittings in order to better predict the long term future renewals profile. New technology has been employed to progressively capture this information when the contractor completes routine maintenance.

While the data presented in this AMP on the condition of the assets is based on sound records, procedures and inspections, it is classed as grade C – Uncertain because it is incomplete.

2.2.5 Stock Effluent Facility

The stock effluent facility is in good condition but was not constructed as originally designed due to a fibre-optic cable running directly beneath the effluent pond. This restricted the depth of the pond to 1.5m rather that the required 3m (see Section 2.6 Renewals Plan for details).

2.3 Asset Remaining Lives

2.3.1 Traffic Signs

Signs are relatively short-lived assets, with effective lives of around 10 years.

2.3.2 Road Facilities

Painted road markings are the most changeable of all sealed road assets. They have a relatively short life and it is typically only one year between re-marks. Typical lives of painted markings are 6 months to 2 years.

Marker posts and RRPMs typically have a life expectancy of 5 years.

2.3.3 Traffic Signals

The effective life of traffic signals is assumed to be 10 years (for valuation purposes). This is based on their likely technological life rather than their physical life, and reflects the anticipated need to renew signals or components as technology and standards change.

2.3.4 Street Lights

Street lights and festive lights have an assumed asset life of 20 years.

2.3.5 Stock Effluent Facilities

The life expectancy of the stock effluent facility at SH3, Ahititi is assumed to be 50 years.

The data presented in this AMP on the remaining life of the assets is classed as grade **D – Uncertain** due to data being based on unconfirmed verbal reports or cursory inspections with most data estimated or extrapolated.

2.4 Asset Valuation

The value of assets as at 30 June 2016 is shown in Table 13.

Table 13 Asset valuation

Category	Gross Current Replacement Cost (GCRC) ($)	Annual Depreciation ($)	Optimised Depreciated Replacement Cost (ODRC) ($)
Road Signs	3,546,008	354,601	1,773,004
Road Marking	57,051	11,410	28,526
Marker Posts	101,492	20,298	50,746
RRPM	138,906	27,781	69,453
Safety Devices (Railings)	2,134,293	49,843	1,067,147
Speed Humps	303,135	101,045	151,568
Traffic Islands	5,309,779	118,734	4,095,937
Street Light Columns	2,122,208	100,319	229,338
Street Light Brackets	2,398,154	119,007	139,649
Street Light Lanterns	2,694,362	134,718	248,304
Street Light Cables	6,442,843	322,142	1,288,569
Traffic Signals Control Points	671,516	33,576	134,303
Traffic Signals	572,968	39,703	247,116
Festive Lights	638,605	26,945	488,395
Total	27,131,320	1,460,122	10,012,055

Values are from the 2016 statutory valuation. The data accuracy and confidence level is rated as **A - Reliable**. Internal staff conducted the detailed valuation which was peer reviewed and endorsed by Beca Consultants.

2.5 Operations and Maintenance

2.5.1 Traffic Signs

Signs maintenance is carried out under the urban and rural general maintenance contracts. This covers replacement of damaged signs and lack of visibility / legibility through vegetation or cleanliness.

2.5.2 Road Facilities

Pavements are generally remarked at fixed intervals rather than on a set frequency and based on traffic use of the road or its position in the network hierarchy. As needs are identified there may be additional remarking conducted, particularly in high wear areas such as intersections. Contractors undertake pavement remarking following pavement resurfacing works and when they are instructed by us, following traffic management requests from road users.

RRPMs are also maintained under the road marking contract.

2.5.3 Traffic Signals

Operational costs take into account:

- Power charges
- Routine inspection costs
- Routine maintenance costs (electrical and fittings)
- Monitoring costs
- SCATS management costs

Maintenance is provided under a separate contract with work being identified and programmed by the contractor and implemented within the available budget.

Typically, maintenance work comprises repainting, repairs to damaged poles and other aspects, repair and adjustments to electrical components, and cleaning and periodic replacement of lamps and detector loops.

The nature of this asset group and the importance of the signal locations mean we require a prompt response to faults.

This category also includes maintaining the level crossing warning devices owned by Kiwi Rail.

2.5.4 Street Lights

This covers maintenance (inspections, lamp replacements) and power costs associated with operating lighting on local roads. It includes the costs associated with belisha[2] beacons and floodlighting at pedestrian crossings.

Electricity is supplied by the company with whom we have a bulk supply contract. We will continue to tender for our energy supply in the future to ensure energy costs are optimised.

New works programmes will affect expenditure forecasts, particularly operational costs. More lights will result in higher electricity costs for the network, but these costs may be offset by the greater efficiency of the lanterns used in the future.

2.5.5 Stock Effluent Facility

Operations consist of regularly emptying the facility and disposing of the effluent at the wastewater treatment plant in New Plymouth or at other authorised locations permitted by the resource consent. The facility is also regularly cleaned.

The approved 15-18 NLTP values work category 131 – Level crossing warning devices, 123-Operational traffic management and 122 – Traffic services management maintenance are shown in Tables 14, 15 and 16.

131 – Level crossing warning devices - This work category provides for Approved Organisations to share the costs associated with the maintenance and renewal of rail level crossing warning devices carried out by the relevant rail track authority.

2 Flashing or reflective red beacons at pedestrian crossings

Table 14 WC131 Level crossing warning devices 2015-18 NLTP

Year	Requested allocation	Approved allocation (NZTA only)			
	Total cost ($)	Total cost for approval ($)	FAR (%)	NZTA share ($)	Funding source National ($)
2015/16	30,000	33,670	52	17,508	17,508
2016/17	30,000	29,563	51	15,077	15,077
2017/18	30,000	30,000	51	15,300	15,300
Totals	90,000	93,233	51.36	47,885	47,885

123 – Operational traffic management - This work category provides for the operation, maintenance and power costs of traffic signals and other traffic management equipment and facilities.

Table 15 WC123 Operational traffic management 2015-18 NLTP

Year	Requested allocation			Approved allocation (NZTA only)			
	Maintenance of operational infrastructure ($)	Management and operation of traffic systems ($)	Total cost ($)	Total cost for approval ($)	FAR (%)	NZTA share ($)	Funding source National ($)
2015/16	30,000	0	30,000	40,105	52	20,855	20,855
2016/17	30,000	0	30,000	43,673	51	22,273	22,273
2017/18	30,000	0	30,000	40,000	51	20,400	20,400
Totals	90,000	0	90,000	123,778	51.22	63,528	63,528

122 – Traffic Services Management - This work category provides for the routine care and attention of road furniture, markings, and carriageway and pedestrian crossing lighting.

Table 16 WC122 Traffic services management 2015-18 NLTP

Year	Requested allocation			Approved allocation (NZTA only)			
	Traffic services power supply ($)	Traffic services maintenance ($)	Total cost ($)	Total cost for approval ($)	FAR (%)	NZTA share ($)	Funding source National ($)
2015/16	455,000	758,000	1,213,000	1,478,350	52	768,742	768,742
2016/17	455,000	758,000	1,213,000	1,369,871	51	698,634	698,634
2017/18	455,000	758,000	1,213,000	1,180,000	51	601,800	601,800
Totals	1,365,000	2,274,000	3,639,000	4,028,221	51.37	2,069,176	2,069,176

To ensure the network condition is safe, fit-for-purpose and meets customer satisfaction targets we will need to continue to maintain traffic services at the same level as the approved 2015-18 NLTP budgets during the 2018-21 NTLP and beyond. The proposed 2018-21 NLTP values and the 10-year inflated forecast for expenditure on drainage maintenance are shown in the table below.

Table 17 Traffic services maintenance expenditure forecast 2018-21 NLTP

	2018-21 NLTP									
$000	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
Level crossing warning devices (131)	32	33	34	34	35	36	37	38	39	40
Management of operational infrastructure (123)	45	46	47	48	49	51	52	53	54	56
Traffic services power supply (122)	373	350	295	258	264	270	276	283	290	297
Traffic services maintenance (122)	878	865	862	881	901	922	943	965	989	1,014
Total	1,329	1,294	1,238	1,222	1,249	1,278	1,307	1,338	1,372	1,406
NZTA Share FAR (51%)	678	660	631	623	637	652	667	683	700	717

The 2018-21 NLTP values include the anticipated reduction in power costs as a result of the LED installation programme and the associated decrease in maintenance costs due to the simpler and longer life span of the fittings and bulbs. The full saving value cannot be fully accrued as we will require provision for the renewal of other aging cables and joints in the future. This has been factored into the expenditure forecast. The overall Opex forecast for Transportation activities including operations and maintenance is included in the Transportation Strategic Case (General Volume).

2.6 Renewals Plan

Traffic Signs

Signs are generally maintained in a reactive manner. The main reasons signs fail are deterioration, accidental damage and vandalism. We inspect the condition of signs during general maintenance and any renewal requirements are noted and actioned. There may also be service requests raised to renew signs following reports by the public.

Road Facilities

All road marking replacement works are expensed as an operations item and subsequently there is no renewal plan for road facilities.

Traffic Signals

Signal renewals are driven by condition, changing national standards, performance monitoring. Crash reduction studies can also identify inadequacies in the layout, phasing or operation of signal installations.

Street Lights

Historically, the standard of street lighting has not been clearly documented. However, in the mid-1990s we determined that the general performance of our street lighting was inadequate and did not meet community needs. In 1996 a 16 year, $8.5 million programme was defined. This programme included both renewal and upgrade (new asset) expenditure.

The general strategy behind the replacement programme was to upgrade to a higher and more uniform standard. This programme will continue well beyond 16 years because of budget constraints since 1996. Therefore this long-term programme to renew and upgrade street lighting continues.

The LED lantern upgrade project has provided an opportunity to also renew the associated fittings and equipment. This project is described in the Acquisition and Augmentation Plan in section 2.7.

Renewal of festive and CBD lighting is also driven by condition combined with the aesthetic need to upgrade and refresh displays. The renewal of these assets is not subsidised by NZTA.

Stock Effluent Facility

The existing facility does not meet TRCs resource consent conditions. Investigation undertaken in 2014/15 financial year determined that the facility was not constructed as designed because a fibre optic cable was found to be located under the effluent ponds. This restricted construction of the receiving pond to a depth of 1.5m, rather than the required 3m pond depth.

TRC has issued an abatement notice on NZTA, and we are currently undertaking further investigations and soil testing to satisfy TRC and to determine the final design of the facility. The cost of upgrading this facility will likely be in the order of $500k. No request or provision for the renewal of the facility was approved in the 2015-18 NLTP under work category 221 – Environmental renewals because a review was underway. We plan to investigate options to renew the facility during the 2018-21 NLTP.

2. LIFECYCLE MANAGEMENT PLAN

The approved 15-18 NLTP values work category 222 Traffic services renewals are shown in Table 18.

Table 18 WC222 Traffic services renewals 22015-18 NLTP

Year	Requested allocation	Approved allocation (NZTA only)			
	Total cost ($)	Total cost for approval ($)	FAR (%)	NZTA share ($)	Funding source National ($)
2015/16	288,000	240,374	52	124,994	124,994
2016/17	288,000	164,197	51	83,740	83,740
2017/18	288,000	288,000	51	146,880	146,880
Totals	864,000	692,571	51.35	355,614	355,614

To keep traffic services in a safe and fit for purpose condition we will need to continue to renew traffic services at similar rates to the 2015-18 NLTP. The proposed 2018-21 NLTP values and the 10-year forecast for traffic services renewals are shown in Tables 19 – 21.

Table 19 WC222 Traffic services renewals 2018-21 NLTP

	2018-21 NLTP									
$000	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
Traffic services renewals	291	296	303	310	316	324	331	339	348	356
NZTA Share FAR (51%)	148	151	154	158	161	165	169	173	177	182

The proposed 2018-21 NLTP values and the 10-year inflated forecast for traffic signal renewals on state highways are shown in the table below.

Table 20 SH traffic signal renewals 2018-21 NLTP

	2018-21 NLTP									
$000	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
SH traffic signal renewal	61	62	63	64	66	67	69	71	72	74
NZTA Share FAR (100%)	61	62	63	64	66	67	69	71	72	74

The proposed 10-year inflated forecast for the unsubsidised renewal of festive and CBD lighting is shown in the table below.

Table 21 Festive and CBD lighting renewals forecast

$000	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
Festive & CBD lighting renewal (RD1030)	65	67	68	70	71	73	75	77	79	81

In 2015, we began a five year project to renew and upgrade the full streetlight lantern stock with LED lanterns. The project delivers a range of benefits including improved lighting, lower power consumption and longer life lanterns.

The approved 15-18 NLTP values work category 324 – Road improvements for the LED lantern upgrade project are shown in the table below.

Table 22 WC324 LED lantern upgrade project 2015-18 NLTP

Year	Requested allocation			Approved allocation (NZTA only)			
	Total cost ($)	Tolls ($)	Other supplementary funding ($)	Total cost for approval ($)	FAR (%)	NZTA share ($)	Funding source National ($)
2015/16	19,943	0	0	19,943	52	10,370	10,370
2016/17	1,335,829	0	0	1,335,829	85.49	1,142,000	1,142,000
2017/18	2,217,525	0	0	2,217,525	85	1,884,896	1,884,896
Totals	3,573,297	0	0	3,573,297	85	3,037,266	3,037,266

We propose to complete the LED upgrade project during the next NLTP. The proposed 2018-21 NLTP values and the 10-year inflated forecast for road improvements associated with completing the LED upgrade project are shown in the table below.

Table 23 WC324 LED lantern upgrade project 2018-21 NLTP

	2018-21 NLTP									
$000	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
LED lantern upgrade project (RD1025)	2,349	-	-	-	-	-	-	-	-	-
NZTA Share FAR (85%)	1,997	-	-	-	-	-	-	-	-	-

2.7 Acquisition and Augmentation Plan

Acquisitions

New assets installed by developers to serve new domestic and non-domestic developments are usually vested in us. Assets are built to the NZS4404: 2010 – Land Development and Subdivision Standard. Our specific requirements are defined in the New Plymouth District Council (NPDC) and South Taranaki District Council (STDC) adopted standard for Land Development and Subdivision Infrastructure, which is based on NZS 4404:2010 with local amendments. We assume full responsibility for any assets vested with us, and include them included in our operations, maintenance and future renewal plans.

Level of Service

No level of service projects are planned during the 10-year AMP period.

Growth

New traffic facilities will be constructed as part of any new pavement construction described in the Volume 1 – Pavements.

2.8 Disposal Plan

Disposal is the retirement or sale of assets when they become surplus or superseded by new or improved systems. Assets may become surplus to requirements for any of the following reasons:

- Under-utilisation
- Obsolescence
- Provision exceeds required level of service
- Replacement before end of predicted economic life
- Uneconomic to upgrade or operate

Policy changes
Service provided by other means (e.g. private sector involvement)
Potential risk of ownership (financial, environmental, legal, social)

No traffic services asset disposals are planned over the 10 year AMP period.

3. RISK MANAGEMENT PLAN

3.1 Critical Assets

Traffic services assets are critical to the safe and reliable operation and reliability of the transportation network. However we do not conduct formal criticality ratings as these assets would all be assigned with similar ratings and are subject to the same level of reactive and proactive maintenance and inspection.

3.2 Risk Assessment

Our Risk Management Framework and details of key risks to Transportation assets are included in Section 14 of the Transportation Strategic Case (General Volume) and section 7 of the Asset Management Strategy.

3.3 Infrastructure Resilience Approach

We have allocated budgets for reinstating traffic services assets adversely affected by minor events such as weather conditions, land instability or natural hazards. Any significant events causing major loss of access will be dealt with separately.

4. FINANCIAL SUMMARY

A summary of the expenditure forecasts included in this volume is shown in Table 24.

Table 24 Expenditure forecast summary

Traffic Services Expenditure Forecast ($000)											
Activity	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Total
Maintenance	1,329	1,294	1,238	1,222	1,249	1,278	1,307	1,338	1,372	1,406	13,033
Renewals	2,764	427	435	444	454	463	475	487	499	512	6,960
Service Level	-	-	-	-	-	-	-	-	-	-	-
Growth	-	-	-	-	-	-	-	-	-	-	-
Total	4,093	1,721	1,673	1,666	1,703	1,741	1,782	1,825	1,871	1,918	19,993

A summary of the NZTA contribution forecasts included in this volume is shown in Table25.

Table 25 Subsidy forecast summary

Traffic Services Subsidy Forecast ($000)											
Activity	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Total
Maintenance	678	660	631	623	637	652	667	683	700	717	6,648
Renewals	2,206	214	218	222	227	231	238	244	249	256	4,305
Service Level	-	-	-	-	-	-	-	-	-	-	-
Growth	-	-	-	-	-	-	-	-	-	-	-
Total	2,884	874	849	845	864	883	905	927	949	973	10,953

Full details about overall transportation operational expenditure are included in the Transportation Strategic Case (General Volume).

5. IMPROVEMENT AND MONITORING PLAN

Our general Asset Management Maturity Improvement Plan is included in the Asset Management Strategy.

There are no specific areas of improvement identified for traffic services assets.

2018-2028 TRANSPORTATION ASSET MANAGEMENT PLAN
He Rautaki Whakahaere Rawa mō Ngā Ara Kawenga

TRAFFIC SERVICES
NGĀ RATONGA WHAKAHAERE ARARAU

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