



**Draft Land Transport Network
Asset Management Plan**

1 July 2018 – 30 June 2028

Land Transport Asset Management Plan 2018-2028

Framework:

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Executive Summary

The Activity Management Plan (AMP) for the Land Transport Network 2018 describes in detail how the South Waikato District's network will be managed to support the Council's Vision, Outcomes and Strategies, particularly over the next 10 years as encapsulated in the Long Term Plan 2018-2028. The outcomes and strategies include reference to National and Regional Land Transport strategies such as the National and Regional Land Transport programmes and the Government Policy Statement (GPS).

PHYSICAL CONTEXT

The geology of the South Waikato District reflects major historic volcanic events in the Taupo, Rotorua and Tirau zones. The geology is also influenced by the action of the Waikato River and other waterways.

The temperate climate provides an annual rainfall of approximately 1,500 mm and the prevailing wind is from the south west. The Kaimai and Mamaku ranges to the east - south east and the significant area of forestry around Tokoroa and south have an influence on weather patterns and air temperature.

The total roading network consists of local roads, State Highways, private (mainly forestry) roads and unformed (paper) roads. In addition to the carriageway, the roading infrastructure also includes bridges and large culverts, signs and marking, footpaths, street lighting, drainage, railings and carparks.

The District is dissected by State Highways 1, 5, 27, 28, 30 and 32 which have a significant bearing on the traffic that travels through the District and the use made of local roads. Council exercises its interest in the operation and management of state highways directly through close liaison with NZ Transport Agency and indirectly through input to the Regional Land Transport Programme through the Regional Land Transport Committee.



OUR FOCUS

Like most rural areas in New Zealand, the South Waikato faces a declining and an aging population. This places pressure on ratepayers with fewer people and more on fixed incomes having to bear the cost to maintain and replace infrastructure that delivers water to homes, takes away wastewater, keeps our roads in good condition and provides good quality public facilities like pools and libraries to name just a handful of the services Council provides.

In recent times we have seen a positive turn-around in this trend in the South Waikato driven in part by Council's major focus on creating more jobs through economic growth and promoting the district. These two outcomes, coupled with our other outcomes around operating Council as an efficient and sustainable business with well managed infrastructure, quality services, facilities and regulatory services and supporting community pride and cultural leadership are all paramount to our district moving forward.

South Waikato District has seen house values increase the fifth highest average district increase in New Zealand. In addition our GDP growth for the past 12 months is 3.0%, the thirteenth highest district growth. These outstanding statistics are due in good part to the securing of the \$385 million Fonterra milk dryer development at Lichfield, the development of the Road/Rail terminal at Tokoroa, a business improvement focus within SWDC, the establishment of a Business Case Manager position, and a strong communications campaign to turn around the negative media perception of the South Waikato. While we can celebrate these results, it is critical to the future of our districts' residents that we continue to strive for sustainable social and economic growth.

THE AMP AT A GLANCE

<p>Network Overview</p> <p>Land Transport is the largest single activity of Council. Council manage around 427.6km of rural road (of which 30.2km is maintained by forestry organisations) and 112.2km of urban roading. The roading activity includes 2,158 street lights, 45 bridges and large culverts, 170.6km footpaths, 3,030 signs, 38 stock underpasses.</p> <p>The network is managed internally by Council's transportation team Southtech. Previously Southtech was a business unit, but is now fully incorporated into Council. The roading function is funded 46:54 by Council and the Transport Agency (NZTA)</p>	<p>Key Cost Parameters:-</p> <p>Population per km 45.67</p> <p>Ratepayer per km 14.39</p> <p>Cost per ratepayer \$456.19</p> <p>Maintenance/renewal expenditure \$8,844/km and \$62.04/vkt.</p> <p>Rehabilitation \$1,512/km.</p>
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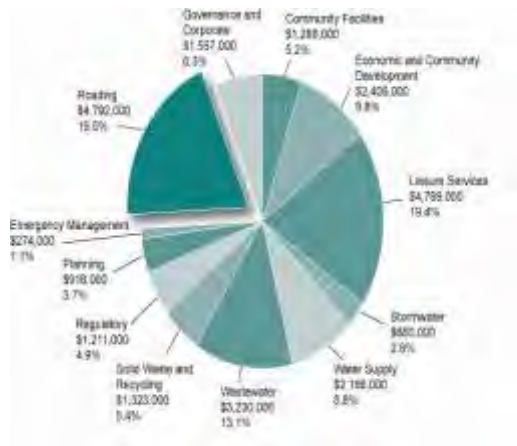


Figure 1 Rates funding excluding subsidy

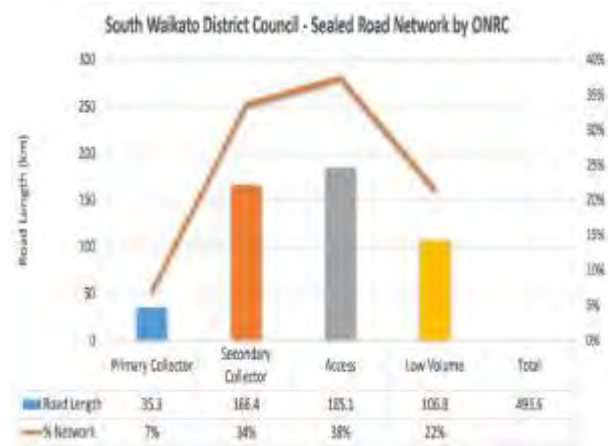


Figure 2 One Network Road Classification

WHAT WE OWN

South Waikato District Council manages transport assets with a replacement value of **\$335 million**.

- SWDC surface area network covers about **3.52 million square metres**, **1,180ha** of underlying rural and **227 ha** of underlying urban land under roads. **93%** of the network is sealed road.
- The urban and rural land value of these assets is **\$328,949,000**.
- The roading network cost the ratepayer an average of **\$8.77** per week.
- Transport network assets are depreciating with time and use – at a rate of **\$3,084,000** per year.

ONRC Category	Urban (Km)	Rural (Km)	TOTAL LENGTH (Km)	Urban Journeys	Rural Journeys	ANNUAL TOTAL JOURNEYS TRAVELLED (M Veh Km)
Primary Collector	15	23	39	14	9	23
Secondary Collector	28	139	166	13	20	33
Access	28	154	182	6	7	13
Low Volume	41	91	132	2	2	3
TOTAL NETWORK	112	408	520	35	37	72

Figure 1 Networks Statics for network length (km) and journeys travelled (million vehicles km) by ONRC

CURRENT NETWORK LEVEL OF SERVICE

Roading is measured by five Key Performance Indicators (KPIs) that looks at cost efficiency (renewals & maintenance); amenity (smooth travel exposure), road safety; resilience through response time to service requests; and accessibility regarding footpath condition. For the year ending June 2017 we achieved four of the five KPIs

Network levels of service have been stable, and customer satisfaction with performance of service and facilities is high at 83%. Currently:

- Customer satisfaction with urban road maintenance is 82%, rural road maintenance is 79%, road safety is 83%, and footpath maintenance is 80%.
- 90% of network assets are in “good” condition as per the condition rating survey
- Currently there is no backlog (assets past their renewal intervention or improvements are

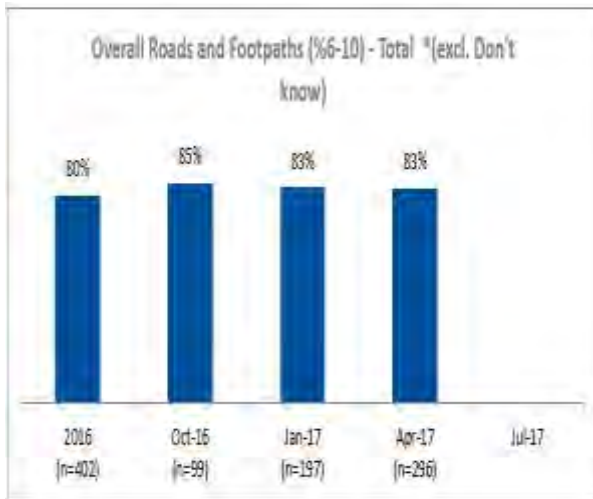


Figure 4 Quarterly customer satisfaction survey results

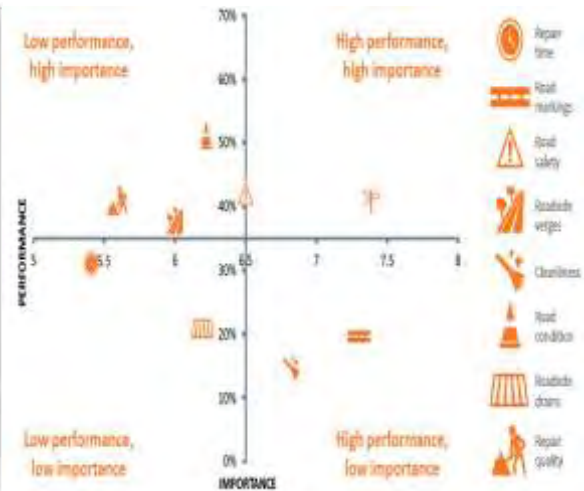


Figure 5 RATA annual customer survey

GROWTH AND KEY CHALLENGES

The transport network is growing in line with 0.275% population growth and has stabilised from previous years due to land use changes. Changes from the previous AMP include:

- New Public Transport - Urban Collector.
- New Road/Rail Terminal Siding Land Port to create transport synergies.
- Impact of Waikato Expressway on the SWDC town centres.
- High Productivity Motor Vehicles (HPMV) impacts on network - 90% network unlocked for use.
- Land use changes, forestry to dairy operation conversions. Impacts from stormwater run-off
- Street-lighting LED conversions.
- Speed Management Review
- Increase in Tourism (Waikato River Trails, Blue Springs and other eco-tourism activities). For example, the Blue Springs averages around 45,000 visit a year (2016/17), up from 10,000 visits in 2014/15.
- Focus on appropriate Levels of Service to accommodate walking, mobility scooter traffic, and parking to address an aging population.
- Council's outcomes- Growth, Resilience and Relationships

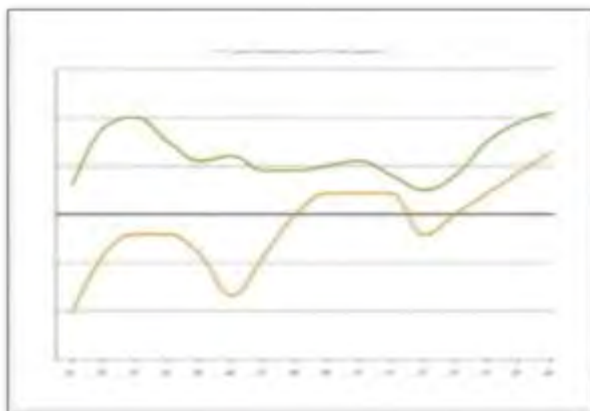


Figure 2 Annual Economic Monitor from Informatics (to June 2016)



Figure 3 Te Waihou Walkway visitor numbers

EXPENDITURE AND PROGRAMME

The maintenance, operations and Renewals of the Land Transport Programme is the largest single operational expenditure for Council. Budgets for 2017-18

- Road asset-based operation costs per annum are circa **\$380,000**
- Road maintenance of local roads costs per annum are circa **\$2,177,000 (additional 15% non-subsidised)**
- Road renewal expenditure per annum are circa **\$2,905, 000 (additional 8% non- subsidised).**

Up to **40km (8%)** of resealing is carried out in any one year and includes both chip seals and asphalt concrete.

Annually, Council rehabilitates **3-5km of** pavement, and widens around **3-4km** of seal. Around 400-600m of seal extensions are undertaken every alternate year (currently on hold).

Council re-marks the District's entire road system on an annual basis (**November**), with the rural, heavier used roads receiving another re-mark prior to winter (**April/May**).

The street lighting improvement programme has been in place with a value of **\$120k** per year as part of the long term LED conversion. This will now be replaced with an accelerated LED programme. **\$90k** for signage renewal.

SWDC overall network cost reflected in Figure 8 is consistent over the last five years and is below its Peer Group, Region and National.

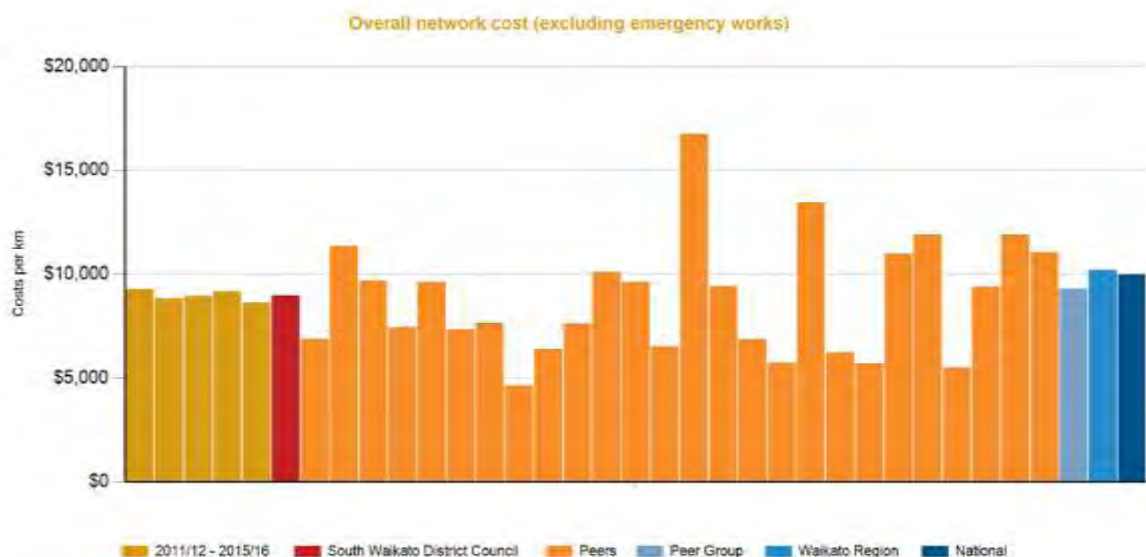


Figure 4 Overall network cost per kilometre -NZTA

WHAT WE DO

The South Waikato District Council is in the business of owning, operating and maintaining the Land Transport Network (excluding State Highways) because

- The provision of roads is vital to the needs and aspirations of all who live in the District. They provide the primary means of safe, reliable and efficient access to residents homes, schools, and businesses 24 hours a day, 365 days a year
- Through Council, local communities have representation regarding their transportation needs and the regional road corridors
- Council manages its largest asset soundly now and for future generations at the appropriate level of service.
- The existing land transport network is a community asset which should be controlled by Council for the reasons above

WHY WE DO THIS

Council provides a roading network and associated roading services to support these assets to ensure easy, safe and secure access to the district and around the district so that:

- business development can take place to increase our economic growth through a secure network
- our community and visitors can move safely around the district
- access to our facilities and services is easy
- operate existing business effectively and efficiently

LONG TERM PLANS

The focus for the previous five years has been the successful initiation and development of asset management practices associated with:

- Improved knowledge of the assets
- Ensuring the asset register continues at the appropriate standard
- Continuity of the asset knowledge within Council
- Consultation framework and implementation.

Council's emphasis for the period 2018 to 2028 for the Land Transport Activity will be focused on:

- Meeting changing NZTA requirements outlined in the Government Policy Statement
- The transition to the One Network Road Classification
- National, regional and local transport network co-ordination
- Long term sustainability associated with Asset Management, including risk management practices and procedures and renewals requirements within the Land Transport Network.
- Sustainability and resilience focus to enable long term options to be considered
- Continued modelling of network performance, asset serviceability and appropriate funding requirements.
- NZTA and legislative compliance
- Road safety through 'Safer Journeys' taking a safe systems approach
- Appropriate Speeds on its network
- District Land Transport Strategy which is a guiding document for the South Waikato Land Transport System for the next 30 years.

STRATEGIC OBJECTIVES ALIGNMENT

Council's Land Transport Network Services are provided for the benefit of the community to achieve the Vision of "Healthy people thriving in a safe, vibrant and sustainable community", as expressed in the Long Term Plan.

Council undertook an extensive community consultation process, to develop Outcomes and Strategies. These are intended to support the Vision through delivering sustainable, long term growth and development.

To ensure that transport is underpinned by the principles of sustainability and integration, transport policy will focus on improving the transport system in ways that enhance the community's well-being, promoting resilience and flexibility. It will also take account of the needs of future generations, and be guided by medium and long-term costs and benefit analysis.

The Asset Management Plan is one of SWDC's core strategic documents, and reflects a number of national, regional and local strategic objectives, as shown in Figure 8. The SWDC Road Map presents the key drivers of the Activity Management Plan and determines the business case point of entry priorities that SWDC will enact through strategic business cases over the next 10 years.

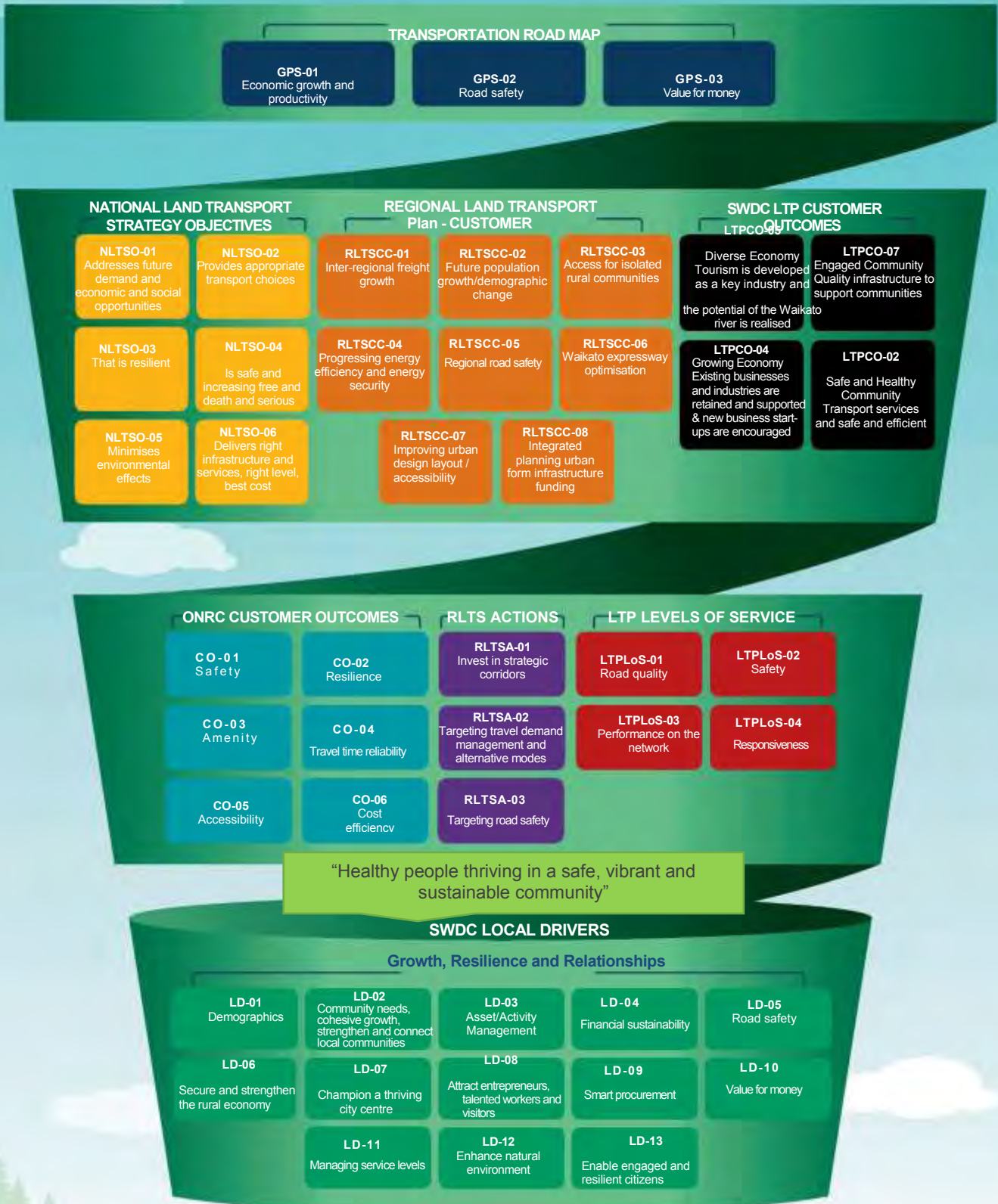
The primary investment and focus for Council is to develop and improve the business case approach, asset data/management systems, quality management and information. This information is required to support the asset management decisions to deliver the One Network Road Classification (ONRC), Customer levels of service and Council's key drivers. SWDC continues to work with stakeholders to develop clear, concise and evidence based investment proposals.

Supporting the key drivers, the Waikato Regional Land Transport Plan 2015-2045 (RLTP) sets the strategic direction for land transport in the Waikato Region, and contains the programme of transport activities the region wants to see funded through the National Land Transport Plan. The RLTP sets the over-arching strategic context for territorial authorities (TAs) and road controlling authorities (RCAs) Activity Management Plans in the region.

Fig 8 Transportation AMP Road Map for SWDC

ROADING MAP

EXECUTIVE SUMMARY



“Healthy people thriving in a safe, vibrant and sustainable community”



THE TRANSPORT ASSET PORTFOLIO:

Land Transport is the largest single activity of Council. Council staff manage around 427.6km of rural road (of which 30.2km is maintained by forestry organisations) and 112.2km of urban roading. The roading activity also includes 2,158 street lights, 45 bridges and large culverts, 170km footpaths, 3,030 signs, 38 stock underpasses.

LEVELS OF SERVICE (LOS)

The Council has adopted a series of measures to indicate how well the road network infrastructure contributes to Councils outcomes and strategies. Both Customer Service Levels and Technical Standards are used. New mandatory non-financial performance measures introduced by the Department of Internal Affairs (DIA) will be monitored and achievements reported in future AMPs. The key performance targets address road quality (condition and maintenance), service response, safety and footpaths.

The South Waikato District Council acknowledges the level of service outcomes set by the REG. A complete assessment of the network against the CLoS is required by Council. The 2018-28 Land Transport AMP includes the new CLoS.

Some measures do not apply within the District either because its classification is not present in the District, the service is not provided (for example bus lanes), or it is not relevant. These will not be considered or assessed.

A number of improvements to processes have been identified that will require implementation over the 2018 to 2021 SWDC Transportation Programme. The funding request for this has been made within the 2015-18 SWDC Transportation Programme and have been included into Councils Maintenance Contracts.

ASSET MANAGEMENT PLANNING

The objectives of this AMP are to demonstrate that Council:

- Understands how the outcomes delivered by the assets link to the wider community outcomes
- Understands what asset capacity will be required in the future, and what issues drive this capacity requirement
- Has an ever-increasing knowledge of its asset locations, ages and conditions
- Has robust and transparent processes in place for managing, operating, maintaining, renewing and extending assets
- Has adequately considered the classes of risk its activities face, and has systematic processes in place to mitigate identified risks
- Provides adequate funding for asset operations, maintenance, renewals, improvements, extensions and depreciation
- Delivers outcomes that are aligned to the community's wishes and to other internally and externally imposed levels.

BUSINESS CASE APPROACH IMPLEMENTATION

The SWDC has applied the business case approach (BCA) in the development of the 2018 to 2028 Transportation AMP. This has allowed Council to work closely with stakeholders to develop clear, concise and evidence-based investment proposals which is fit for purpose focusing on outcomes rather than solutions. The BCA approach will give confidence that:

- Investment are achieving their intended objects
- True value is being extracted from new and existing investments
- Investment management systems are operating efficiently and effectively

STRATEGIC CONTEXT

The AMP provides extensive information on the strategic direction for Council's transportation network. The overarching strategy is to provide a network that enhances economic growth, social and environmental well-being, while promoting safety, resilience and flexibility. The strategic context provides a framework for the implementation of the BCA.

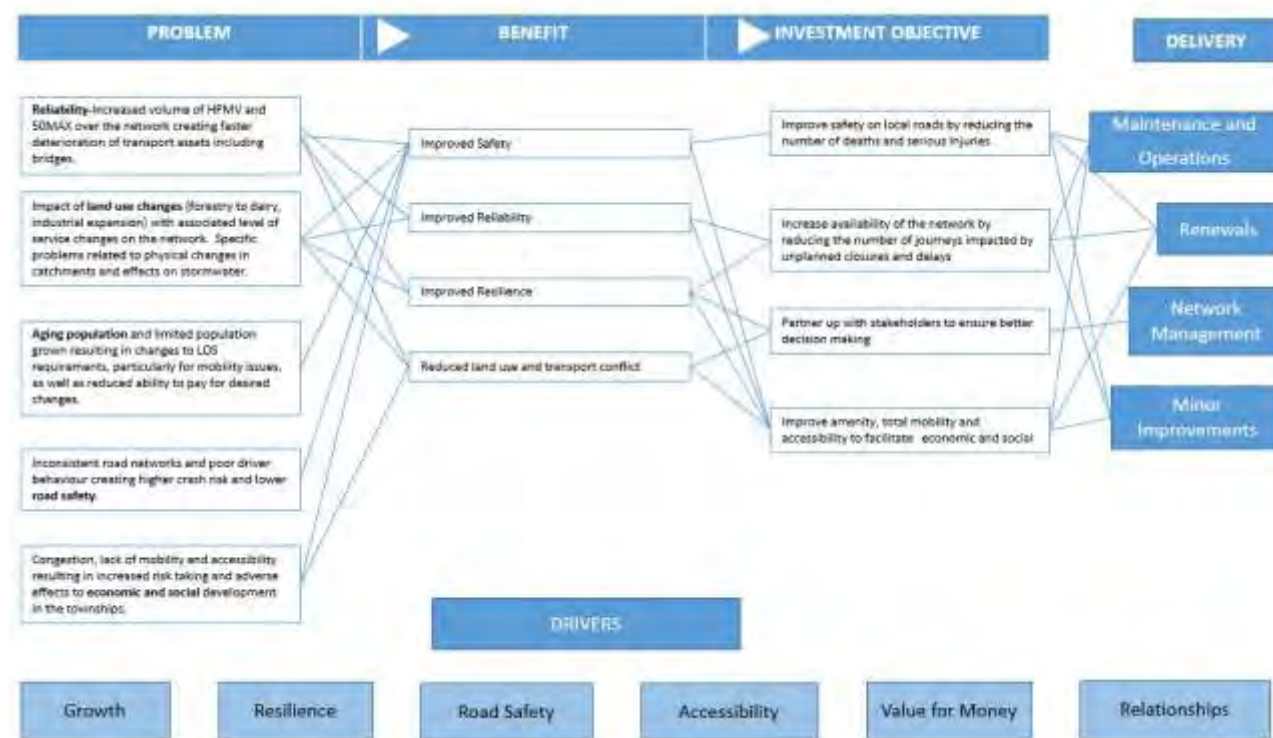


Figure 5 Problem and Benefit Statements and Investment Objectives

INVESTMENT PROGRAMME

The primary investment and focus for Council over the term of this Plan is to develop and improve the business case approach, asset data/management systems, quality management and information. This information is required to support the asset management decisions of the SWDC when delivering the ONRC Customer levels of service. This includes supporting justification for NZTA funding and Council contributions.

The AMP development has informed the renewal and maintenance components of the Long Term Plan and Regional Land Transport Plan. Key recommendations and decisions are summarized in Table 1.

Table 1: Summary of recommended AMP funding

\$000's Total (NZTA + RCA) *(excluding Flood Damage Emergency expenditure)*

Three Year Allocation Comparison	\$ Last Time; 2015/18	\$ PROPOSED; 2018/21	Change
a. Operations & Maintenance excluding Renewals	\$ 7,597	\$ 8,345	\$ 0,748
b. Renewals	\$ 6,520	\$ 7,393	\$ 0,873
c. Capital improvements (Minor Improvements)	\$ 1,417	\$ 1,760	\$ 0,343
Total	\$ 15,534	\$ 17,498	\$ 1,964
Average Annual Allocation	\$ 5,178	\$ 5,833	\$ 0,655

\$000's Total (NZTA + RCA) *(excluding Flood Damage Emergency expenditure)*

Annual Expenditure/Allocation Comparison	Expenditure 2015/16	Expenditure 2016/17	Predicted 2017/18	PROPOSED 2018/19
a. Operations & Maintenance excluding Renewals	\$ 2,402	\$ 2,750	\$ 2,445	\$ 2,763
b. Renewals	\$ 2,099	\$ 2,038	\$ 2,383	\$ 2,535
c. Capital improvements	\$ 0,630	\$ 0,372	\$ 0,415	\$ 0,450
Total	\$ 5,131	\$ 5,160	\$ 5,243	\$ 5,748

Maintenance, Operations and Renewals Changes

W/C	Description	Proposed 2018/21 Budget	Current 2015/18 Budget	Difference 2015/18 vs 2018/21	Comments
11 1	Sealed Pavement Maintenance	3,160,000	3,438,879	-278,879	Reduce over expenditure on reseal repairs.
11 2	Unsealed Pavement Maintenance	145,000	78,864	66,136	Increase maintenance to address safety concerns
11 3	Routine Drainage Maintenance	1,005,000	875,388	129,612	Increase maintenance to address localised flooding
11 4	Structures Maintenance	220,000	153,000	67,000	Changes reflect bridge inspection recommendation or urgent maintenance works to ensure resilience
12 1	Environmental Maintenance	465,000	450,255	14,745	Increase reflects on-going weather related issues
12 2	Traffic Services Maintenance	1,300,000	1,584,935	-284,935	Reduction in power and maintenance cost due to LED conversion
12 3	Operational Traffic Management	0	0	0	
12 4	Cycleway Maintenance	30,000	0	30,000	Require maintenance on cycleway
13 1	Level Crossing Warning Devices	78,500	47,131	31,369	Maintenance programme provided by Kiwi Rail
14 0	Minor Events	450,000	130,000	320,000	Increase reflects on-going weather related issues
15 1	Network and Asset Management	1,950,000	950,169	999,831	Significant changes include RATA services, increased data collection, bridge inspection previously omitted, corridor management, dtims, speed management. Also includes the joint activity with NZTA addressing the improvements to SH1 through towns of Tirau, Putāruru and Tokoroa in line with the 2016 Piarere to Taupo Corridor PBC.
21 1	Unsealed Road Metalling	123,000	62,845	60,155	Changes reflect increase LoS targeting safety
21 2	Sealed Road Resurfacing	3,240,000	3,044,567	195,433	Increase due to overdue reseals
21 3	Drainage Renewals	520,000	481,364	38,636	Increase targeting resilience
21 4	Sealed Road Pavement Rehabilitations	2,750,000	2,384,007	365,993	Increase due old pavement replacement on HMPV routes
21 5	Structures Component Replacement	200,000	55,000	145,000	Bridge strengthening to address resilience
22 1	Environmental Renewals	0	0	0	
22 2	Traffic Services Renewals	740,000	601,296	138,704	On-going concrete pole street light replacement
	TOTAL 3 YEAR BUDGET	16,376,500	14,337,700	2,038,800	

Low Cost/Low Risk Improvements

W/C	Description	Proposed 2018/21 Budget	Current 2015/18 Budget	Difference 2015/18 vs 2018/21	Comments
341	Safety- intersections, alignment etc. improvements	1,440,000	855,000	585,000	Leith Place intersection improvements
341	Associated Improvements	505,000	495,000	10,000	Minor changes to address under width roads
341	Lighting Upgrades	360,000	0	360,000	New programme to continue infill lighting/upgrades
	TOTAL 3 YEAR BUDGET	2,305,000	1,350,000	955,000	

Road Safety Promotions

W/C	Description	Proposed 2018/21 Budget	Current 2015/18 Budget	Difference 2015/18 vs 2018/21	Comments
404	Road Safety	262,455	241,768	20,687	No significant change
	TOTAL ANNUAL BUDGET	262,455	241,768	20,687	

Non-Sub Operation and Renewal Annual

W/C	Description	Proposed 2018/19 Budget	Current 2017/18 Budget	Difference 2017/18 vs 2018/19	Comments
Capex	Footpaths, drainage, seal widening, Christmas lights	230,000	153,000	77,000	Aparuni Christmas lights and drainage
Opex	General Maintenance	717,200	677,700	39,500	Increased level of service, footpath and vegetation spraying
Southtech	Operating Expenditure	856,722	848,149	8,573	
	TOTAL ANNUAL BUDGET	1,803,922	1,678,849	125,073	

ACTIVITY MANAGEMENT

South Waikato District Council's 538 kilometres of road network, if laid end-to-end, would reach from Tirau to Wellington. The surface area totals about 3.55 million square metres – equivalent to 330 rugby fields.

Maintenance, Renewal and asset-based operations are the largest item of SWDC operational expenditure each year. Asset operations and maintenance requirements are assessed and prioritised in the AMP based on a 100% rate funded network, with bridges being the only items that are not rate funded. SWDC uses capital investment funding for all other major renewal projects.

For the land transport network:

Asset maintenance and operations costs are based on competitively tendered service delivery contracts and known historical costs of delivering agreed levels of service. There are seven main contracts:

- roading maintenance,
- street lighting,
- resurfacing,
- traffic services signs maintenance,
- road marking
- road safety
- RAMM.

Consequential operational and maintenance requirements of significant new infrastructure planned to be added to the network are not included.

For the public transport network:

PT facilities maintenance and operations costs, are based on the hours of operation, frequency of services, customer levels of service and other cost drivers. These are set in the Regional Public Transport Plan, and impact the current levels of service.

ASSET INVESTMENT NEEDS

Reseal (Roads and cycleway) (\$1,040,000 per year)

Up to 40km (8%) of resealing is carried out annually and includes both chip seals and asphalt concrete. The reseal programme is triggered for a number of reasons, particularly age and condition/performance of the seal. This treatment is the cheapest of all maintenance activities. Council's re-surfacing programme is the key to sustaining the road surfacing asset in good condition and optimising the cost of pavement reconstruction.

Pavement Rehabilitation (\$800,000 per year)

In the past Council has renewed around 3 to 5km of pavement each year (\$890,000) based on roading needs. This activity is being managed to return an approximate \$200K per year saving for use on other projects such as the Leith Place Development. Pavement rehabilitation provides for the replacement of, or restoration of strength to, pavements where other forms of maintenance and renewal are no longer economic.

Seal widening (\$50,000 per year)

The unsubsidised programme has historically addressed around 3 to 4km of roads annually but was suspended for three years as part of a previous LTP. In 2016/17 the roading programme once again started addressing the 'worst' of the under width roads. The seal widening activity will focus on completing widening on low volume through roads, used by heavy vehicles on a daily basis, but will primarily focus on improving widths on high volume roads.

Seal extension (\$0 per year)

Like with the seal widening activity Council elected to suspend seal extensions. While the current LTP includes seal extension in 17/18 with Council budgeting \$500k the activity has now been suspended indefinitely. Currently there is no real benefit for the district as a whole. Council will revisit on a case by case basis. On-going maintenance of unsealed network is being undertaken through the maintenance budget.

Road marking (\$130,000 per year) ongoing and aligned to the customer LOS to ONRC

Council re-marks the District's entire road system on an annual basis (November), with the rural, heavier used roads receiving another re-mark prior to winter (April-May).

Traffic services (\$550,000 per year)

Through a partnership with the new street lighting contractor, staff are preparing a business case for Council to convert the entire lighting network to LED lighting resulting in energy and maintenance savings. While staff are working on the business case, all lights due for replacement are being replaced with new LED lighting.

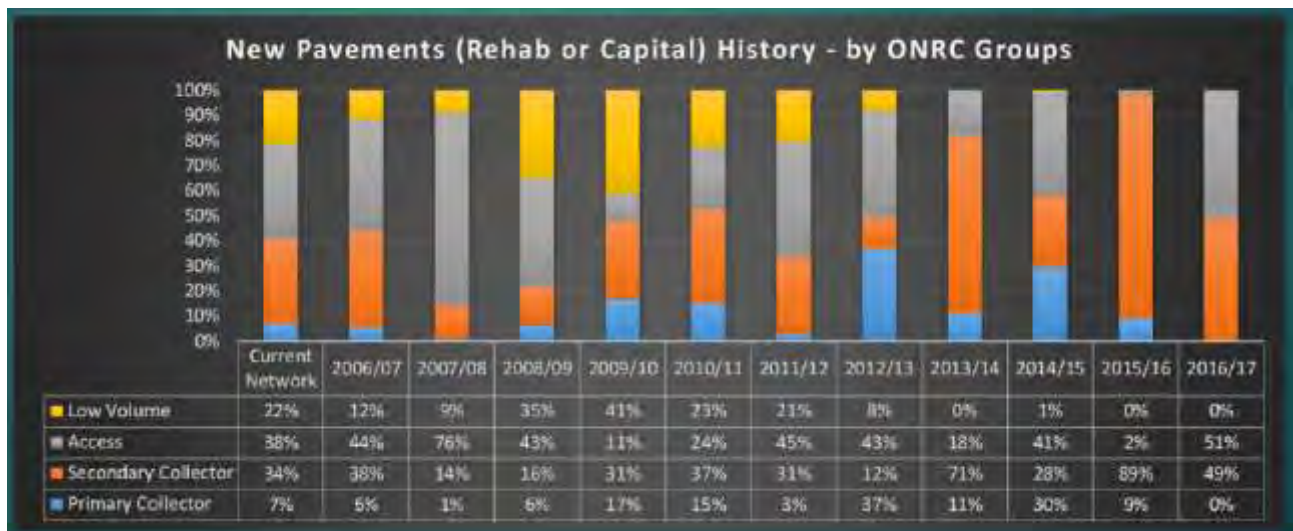
General maintenance (\$2,654,500 per year) ongoing and aligned to the customer LOS to ONRC

The approved budget does not make any provision for the impact of consequential OPEX. Road maintenance budgets will increase over the coming 10 years to reflect the impact of changes to land use on stormwater runoff and the HPMV on the network.

Low Cost/ Low Risk Improvements (\$450,000 per year)

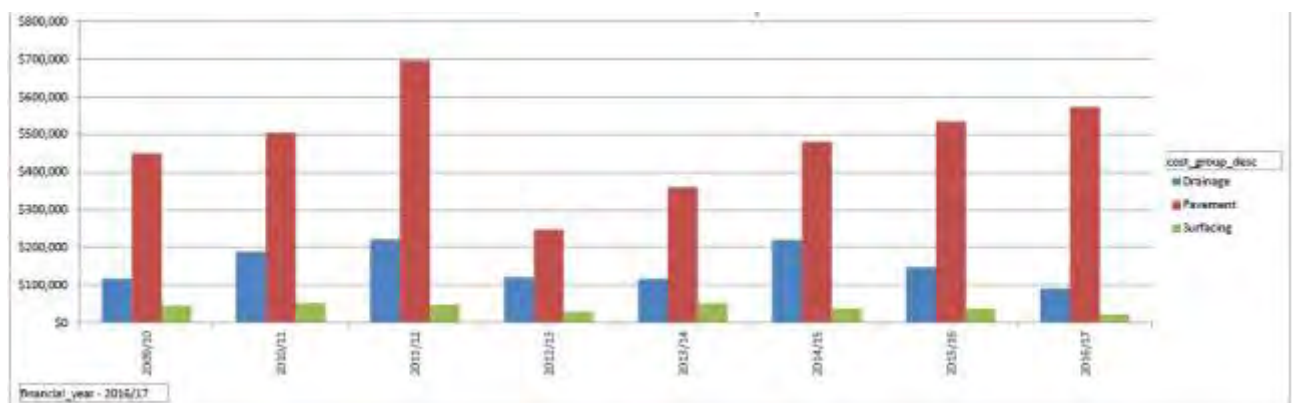
Minor Improvements planned for the next ten years are estimated at \$4.5 million, and the activity is designed for “low cost/ low risk” improvements to the network with individual projects limited to a maximum value of \$250,000. These are mostly rural road seal widening and alignment projects, intersection improvements, visibility improvements, minor safety improvements etc. The increase of dairy farming in the district will generate milk tanker traffic, including use of roads which were not constructed with sufficient width to allow other vehicles to pass oncoming tankers without one or both pulling partially off the sealed road pavement. The improvements will also target loss of control crashes on bends which is the biggest contributor within the District (49% of injury crashes).

Table 2: Renewal spend by ONRC



Over the last four years Council has changed its focus when applying its renewal programme against the ONRC to ensure value for money is being achieved. In 2016/17 under 50% of the renewals targeted urban access roads addressing aging pavement and drainage. Council continues to address drainage, pavement rehabilitation and resealing to provide a safe, resilient and reliable network. Budgets have also been supplemented by non-subsidised funding to ensure the appropriate level of service is being achieved. The table above illustrates Council expenditure against ONRC. The graph below reflects expenditure against drainage, pavement and surfacing. Council have over the years increased its pavement expenditure to deal to ageing pavements.

Maintenance cost summary



RISK

Sustainable and reliable delivery of the Land Transport requires careful consideration of the various types of risk associated with the service.

The major risks have been addressed in the Asset Activity Plan and include:

1. Decline in NZTA funding (affordability)
2. Aging and static population issues (ability to pay)
3. Low risk of asset failure (good condition)
4. Increased operating and maintenance costs
5. Ongoing land use changes
6. Environmental impacts
7. Major emergency event.

Transport asset risks include death and serious injury risks. The list of negative outcomes that could result from transport asset failure includes:

- Injury or death to transport users, operators or members of the public
- Reduced customer satisfaction, through impacts on safety, accessibility, convenience, reliability and/or resilience
- Damage to infrastructure or property
- Reduced public transport patronage.
- Environmental impacts (e .g. pollution of waterways, air or soil)
- SWDC is represented on the Waikato Infrastructure Lifelines Group, which has identified priority routes and transport facilities and their potentially vital contribution in extreme events.

SWDC has prepared an Asset Risk Management Plan in the AMP which identifies the key transport asset risks and sets out how those risks are managed and controlled by SWDC activities and include;

Business

The Corporate Risk Management Policy addresses the four well beings, vision statement and strategic themes. Full details can be found in the South Waikato Risk Register and Risk Profile, which ranks the risks and includes control measures, where they exist.

Asset management

The 2016 Asset Criticality and Risk Assessment report addressed the consequences of infrastructure failure in terms of the four well beings (with assumed weightings). The critical assets that required further investigation were identified, in order to ensure that they would continue to perform reliably, delivering the agreed Levels of Service.

Insurance

Council is a member of the LAPP Fund, which is invested into by local authorities to provide funds for reconstruction following major catastrophic events. This type of cover is not available through private insurance providers. Membership requires that all participants undergo a full risk management assessment.

Risk Pool

Council is a member of Risk Pool, which is provided by local authorities for long term legal and professional liability.

Civil Defence

Council participates in a region wide Civil Defence Emergency Management Group, as required by legislation. The scope includes co-ordinated planning, training, public awareness and response to major events that affect the safety of its residents.

Waikato Engineering Lifelines Group

Council participates in the co-ordinated assessment of risks and responses to events that are likely to affect a range of services, some of which are not Council's responsibility, such as communications and energy utilities.

Business Continuity

Council is developing Business Continuity Plans that address the continuation of service delivery.

The One Network Road Classification

SWDC has developed a Transition Plan to progress the implementation of the ONRC. The plan forms part of the 2018-28 Land Transport Asset Management Plan (AMP) for inclusion in the National Land Transport Plan (NLTP) 2018-21. The Transition Plan identifies the approach to be taken to ensure that by the 2018-2021 NLTP, the ONRC will be fully embedded into Council's systems and processes. Council has recently engaged additional staff to ensure the process is completed effectively.

ONRC is a joint initiative between NZTA and Local Government NZ to establish nationally consistent priorities to inform asset management planning, investment choices, maintenance and operational decisions.

SWDC has completed initial ONRC requirements in its AMP 2018-2028, including:

- Classifying the District road network based on the function of each road in the network.
- Measuring the current performance of the SWDC network using the ONRC performance measures.
- Developed a transition plan to guide full integration of ONRC into planning, management, financial and delivery processes in the 2018-2028 AMP.

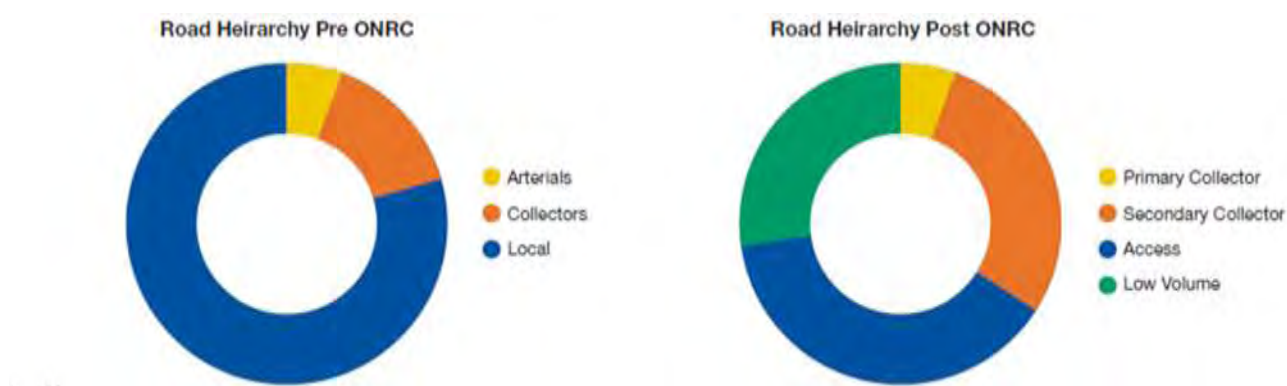


Figure 6 ONRC Hierarchy (Pre and Post)

Table 3: ONRC by length and traffic volume

ONRC Category	Km of network		Customer usage	
	Km	%	VKT (000s)	%
Primary Collector	30.615	6%	23758	31%
Secondary Collector	161.297	30%	35465	46%
Access	197.174	37%	13602	18%
Low Volume	149.094	28%	3632	5%
Total	538.18	100	76,456	100

ACHIEVING WORK THROUGH CONTRACTS

For the first three years of the 2018 Long Term Plan, funding for renewals has been approved at levels close to the recommendations in the AMP. SWDC's ongoing programme of asset condition monitoring and annual renewals work programming will allow re-prioritisation as necessary to continue to deliver levels of service and manage risk over this period.

The next long term planning cycle, leading to publication of the 2018-2028 Asset Management Plan, provides an opportunity to address the significant issues raised by the proposed future investment in the network. The asset management and risk mitigation tasks will build the evidence base for a reassessment of funding levels in the 2018 AMP.

Procurement

In addition to staff employed within the Land Transport Section, Council engages a range of contractors to provide maintenance and renewal services to support Council in the delivery of its LOS. Currently there are seven key maintenance contracts in place within the land transport area each with a duration of 3 to 7 years total annual value of \$5.3M.

While SWDC land transport network are maintained under a traditional contract regime, there is a degree of informal flexibility and ownership by both Council and Contractors that suggests we have gone beyond the traditional model, although this is not formalised within the contract itself. Building on the good relationships between Council and Contractors, a network with a high level of service and in good condition, the following objectives are stated:

- A 'Best for Network' approach with a focus on costs and network ownership by both parties.
- 'Working Smarter' through better joint planning and decision making.
- A 'Whole of life approach' increase the percentage of planned to reactive works on the network and identifying causes rather than simply 'patching the pothole'.
- A 'one stop shop' to simplify interactions with clients/users and reduce unnecessary duplication.
- Providing avenues for innovative solutions and technological advances in industry to be applied, increased the depth of knowledge and skills for both parties, including greater understanding of the political context of decision-making.
- Flexibility to deal with future uncertainty.
- Opportunities to extend learnings for both Council and Contractors, particularly with cadets.
- Potential opportunity to bundle contracts with other road authorities (District Councils and NZTA).

SWDC has applied the smart buyer principles assessment tool (appendix H) and while Council has embraced the smart buyer principle there is still areas for improve. The tool will still need to be applied to whole of Council with improvement including better engagement with the contracting industry, keeping up with best practice in procurement, robust data collection and understanding risk and how to allocate and manage them.

SYSTEMS AND PROCESSES

The Group Manager Assets is responsible for all the activities described in the Asset Activity Plans, while the Group Manager Corporate is responsible for corporate risk management.

The Land Transport Network activity uses Road Assessment and Maintenance Management ('RAMM') for recording all relevant information regarding the individual infrastructure items and is updated regularly to include all additions and deletions. The information is used for regular reporting on depreciation and revaluations.

Accounting is processed via Council's NCS financial system.

Geographic data is managed electronically, using Council's GIS software.

Various other information flows and processes are used to develop the Long Term Plans, establish service agreements, and manage contracts, update standard operating procedures, monitor performance and report on resource consent compliance.

IMPROVEMENT

Council's asset management target is to achieve the "intermediate" level, which is considered to be appropriate for an organisation of its size. Following guidance from the Office of the Auditor General and the NAMS manual, a number of Improvement Plans have been developed and implemented historically, while others are on-going.

Further improvement proposals are based on a review of the current status of compliance with the requirements of "intermediate" level.

The 2018 AMP's will be restructured to make them more useful and to streamline their structure and content. The introduction of the "overarching" AMP in 2015 was to provide a collective document for common chapter and reference with all other AMPs. However this has proved to be problematic for users of the AMP. Therefore the 2018 AMP's will revert back to an all-encompassing document in one volume to cover the aspects directly relating to managing the asset class covered by the AMP document. Supporting materials will be referenced or appended as required.

Council is planning an enhanced data collection programme from 2018/19 onwards. This will be in alignment with a Waikato Data Collection Strategy, currently being developed by RATA. A supporting business case for the necessary extra investment is being developed by RATA.

The enhanced data collection programme will enable better asset management, supporting implementation of the dTIMS deterioration modelling and optimising forward works programmes.

Improvements will also include strong strategic alignment with consideration to national and regional priorities the ONRC outcomes and measure, strategic direction for Council, problem identification through robust engagement and clear benefits and outcomes identified.

Further Reading

Where necessary, the reader is encouraged to refer to the full Asset Activity Plan document for further discussion and information on the topics in this summary.

1 INTRODUCTION

1.1 Background to the AMP

This AMP is one of an integrated suite of six AMP's covering Council's infrastructural assets, parks and property.

It is Council's intention that each of the six AMP's will be a significant management tool that will guide and influence decision making and behaviour, and ultimately shape community outcomes that are well aligned to the Long Term Plan (LTP) and are of similar format and structure to each other.

The planning and process linkages relate to the LTP as described below.

1.2 Purpose of the Plan

The purpose of this Asset Management Plan (AMP) is to ensure that assets are operated and maintained in a sustainable and cost effective manner, so that they provide the required level of service for both present and future customers.

The AMP supports the purpose by:

- Demonstrating responsible management and operation of roading assets which represent a significant, strategic and valuable asset belonging to the South Waikato District Council
- Justifying funding requirements
- Demonstrating regulatory compliance, of note is section 94(1) of the LGA 2002 which in summary requires the LTP to be supported by:
 - Quality information and assumptions underlying forecast information
 - A framework for forecast information and performance measures that are appropriate to assessing meaningful levels of service
- Demonstrating clear linkage to community agreed outcomes with stated levels of service

Central Government	National	Regional	District	Vision	Programme	Delivery
Government Policy Statement	Our Network Road Classification Customer Outcomes	Regional Land Transport Policy	Community Outcomes	Transportation Vision	Activity Class	Work Category
<p>Economic growth and productivity</p> <p>Support economic growth and productivity through provision of better access to markets, employment and business areas.</p> <p>Support economic growth of regional New Zealand through provision of better access to markets</p> <p>Improved network resilience and reliability at the most critical points.</p> <p>Enable access to social and economic opportunities, particularly for people with limited access to a private vehicle.</p>	<p>Reliability The consistency of travel times that road users can expect.</p> <p>Resilience The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided.</p> <p>Accessibility The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity.</p> <p>Amenity The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort, convenience, security) that impact on the travel experience of road users in the road corridor.</p>	<p>A transport system that provides strategic corridors and network connectivity that supports economic activity and productivity.</p> <p>A transport system that provides appropriate transport choices.</p>	<p>Grow our Economy</p> <p>Stimulate economic development by assisting existing and attracting new businesses while encouraging diversity.</p> <p>Encourage education and training to improve the employment opportunities of district residents.</p>	<p>Council's roading network allows its users to travel efficiently to their desired destinations.</p>	<p>Local roads maintenance and renewals. Minor Safety improvements.</p>	<p>111, 112, 113, 114, 121, 122, 123, 124, 131, 140, 141, 151, 211, 212, 213, 214, 215, 221, 231</p>
<p>Road Safety</p> <p>Reduction in deaths and serious injuries at reasonable cost.</p> <p>Increased safe cycling through extension of the cycle networks.</p>	<p>Safety How road users experience the safety of the road.</p> <p>Optimal Speeds Indicates the optimal speed for each road. The optimal speed is the speed that is appropriate for road function (classification), design (including safety) and use. Optimal speeds support both safety and economic.</p>	<p>A transport system that is safe.</p>	<p>Quality Services and Facilities</p> <p>Council provides quality local public services and facilities which are cost effective to households and businesses, now and in the future.</p>	<p>Provide a safe and reliable transport system.</p>	<p>Local roads maintenance and renewals. Minor Safety improvements.</p>	<p>111, 112, 113, 114, 121, 122, 123, 124, 131, 140, 141, 151, 211, 212, 213, 214, 215, 221, 231</p>
<p>Value for money</p> <p>Delivery of the right infrastructure and services to the right level at the best cost.</p> <p>Improved returns from road maintenance.</p> <p>Improved returns from public transport.</p> <p>On-road.</p> <p>Understand the costs associated with environmental mitigation.</p> <p>embankment of the road user charges regime at reasonable cost.</p>	<p>Effectiveness</p> <p>Value for money and whole of life cost will be optimised in the delivery of affordable customer levels of service.</p>	<p>Manage demand and transport choices.</p>	<p>Well managed infrastructure</p> <p>Our infrastructure is lean, agile and operationally sustainable, it contributes positively to our district environment, and it is cost effective for households and businesses, now and in the future.</p> <p>We have regard to sustainability while operating in a cost effective manner.</p> <p>Council ensures that our business practices are efficient and effective.</p>			<p>151</p>

Figure 7 Linkage between National, Regional and Local Outcomes

For Land Transport, there is an additional external linkage which represents regionally-administered funding (the Regional and National Land Transport Programmes - RLTP/NLTP) to subsidise the district's transport infrastructure, and regional planning based on the NZ Transport Strategy.

Priorities for "regionally significant activities" are established by the Regional Land Transport Committee (RLTC), which forwards its recommendations (the Regional Programme) to the New Zealand Transport Agency (NZTA). Inclusion in the National Land Transport Programme is conditional on the proposals' alignment with the current "Government Policy Statement" (GPS), and relevant national and regional policy statements.

The current co-investment (funding assistance rates) for local roads is 55% for all activity with a 1% increase annually. Some land transport activities do not qualify for subsidy: footpath, mobility crossings, berms maintenance, para transit, car parks amenity lighting and some seal widening and extension projects are not able to secure funding from the NZ Transport Agency

The objectives of this suite of AMP's are to demonstrate that Council:

- Understands how the outcomes delivered by the assets link to the wider community outcomes
- Understands what asset capacity will be required in the future, and what issues drive this capacity requirement
- Has an ever-increasing knowledge of its asset locations, ages and conditions
- Has robust and transparent processes in place for managing, operating, maintaining, renewing and extending assets
- Applied the business case approach to develop clear, concise and evidence- based investment decision
- Has adequately considered the classes of risk its activities face, and has systematic processes in place to mitigate identified risks
- Provides adequate funding for asset operations, maintenance, renewals, improvements, extensions and depreciation
- Delivers outcomes that are aligned to the community's wishes and to other internally and externally imposed levels.

1.3 Focus

Council's emphasis for the period 2018 to 2028 for the Land Transport Activity will be focused on:

- Meeting changing NZTA requirements outlined in the Government Policy Statement
- The transition of the One Network Road Classification
- National and regional transport network co-ordination
- Enable collaboration between stakeholders through the business case approach to ensure informed decision-making on investment
- Long term sustainability associated with Asset Management, including risk management practices and procedures and renewals requirements within the Land Transport Network.
- Sustainability and resilience focus to enable long term options to be considered
- Continued modelling of network performance, asset serviceability and appropriate funding requirements.
- NZTA and legislative compliance
- Road safety through 'Safer Journeys' taking a safe systems approach
- District Land Transport Strategy which is a guiding document for the South Waikato Land Transport System for the next 30 years.

Asset Management

- Sustainability focus to enable long term options to be considered
- On-going data improvement to support decision-making process
- Continued modelling of network performance asset serviceability and appropriate funding requirements.

Land Transport Network

- NZTA and Legislative Compliance
- Road safety through Safer Journeys taking a safe systems approach
- District Land Transport Strategy which is a guiding document for the South Waikato Land Transport System for the next 30 years
- National and Regional Land Transport Strategies and Plans
- Public Transport
- Create transport synergies using road/rail transport.
- Review Impacts of Waikato Expressway on the SWDC town centres.
- Unlocking the network for High Productivity Motor Vehicles (HPMV)
- Land use changes, forestry to dairy operation conversions.
- On-going street-lighting LED conversions.
- Speed Management - Review that network to ensure appropriate speed is applied
- Impact of increasing Tourism
- Focus on Levels of Service to accommodate walking, mobility scooter traffic, and parking to address an aging population.
- Connecting future growth (New housing demand)

Risk Management Practices and Procedures

- Contingency Planning
- Critical assets - integrate criticality into the on-going operation, renewals and capital programme
- Managing network risk
- Corporate risk

1.4 Description of the Land Transport Network Activity

Physical Parameters

The geology of the South Waikato District has resulted from major historic volcanic events in the Taupo, Rotorua and Tirau areas and influenced by the action of the Waikato River and other waterways. The soils are a mix with approximately 3% of the area of the District being sandy soils (bordering the Waikato River), 11% sandy loam with some peat (northern areas) and 86% ash/pumice soils (generally south of a line through Arapuni - Putāruru - Tapapa. The soils are relatively 'recent' in geological terms and the ash/pumice soils in particular are poorly compacted and contain lenses of 'sensitive' allophonic clay (brown ash).

These factors often lead to unforeseen difficulties in road construction and require special techniques to achieve a satisfactory result.

The topography of the District is generally flat to rolling with very few roads in what could be termed mountainous topography.

The temperate climate provides an annual rainfall of approximately 1,500 mm and the prevailing wind is from the south west. The Kaimai and Mamaku ranges to the east - south east and the significant area around Tokoroa and south in forestry have an influence on weather patterns and air temperature.

The construction season is from mid-September to early May. Difficulties with reducing high moisture contents in pavements and application of seal coats outside those months can be expected.

Historic Factors

The farming community in the District has enjoyed a high quality of rural roading since the 1950 -1960's period when a large proportion of the roads were sealed. There have been many benefits to farmers from this even though sealed roads generally cost more than unsealed roads to maintain. The benefits have included lack of dust, making road frontage pasture (the "long acre") more palatable, lower maintenance costs for farm vehicles, lower transportation costs for produce and higher land values.

The roading standard in this District is at the higher end of the scale. However, on the low traffic roads which are sealed, the savings in vehicle operating cost are unlikely to exceed the higher costs of sealed road maintenance. Nevertheless while there is strong support in the farming community to have all roads sealed council has since proposed to address the remaining length of unsealed network every alternative year.

The rural roading network still has a reasonable length of pavement which was designed for the traffic volumes and loading that could be predicted in the late 1950's. In those days roads were either Classes I, II, III or IV (based on design axle loadings) with most rural locals being Class II or less. Since then the number, speed, size and gross allowable loads (High performance Motor Vehicles, 50max) of vehicles has continued to increase at a steady rate and all roads are now required to be Class I and have been classified using the One Network Road Classification (ONRC) hierarchy.

As a result some roads are under-strength and under-width for the traffic of today. There has been an on-going programme of pavement rehabilitation and seal widening for some years now to bring the network up to the required standards. This activity is expensive, and the amount completed each year has been limited to the budget available. It has been necessary to supplement this work with some "heavy maintenance" to hold and extend the useful lives of roads that are failing until they can be included in the rehabilitation programme. The "heavy maintenance" has been in the form of lime/cement stabilised patching, digouts, resurfacing and high shoulder clearances. This picks up the worst areas of a road and basically 'recycles' in situ materials putting the road back into a safe trafficable state and extending its remaining life.

The towns and the street networks serving them developed at different times. Tirau was established as a railhead in the 1880's, Putāruru developed as a forestry and farming service centre from the 1920's and Arapuni was originally a hydro village when Arapuni dam was built in 1927. Tokoroa only began to grow in the late 1940's when the Kinleith forest became the major source of exotic timber in New Zealand.

The roading infrastructure from development prior to the 1940's has since been replaced and upgraded to standards appropriate to more recent times. Old road standards and early efforts at town planning are still evident however and continue to shape the towns and influence their development.

The total roading network in the District comprises Local Roads, State Highways, private (mainly forestry) roads and unformed (paper) roads. In addition to the carriageway, the roading infrastructure also includes bridges and large culverts, signs and marking, footpaths, street lighting, drainage, railings and carparks.

The District is criss-crossed by State Highways 1, 5, 27, 28, 30 and 32 which have a significant bearing on the traffic that travels through the District and the use made of local roads council exercises its interest in the operation and management of state highways directly by close liaison with NZ Transport Agency and indirectly through input to the Regional Land Transport Programme through the Regional Land Transport Committee.

There is a total of 171 km of State Highway in the District.

The Road Network activity requires the Council's infrastructure to be provided, operated, maintained, renewed, and added-to, upgraded, extended, improved and in rare cases, dismantled or abandoned.

In addition to these physical activities, administrative activities include:-

- Responding to requests from consumers or other residents and stakeholders
- Obtaining and complying with resource consents and building consents
- Applying to NZTA for funding subsidy for maintaining and operating, renewing and improving the network
- Reporting to NZTA annually on works completed and condition of the network
- Recording and costing of expenditure
- Risk identification and management
- Complying with legislative requirements, accepted standards and resource consents through:
 - Controlling new land development that links to existing roads
 - Managing stormwater runoff
 - Managing the asset inventory
 - Promoting road safety through education, engineering and enforcement



- Supervising, designs and carrying-out of physical work through appropriate project management:
 - Managing the assets through Traditional base contracts and the option of Partnerships, Collaborative or Alliance Model Contracts
 - Monitoring, recording asset condition, and performance
- Maintaining an accurate and current roading infrastructure database (RAMM)

This Asset Management Plan records the activities, providing a reference to policies, management decisions and programmes. At the same time it is intended to demonstrate that the activity is being conducted in a responsible and cost-effective way which is sustainable over the long term. Delivering the right outcomes, at the right time, at the right cost.

1.5 Issues Arising

This section describes the future issues that are expected to arise.

Issues Arising

The following issues have been identified within the 10 year planning horizon:

1. Efficient movement of freight

The high levels of HPMV permits and 50MAX will have an impact on the network which already includes a large proportion of the Network unlocked for 50MAX and HPMV in the District. There is some concern over the number of HPMV permits being applied for and what effect this will have, the volume has increased significantly, with the first six months of 2016/2017 year already at 70% of 2015/2016 total HPMV permits. Traffic modelling has been undertaken to ascertain the routes HPMV's are using. The cause of this increase is primarily associated with the movement of timber, milk products, chicken feed and metal. Change to usage results in an increased rate of consumption of the assets.

2. Land use changes within the District

Land use changes such as forestry to dairy farming, and the expansion of the Litchfield Fonterra Factory all require changes to the level of service provided by the existing network. There are specific issues related to stormwater runoff (clearly evident following June 2016 storm damage) and potential for the formation of new rural roads (publically funded portion of the Network) which will in turn be vested to Council and require continuous maintenance. This challenge is further intensified if privately owned commercial roads owned by Hancock Forest Management and Carter Holt Harvey are vested to Council in the future.



3. Demographic and Aging Population

SDWC is experiencing limited population growth together with an aging population. This change will require improved levels of service to the network to accommodate the introduction of public transport, walking, mobility scooters, parking and other traffic enhancements. Growth plans are being developed to promote the district. New infrastructure and the possibility of enhancing the existing network to accommodate growth will be required.

4. Road Safety

In comparison to the national average, road safety risk areas are quite limited in the District. This can skew the findings, but the risks of young drivers, speed and night crashes remain prevalent in the District. There are a number of near misses and minor crashes that are not reported. Further education, policy changes and enforcement in addition to engineered solutions will be applied to target areas. The effect of the Waikato Expressway up to SH29, with a shift of risk on the Network also requires more in-depth analysis. A NZTA Business Case is underway to consider options to mitigate the risk of driver behaviour and transition when entering and exiting the expressway. This is due to inconsistent and unforgiving state highways and local road networks between Piarere and Taupo, which have high crash rates and a low Kiwi Rap Star Rating. Further planned township amenity improvements along this route also conflict with the function of the state highway and these challenges require analysis.

5. Social and economic aspiration

The townships in the South Waikato District provide natural journey breaks, promoting safer journeys, and it is considered that more analysis is required to maximise the opportunity. The Tokoroa town centre revitalization project is underway and will provide road users with increased visibility and access to the town centre from State Highway 1. Work is also underway to assess traffic movements, parking and amenity requirements for a Tirau and Putāruru.

6. Transition of the One Network Road Classification

Another challenge for the land transport team over the next few years will be undertaking the work required for Council to comply with the ONRC, to ensure that ongoing financial assistance from NZTA is received. There is significant work associated with data collection, analysis, and undertaking the Business Case approach to obtain NZTA funding for future projects. Currently work is being undertaken by staff and contractors on RAMM data collection and analysis. The nature of this work is such that it should be undertaken in-house using Council staff. However, Council's staff have very specific roles with little overlap, resulting in risks of gaps should staff leave the organisation. Council has produced a transition plan to assist with the implementation of the ONRC.

7. A shift in economic development

There is new Industry being attracted to the District which may impact the network. Increasing eco-tourism ventures, with the promotion of Te Waihou (Blue Spring), Okoroire Hotel and other attractions such as Waikato River Trails and Cougar Park MTB are bringing more people and road users to the region, especially in peak periods. Council is currently addressing demand on parking and suitable signage. Impacts also include Council to revisit local roads to ensure the road are at an appropriate standard to deal to the increased traffic volumes.

Issues Arising beyond the Planning Horizon

The following issues may arise beyond the 10 year planning horizon:

- Population decline and an aging population -

While SWDC is focusing on promoting the district should the district's population experience decline over the next 30 years this will mean that in the future, there will be fewer ratepayers and therefore less people contributing to the cost of running and maintaining our infrastructure. Although our population is expected to have slow growth, the proportion of people who are aged 65 years or older is expected to increase. This means that there will be more people on fixed incomes who have a limited ability to pay for rates increases. In addition to this, the infrastructure needs of our community will change. For example, ensuring that our footpaths are mobility scooter friendly will become more important.

- The quality of our asset information

One of the key components of good management of our infrastructure is to ensure that we hold quality information on our assets. While Council is confident that the information we hold on our land transport assets is acceptable it needs to be maintained at the appropriate level to ensure good evidence based decision are made on investment. This is a challenge within a small council.

- Future affordability of replacing our assets

Every year Council puts some money that it collects from rates into asset replacement/depreciation reserves. These reserves are there to fund the future replacement of our assets. Financial modelling has been done using asset information, the current level of rate funding for asset replacement, our current depreciation/asset replacement financial reserve levels and our projected capital expenditure to determine whether Council has adequate funds to replace ageing assets. Further Reduction in Population: Although currently it is believed that the conversion of forestry land back to dairy production will arrest the historic population decrease, this scenario may not be a long-term one.

- Environmental impacts

Over time Council has become more aware of the impacts that the activities that we carry out have on the environment and continue to look at ways to reduce these impact and while development in technology has occurred and continues to advance this will have an impact on funding. Regional Council has already imposed greater environmental protection standards on projects.

- Natural hazards

Natural hazards such as earthquakes and flood events, etc. have the potential to cause damage to the infrastructure. The risk of the South Waikato experiencing a natural hazard is lower than some of the other Councils in the region. Council's ability is limited to pay for any replacement or repairs to the infrastructure should the district strike a large continued event.

1.6 Key Elements of the Plan

The key elements of this AMP are shown in Table 4 below.

Table 4: Key Elements of Plan

Section	Content
Executive Summary	Provides an overview of the entire AMP and emphasises the key issues contained in the body of the document for inclusion in the LTP
Section 1: Introduction	Provides the background to the AMP and the framework of the plan
Section 2: Strategic Alignment	Outlines the Council Strategy and the contribution that the service provides to Council's Vision, Outcomes and Strategies linking to the Levels of Service, Regional and National outcomes.
Section 3: Levels of Service	Defines the current and proposed Levels of Service and Performance measures for assessing the achievement of the standards
Section 4: Planning and Future Needs	Provides details of growth forecasts, which affect the management and utilisation of assets
Section 5: Activity Management Plan	Outlines what measures are in place to manage and operate the assets at the agreed Levels of Service. While optimising lifecycle costs, it can also include sustainability Outlines the processes set up by SWDC for assessing and managing sustainability for the Activity and its integration with Council's other activities
Section 6: Quantifying And Managing Risk	Outlines the risk management processes set up by SWDC for assessing and managing risk. Refer to common AMP for detail.
Section 7: Financial Forecasts	Identifies the financial requirements resulting from all of the information presented in the previous sections
Section 8: Asset Management Systems And Processes	Outlines the information available on the assets, information systems used and process used to make decisions on how the asset will be managed. Provides details on planning for monitoring the performance of the AMP
Section 9: Monitoring And Improving Asset Management	Details the improvements to AM systems that will increase the level of confidence in the AMP
Appendices	Detailed supporting information for summarised formation in AMP

2 STRATEGIC ALIGNMENT

2.1 Activity Goals and Objectives

2.1.1 District

The Council Strategy presents what Council is going to do for the next ten years to make our district a better place to live and work. At the core of our strategy is our vision (how Council envisages our community in 30 years' time), our outcomes (what Council would like achieve to make the vision a reality) and our strategies (what Council will actually do to achieve the outcomes).

The vision is "Healthy people thriving in a safe, vibrant and sustainable community".

Council undertook an extensive community consultation process, to develop Outcomes and Strategies. These are intended to support the Vision through delivering sustainable, long term growth and development.

To ensure that transport is underpinned by the principles of sustainability and integration, transport policy will focus on improving the transport system in ways that enhance the community's well-being, promoting resilience and flexibility. It will also take account of the needs of future generations, and be guided by medium and long-term costs and benefit analysis.

The Asset Activity Management Plan is one of SWDC's core strategic documents, and reflects a number of national, regional and local strategic objectives, as shown in Figure 8. The SWDC Road Map presents the key drivers of the Activity Management Plan and determines the business case point of entry priorities that SWDC will enact through strategic business cases over the next 10 years.

The primary investment and focus for Council is to develop and improve the business case approach, asset data/management systems, quality management and information. This information is required to support the asset management decisions to deliver the One Network Road Classification (ONRC) Customer levels of service and Council's key drivers. SWDC will work with stakeholders to develop clear, concise and evidence based investment proposals.

Supporting the key drivers, the Waikato Regional Land Transport Plan 2015-2045 (RLTP) sets the strategic direction for land transport in the Waikato Region, and contains the programme of transport activities the region wants to see funded through the National Land Transport Plan. The RLTP sets the over-arching strategic context for territorial authorities (TAs) and road controlling authorities (RCAs) Activity Management Plans in the region.

2.1.2 Regional and National

The Land Transport Management Act 2003 exists to contribute to central government's overall vision for transport, the aim of which is to achieve an affordable, integrated, safe, responsive and sustainable land transport system. This is set out in the New Zealand Transport Strategy. The vision is underpinned by the principles of affordable, sustainability, integration, safe and responsiveness. These are incorporated in the Waikato Regional Land Transport Strategy (RLTS).

Regional Land Transport Plan (RLTP 2015-2045)

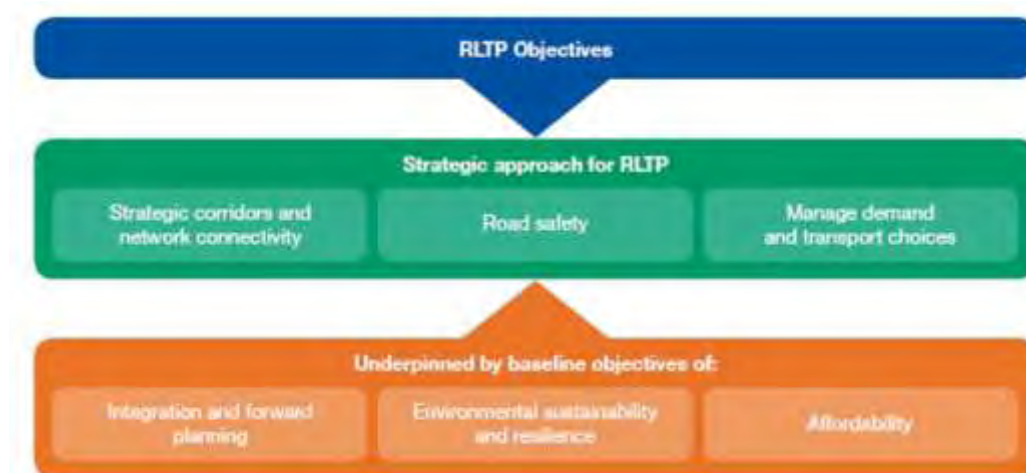


Figure 8 RLTP Strategic Approach, Transport Objectives

Regional transport outcomes provide a benchmark against which the region will measure progress towards implementing the RLTS. However achieving these will not be easy and there are many barriers to overcome. In particular, the strategy has identified a set of high priority challenges.

- Completing the Waikato Expressway projects and associated improvements
- Focusing on strategic inter-regional road and rail corridors
- Focusing on improving safety, particularly reducing risk and addressing speed management
- Optimising and growing public transport with Hamilton and between Hamilton and surrounding towns
- Improving accessibility for transport disadvantaged groups
- Building upon existing collaborative planning with a focus on emerging transport planning issues
- Maximising efficiencies and optimisation across the transport system
- Ensuring route security and resilience
- Addressing National Energy Efficiency and Conservation Strategy requirements.

The plan identifies six regional land transport objectives that represent the results the Regional Transport Committee wishes to achieve for the region’s land transport system over the next 30 years. The objectives have been developed in response to the key issues identified above.

Integration and forward planning	"An integrated and aligned land use and transport system."
Facilitating economic development	"An effective and efficient land transport system that enhances economic wellbeing, and supports growth and productivity within the Waikato Region and upper North Island."
Road safety	"To achieve a significant reduction in risk, deaths and injuries across the Waikato Region."
Affordability	"An adaptable and flexible approach to managing and developing the land transport system that optimises funding options and provides innovative management approaches the best meet the needs of the region in an affordable way."
Access and mobility	"Communities in the Waikato have access to a multi-modal land transport system that functions effectively to meet their social, cultural and economic needs."
Environment sustainability and resilience	"An environmentally sustainable and energy efficient land transport system that is robust and resilient to external influences."

Figure 9 Regional Land Transport Objectives

The RLTS implements these core areas in recognition of national and regional outcomes, but also recognises that the needs and opportunities for developing alternative modes of transport differ throughout the Waikato region.



Figure 10 Percentage of anticipated investment across activity classes for the next 10 years



Figure 11 Significant implementation activities for the Waikato region

Within the South Waikato District, the maintenance of the existing network will be the focus, and working with NZ Transport Agency for long-term strategic planning of routes through centres such as Tirau and Putāruru. Passenger

transport initiatives will continue and the sub-region is likely to see an expansion of Total Mobility services as the population ages, and significant developments centre on catering for the elderly, especially in South Waikato.

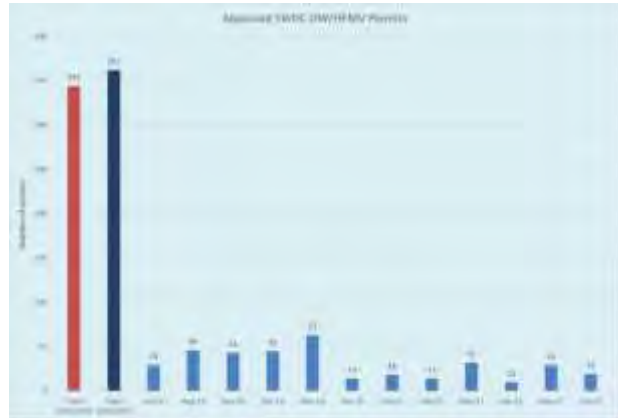
Although the rail network within the region is not well utilised, talks between the South Waikato District Council ,Regional Council, Industry and Kiwi rail are underway revisiting sidings in Tokoroa with an increasing role for rail freight, particularly from forestry and other industries that needs to be encouraged. The opportunities to utilise existing forestry roads as local roads has also been promoted by developers, and Council.

2.1.3 Key Challenges for the Network include:

Through the Business Case Approach Point of Entry, the following strategic priorities for SWDC over the next 3-10 years are identified as follows:

Freight Growth

Council continues to promote the district and focus on providing a network that is safe, resilient and efficient in order to stimulate growth. This in turns attracts a high levels use of HPMV and 50MAX vehicles. The on-going use has an impact on the network which already includes a large proportion of the network unlocked for 50MAX and HPMV in the district. There is some concern over the number of HPMV permits being applied for and what effect this will have, the volume has increased significantly, with the first six months of 2016/2017 year already at 70% of 2015/2016 total HPMV permits. Traffic modelling has been undertaken to ascertain the routes HCV's are using. The cause of this increase is primarily associated with the movement of timber, milk products, chicken feed and metal.



Consequence – increased volume of HPMV and 50MAX transport over the district network creating a faster deterioration of transport assets including bridges. Consequences include increased freight movements for traffic flows and congestion, increased crash rate on under width seals and incorrect alignment. Council is developing supporting evidence on network performance due to the increase in heavy vehicles.

Desired Benefits – freight efficiency, safety and resilience, increased economic development in the District including the support of forestry to dairy conversions. Secure freight supply chain including the road rail freight terminal in Tokoroa and links to the Port of Tauranga. Job creation and population growth.

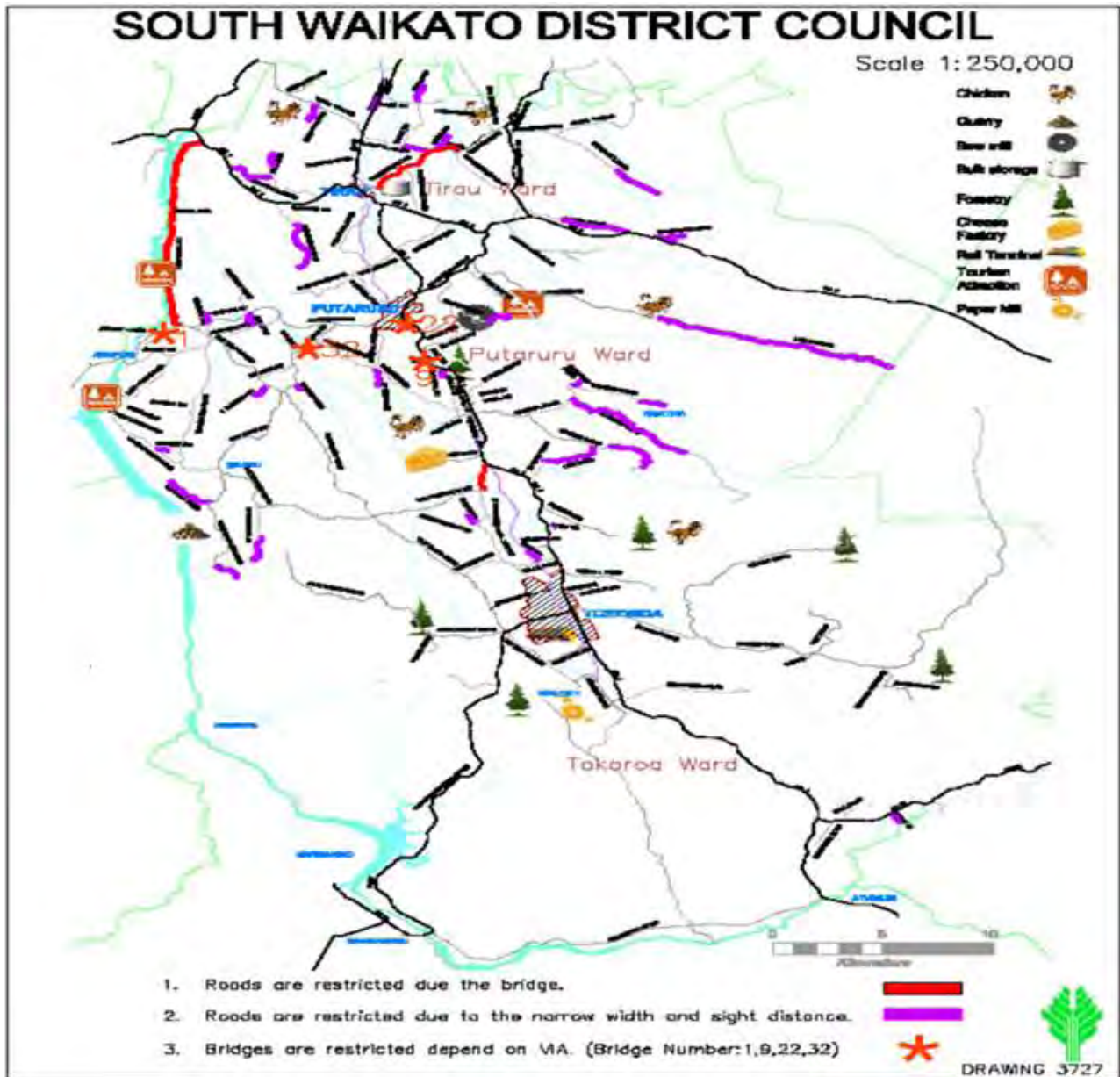


Figure 12 HPMV restriction

Land use changes within the District

Land use changes such as forestry to dairy farming, and the expansion of the Litchfield Fonterra Factory all require changes to the level of service provided to the existing network. There are specific issues related to stormwater runoff (clearly evident challenge following June 2016 storm damage) and potential for the formation of new rural roads (publically funded portion of the network) which will in turn be vested to Council and require continuous maintenance. This challenge is further intensified if privately owned commercial roads owned by Hancock Forest Management and Carter Holt Harvey are vested to Council in the future.

Consequence – land use change creates issues with stormwater runoff, lack of natural swales, and potential formation of new rural roads, ownership of forestry roads reverting to Council, environmental effects of dairy operations and land use. The use of the network from seasonal (forestry) to 365 days (Dairy). Maintenance and renewals are spread across the network to address the impacts.

Desired Benefits – increased economic benefits and ongoing productivity of land use. Job creation and population growth.



- Dairy increased from 57,944ha to 68,091ha.
- Forestry decreased from 106,944ha to 91,835ha.
- Dairy herds increased to 387.
- Dairy cows to 144,779.



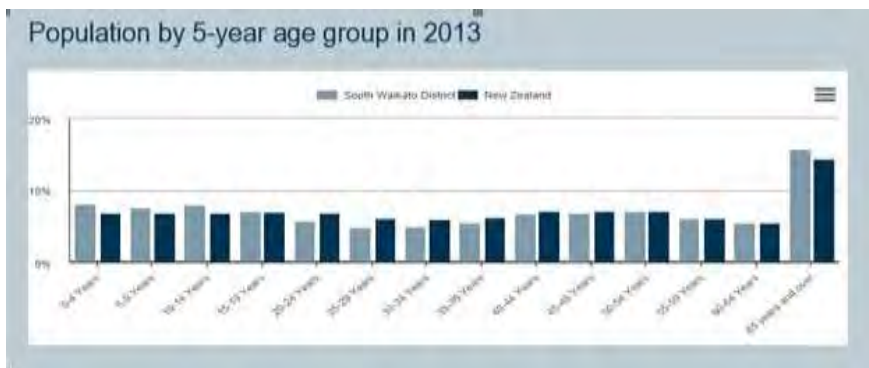
Run-off issues on conversions

Demographic, Aging Population and the ability to pay

SDWC is experiencing limited population growth together with an aging population. This change will require improved levels of service to the network to accommodate the introduction of public transport, walking, mobility scooters, parking and other traffic enhancements.

Consequence – Aging population and demographic changes will result in increased infrastructure costs to support mobility enhancements for the elderly in particular and the potentially reductions in the ability to continue investing in Council network without growth.

Desired Benefits – Ease of access for older population, more economic and social activity as older people are better able to access goods and services, facilities and gather in places of interest. Council plans to improve by focusing on what assets we have and sustainably invest for the future.



Road Safety

In comparison to the national average, road safety risk areas are quite limited in the District. This can skew the findings, but the risks of young drivers, speed and night crashes remain prevalent in the District. There are a number of near misses and minor crashes that are not reported. Further education, policy changes and enforcement in addition to engineered solutions will be applied to target areas.

The effect of the Waikato Expressway up to SH29, with a shift of risk on the Network also requires more in-depth analysis. A NZTA Business Case is underway to consider options to mitigate the risk of driver behavior and transition when entering and exiting the expressway.

This is due to inconsistent and unforgiving state highways and local road networks between Piarere and Taupo, which have high crash rates and a low Kiwi Rap



Star Rating. Further planned township amenity improvements along this route also conflict with the function of the state highway and these challenges require analysis.

Consequence – driver behavior and inconsistent road networks in the District create higher crash risk and lower road safety. Township amenity improvements may impact adversely on the flows of state highways through the District.

Desired Benefits – Increased road safety particularly between Waikato Expressway and the rest of the network, ease of transition and flow between small townships and state highway movements. Reduction in risk, deaths and serious injuries.

Social and economic aspiration

The townships in the South Waikato District provide natural journey breaks, promoting safer journeys, and it is considered that more analysis is required to maximise the opportunity. The Tokoroa town centre revitalization project is underway and will provide road users with increased visibility and access to the town centre from State Highway 1. Work is also in hand for a Tirau and Putāruru to assess traffic movements, parking and amenity requirements.



Consequence – Traffic movements and flow between state highways and local town centres is currently congested with lack of mobility and accessibility. These issues lead to delays and increased risk taking resulting in crashes.

Desired Benefits – Natural journey breaks creating safer journeys and improvement accessibility to small townships in the District, enhancing community and economic activity through improved facilities.

Transition of the One Network Road Classification

While the successful embedment of the ONRC will ensure the customer is at the heart of every investment decision and an opportunity to work smarter it will be a challenge for the in-house roading team over the next few years. This will put pressure on already an over committed team providing all engineering services to Council.



There is significant work associated with data collection, analysis, and undertaking the Business Case approach to obtain NZTA funding for future projects. Currently work is being undertaken by staff and contractors on RAMM data collection and analysis. The nature of this work is such that it should be undertaken in-house using Council staff. However, Council's staff have very specific roles with little overlap, resulting in risks of gaps should staff leave the organisation.

Consequence – Cost and resource implications to Council due to increased data collection and analysis to comply with ONRC. A number of improvements to process have been identified that will need to be implemented over the 2018 to 2021 NLTP to meet these reporting and assessment requirements. The funding request for this has been provided within the 2018-21 SWDC Transportation Programme and have also been included into Council's Maintenance Contracts.

Desired Benefits – compliance and consistency with ONRC requirements, ease of transition and adequate resource to enable data collection and analysis to occur. Providing the appropriate level of service to the rate payer with smart investment decisions.

A shift in economic development

There is new Industry being attracted to the District which may impact the network. Increasing eco-tourism ventures, with the promotion of Te Waihou (Blue Spring), Okoroire Hotel and other attractions such as Waikato River Trails and Cougar Park MTB are bringing more people and road users to the region, especially in peak periods.

Consequence – Increase economic development in the District through tourist activity creates busier road networks especially at peak periods at are not designed for increased traffic volumes making parts of the network risky.

Desired Benefits – new activity and visitors attracted to the District are able to move easily on the road network creating economic benefits and improved general amenity.



Other areas of focus for Council will include:

- Appropriate network speeds through speed management
- Enabling engaged and resilient communities
- Champion thriving town centres
- Strengthen and connect local communities
- Attract business, talented workers and visitors
- Financial sustainability
- Smart procurement
- Value for money



Linkage of Vision to Service Levels

Figure 13: Linkage of Vision to Service Levels

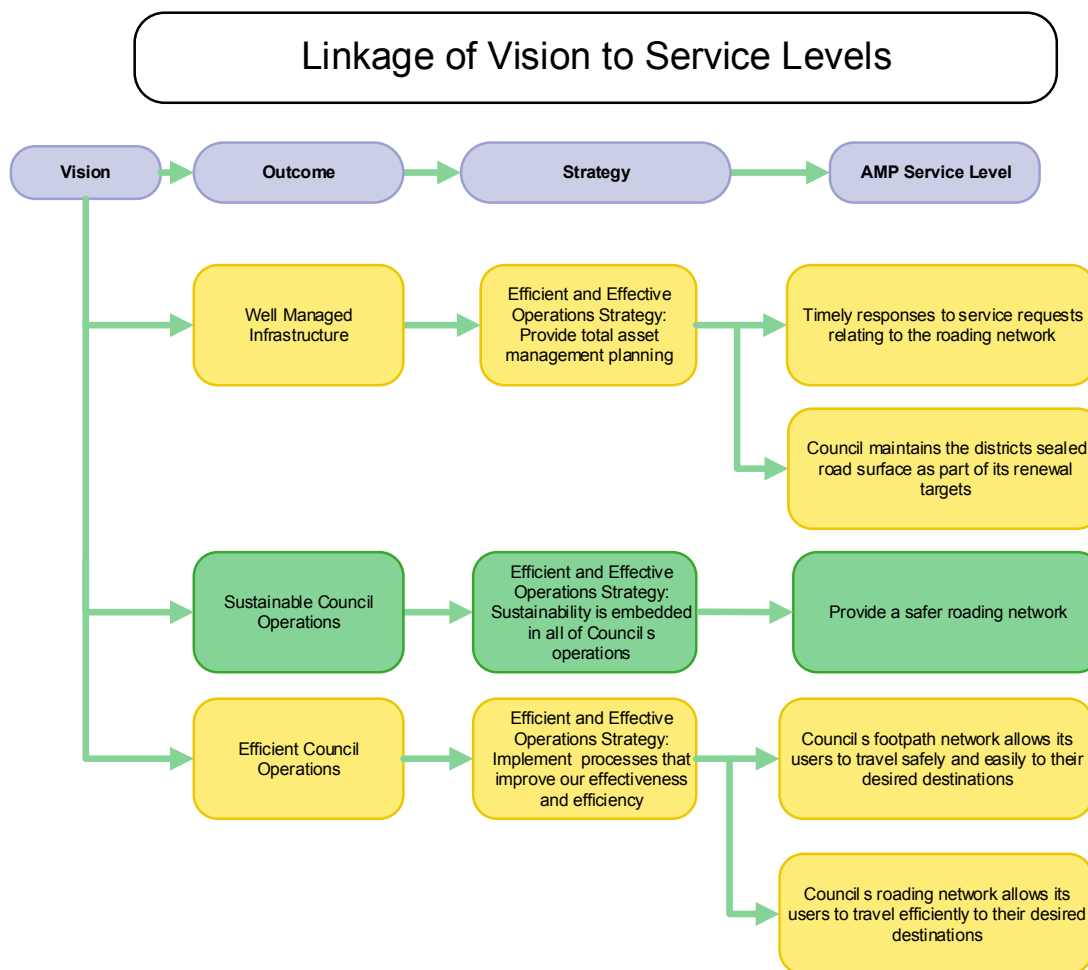


Table 5: A description of the Outcomes and Strategies framework.

Council Outcomes	Council Strategies
<p>Grow our economy: Existing businesses thrive and new businesses start up in the district.</p>	<p>Economic development strategies: Stimulate economic development by assisting existing and attracting new businesses while encouraging diversity. Encourage education and training to improve the employment opportunities of district's residents.</p>
<p>Improved external image: People outside our district are encouraged to live, work and develop businesses here.</p>	<p>District promotion strategy: Use a full range of marketing tools in conjunction with other organisations, to encourage external people to visit and live and develop businesses in our district.</p>
<p>Well managed infrastructure: Our infrastructure is financially and operationally sustainable; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.</p>	<p>Efficient and effective operations strategy: Provide sound total asset management planning.</p>

<p>A quality regulatory service: Deliver a local regulatory service that keeps our community safe and is cost effective to households and businesses, now and in the future.</p>	<p>Regulatory services strategy: Provide regulatory services that meet legislative requirements while supporting our customers.</p>
<p>Quality services and facilities: Council provides quality local public services and facilities which are cost effective to households and businesses, now and in the future.</p>	<p>Services and facilities strategy: Enhance access to and use of Council's services and facilities.</p>
<p>Community pride: Council provides services that make residents proud of our district, celebrating the artistic, sporting and cultural achievements of our people and the diversity of our cultures.</p>	<p>Community Pride Strategies: Through improved communication, community activities, an enhanced physical environment focus on making our community proud and engaged. Maintain and support our community's art and culture and support cultural displays and events.</p>
<p>Sustainable Council operations: We have regard to sustainability while operating in a cost effective manner.</p>	<p>Efficient and effective operations strategy: Sustainability is embedded in all of Council's operations.</p>
<p>Cultural leadership: We support and encourage cultural leadership and capacity building.</p>	<p>Cultural leadership strategies: Build and maintain a strong strategic and operational relationship with Raukawa. Build and maintain a strong working relationship with Māori at all levels of Council. Build and maintain a strong working relationship with all cultures present in our district.</p>

2.2 Land Transport Contribution

LTP Linkage

An efficient and safe transport and roading network play an important role in the daily lives of our residents. It allows people to travel to work, school or play by car, bicycle, foot or mobility scooter and it also allows for the efficient, reliable and safe transportation of goods, which is important for our businesses.

Table 6: The Land Transport Activity contributes primarily to the following Council Outcomes and strategies

<p>Well managed infrastructure: Our infrastructure is financially and operationally sustainable; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.</p>	<p>Efficient and effective operations strategy: Provide sound total asset management planning.</p>
<p>Sustainable Council operations: We have regard to sustainability while operating in a cost effective manner.</p>	<p>Efficient and effective operations strategy: Sustainability is embedded in all of Council's operations.</p>

Rationale

The Land Transport Network contributes to Council's Vision of "Healthy people thriving in a safe, vibrant and sustainable community". This contribution aims to provide a Land Transport network for use by residents, public transport, service providers, commercial and industrial traffic. It is designed to also service locations where people gather in larger groups for work, shopping, entertainment or cultural activities.

Council provides a Land Transport network as a public service, so that people and goods can move around and through the District in a safe, efficient and effective manner that is both affordable to all classes of funders and consistent with the national and regional transportation strategies.

The local road network is considered to support both public and private transport journeys safely, cost effectively and efficiently, contributing to overall economic wellbeing. Council supports existing business and industries and offer potential advantage to new business to operate effectively within the district by providing a safe efficient and reliable road network. Safe roads are also essential for the development of successful business, especially in the tourism sector. The transportation activity provides the means through which people access employment opportunities which is critical to their economic wellbeing. In term of the business, access to markets for goods and services relies heavily on transportation activity. In general sense, the efficiency of the district's economy is strongly related to the efficiency of its transportation activity.

Council's approach is to maximise the use of the existing network, so that there is no need for new roads, and less damage to the environment occurs as the maintenance of roads has few environmental effects compared to building of new roads.

Levels of Service

Proposed 2018 LTP Levels of Service:

- Council maintains its sealed road surface as part of its renewal targets set by the Asset Management Plan.
- That Council's roading network allows its users to travel efficiently to their desired destinations.
- That users of our roading network can expect their enquiries and service requests relating to the roading network to be responded to in a timely manner.
- That Council continues to provide a safer roading network.
- That Council has a footpath network that allows its users to travel safely and easily to their desired destination.

Measures

Proposed 2018-28 LTP measures:

- **Target:** No more than 15% of the district's sealed transport network will exceed its useful life.
- **Target:** the smooth travel exposure shall be at least 70% of NZTA target for roughness.
- **Target:** that Council will respond to 90% of all service requests within five working days of notice.
- **Target:** there are no fatalities or serious injury crashes on the local road network that are directly contributable to road conditions.
- **Target:** an annual audit of the footpath network identifies that at least 90% of the footpath network has a displacement less than 15mm.

Roading: 8% by the area of the district's sealed road network is resurfaced annually (235,000km2) 2015-16	
Roading: An annual audit of the footpath network identifies that at least 90% of the footpath network has a displacement of less than 20mm 2015-16	
Roading: That Council will respond to 100% of all service requests within ten working days of notice 2015-16. Council responded to 364/365 requests on time, not meeting target on only one occasion.	
Roading: The smooth travel exposure shall be at least 70% of NZTA target for roughness 2015-16	
Roading: There are no fatalities or serious injury crashes on the local network that are directly contributable to road conditions 2015-16	

Refer to Section 3 for current Measures and Levels of Service.

2.3 Significant negative effects

There is the potential for the community to experience negative effects which are generated by the roading and transport group of activities.

Negative Impacts	What does Council do to help minimise the negative impacts?
Effects on the environment including emissions, run-off, dust and noise	<p>Ensure that Council applies for any resource consents that may be required.</p> <p>Manage contracts to ensure that any effect on the environment is minimised.</p> <p>Design stormwater infrastructure to ensure that effects of run-off are minimised.</p> <p>Council has a seal extension programme in place in order to reduce the length of unsealed roads in the district, which in turn reduces the dust nuisance experienced by some of our residents.</p>

Negative Impacts	What does Council do to help minimise the negative impacts?
Accidents may result in death or serious injury	<p>Operates a road safety programme and work closely with partners (including the Police, New Zealand Transport Agency and ACC) to raise awareness of road safety issues.</p> <p>Makes improvements to the roading network to improve safety e.g. realigning dangerous intersections.</p> <p>Speed restrictions are imposed to help ensure that motorists travel at speeds that are appropriate for the road.</p>

2.4 Justifying Council Involvement

The provision of Land Transport is vital to the needs and aspirations of all who live in, visit or pass through the District. The Council has established policy and procedures to ensure:

- Retention of the existing network, both in quality and extent (except for paper roads)
- That communities continue to have a real say about their transportation needs
- That the road corridor is recognised as a community asset which should be controlled by Council
- That adequate funding is available for roads to be efficiently maintained at least to existing engineering and safety standards
- Council's involvement and input with the Regional Land Transport programme and State High network within the District.

To ensure this and other important infrastructure services are properly managed, a critical mass of professional work needs to be available. This enables Council to attract and retain in the district a core engineering staff with sufficient specialist expertise in a number of engineering disciplines. Losing this core would result in a reduced local response and compromise our ability to ensure that out-sourced elements of the operations are properly conducted.

Council is in the best position to pursue all options available for working in co-operation with other local authorities to provide effective and efficient carriageway maintenance services.

2.5 Justifying Council Ownership

The Land Transport Network ("Roading") assets are considered to be strategic assets in terms of section 90 (2) of the LGA and are identified as such in Council's Significance Policy.

The Land Transport Management Act provides for certain approved authorities such as regional councils, territorial authorities and approved public organisations to manage the infrastructure. Council is the approved authority for the South Waikato District's public roads (excluding state highways).

Council had a maintenance agreement in place with NZ Forest Products Ltd where it was considered beneficial to allow Contractors "off-highway" loading, and exemption from road user charges. These designated roads are considered "off-highway crossings". The ownership of these assets has some strategic value, and provision exists for the sale of surplus road reserve that is no longer required.

3 CURRENT LEVELS OF SERVICE

3.1 Stakeholders' Wishes & Expectations

Identification of Stakeholders

The following table lists those who have significant specific involvement with the assets (and/or the service facilitated by the assets) and describes their particular main interests. The table is limited to the main issues for key stakeholder groups. 'Public Service providers' include schools, dentists, doctors, hospitals, and other government organisations. 'Asset Managers' are those District Council staff (engineers and others) whose responsibility it is to manage the services made possible by the assets covered in this AMP.

Table 7: Identification of Stakeholders

External Stakeholders	Main Interests
NZ Transport Agency	Joint funding provider
Council	Monitor regulator, facilitator advocate, Partner funder, provider, customer
Road users	Public health and safety, service reliability, environment, cost
Non-resident population	Public health and safety, service reliability, environment
Local Businesses/Industries	Public health and safety, service reliability, environment, cost
Suppliers	Procurement, technical, payment
Police	Customer
ACC	Monitor regulator, facilitator advocate, Customer
Road Transport Operators/Association	Facilitator advocate, Customer
Central Government	Audit NZ, Civil Defence etc.- Public health and safety, service reliability, environment, cost
Residents and ratepayers	Public health and safety, service reliability, environment, cost
Tangata Whenua	Environment, cultural heritage
Utility Service Providers	Liaison, processes and systems in place to facilitate efficient operations for all Utility Service Providers including Telco, Power and energy network operations
Community Partners	On-going working with Taupo District Council (road safety/SWATT) to facilitate efficient operations
Regional Council	Work with Waikato Regional Council to ensure compliance with legislation
Local Authority Shared Services Ltd (LASS)/ RATA	Provide the local authorities of the Waikato region with a vehicle to develop shared services. Jointly owned by 13 local authorities. Beneficial to the community through enhanced services and/or reduced costs
Internal Stakeholders	Main Interests
Elected Officials	Owner of assets, responsible for sustainable service levels under the LGA 2000
Executive	Compliance with regulations, service reliability, quality and economy
Asset Managers	As above plus policy, planning and implementation of infrastructure and service management activities (e.g. operations, demand management, maintenance, construction). Safety. Effective corporate support for decision-making, service management, procurement, finance, communications, I.T., staff and other resources
Planners	AMP support for Long-term Council-Community Plans. Infrastructure support for current/future district activities (housing, business, recreation)
Finance	Proper accounting for assets and for services consumed by asset management activities. Reliable, justified projections of future costs
Internal Business Units	On-going work; processes and systems to facilitate efficient operations
Customer Services	Systems which minimise and resolve complaints/enquiries about service
Information Services	Clarity of technical and budget requirements for systems and support

The numbers of customer service requests received and miscellaneous enquiries about the Land Transport Network over the past three years are shown in the table below. Below are the three most frequent types of requests. While footpaths request has decreased over the last two years the potholes requests has increased. Council continues to attend to these requests through the consistent funding. Council has introduced response times to ensure that the network is made safe by attending to the potholes in a timely manner. The on-going street lighting issues will be addressed through the LED conversions. Many of the footpath requests are due to tree roots uplifting the footpaths and council has introduced a grinding programme to address these lifts without replacing section of footpath. This allows for more effective use of the footpath budget which unfortunately does not attract a subsidy.

Table 8: Service Requests for Asset Management 2014-2017

Service Requests for Asset Management 1 July 2014 to 30 June 2017 (3 years)		
Department	Subject	Number
Roading	Street Lighting	353
	Potholes	259
	Footpaths	183
	Total	795

3.2 Externally Mandated Standards

National Strategies and Plans

New Zealand Transport Strategy

The New Zealand Transport Strategy (NZTS) was first published in 2002, and updated in 2008. It provides the Government's over-arching strategic vision for transport in 2040 as follows:

"People and freight in New Zealand have access to an affordable, integrated, safe responsive and sustainable transport system."

It is supported by five principal transport objectives:

- Ensuring environmental sustainability
- Assisting economic development
- Assisting safety and personal security
- Improving access and mobility
- Protecting and promoting public health.

To deliver the vision and targets of the Strategy, key components have been identified for government intervention and facilitation by regulation, enforcement, economic incentives, investment, and education as follows:

- Integrated land use and transport planning
- Making best use of existing networks and infrastructure
- Investing in critical infrastructure and the transport sector
- Increasing the availability and use of public transport, cycling, walking and other shared and active modes. This is the first time specific targets have been set for the whole transport sector. The NZTS and the first Government Policy Statement (GPS) on land transport funding are part of a raft of changes to the transport sector set out in the recently commenced Land Transport Management Amendment Act 2008 and are the driving force behind achieving an affordable, integrated, safe, responsive and sustainable transport system.

Government Policy Statement (GPS)

The Government Policy Statement on land transport outlines the Government's strategy to guide land transport investment over the next 10 years. It also provides guidance to decision-makers about where the Government will focus resources.

The GPS 2018 states:

The government's overarching goal for transport is: an effective, efficient, safe, secure, accessible and resilient transport system that supports the growth of our country's economy in order to deliver greater prosperity, security and opportunities for all New Zealanders. The GPS will focus on:

- putting the right infrastructure in place to support high growth urban areas
- supporting the regions – for New Zealand to thrive we need our local economies to thrive and we want to support regional freight and tourism movements while increasing the resilience of critical regional routes
- improving how freight moves on our network by focussing on high quality and resilient connections



The GPS sets aside money to:

- maintain our existing transport network to ensure we can get where we need to go, and this includes maintaining our roads
- improve our land transport network so that it functions better, through investing in roads like the Roads of National Significance, in public transport services, and in walking and cycling initiatives like through the Urban Cycleways Programme
- deliver specific objectives including lifting economic growth and productivity, improving safety, and improving preparedness for events like the Canterbury and Kaikoura earthquakes

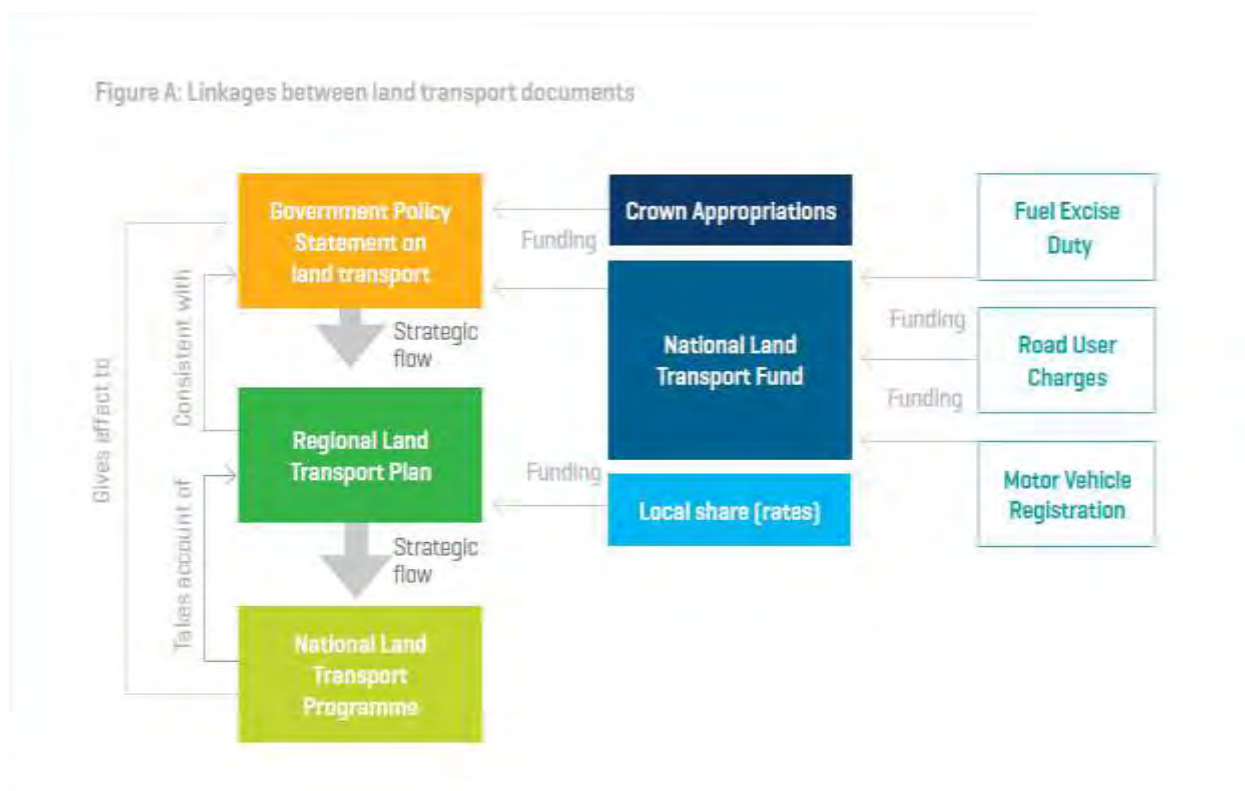


Figure 14 Linkage between land transport documents

The 2018 GPS continues the priority commenced in the 2015 period and will also include;

- Resilience
- Technology
- One-transport system approach

National Land Transport Programme (2018-2021)

In line with the Government Policy Statement, the National Land Transport Programme (NLTP) is the New Zealand Transport Agency's key commitment with the sector for how the Transport Agency will use National Land Transport funding to provide a transport system that enables New Zealand to thrive

The National Land Transport Programme (NLTP) contains all the land transport activities, such as public transport services and road construction and maintenance, which are expected to receive funding from the NZ Transport Agency.

The NLTP is compiled from the proposed Regional Land Transport Programmes (RLTP) in accordance with available funding. The 2018-2021 RLTP is currently underway and will be published early 2018.

National Infrastructure Plan

The National Infrastructure Plan (NIP) details the Government's view of the challenges and priorities for infrastructure. The 2011 NIP describes the view to 2030.

A Vision for New Zealand's Infrastructure in the NIP is:

New Zealand's infrastructure is resilient and coordinated and contributes to economic growth and increased quality of life.

More specifically the vision for the Transport Sector is:

A transport sector that supports economic growth by achieving efficient and safe movement of freight and people.

The National Infrastructure Plan sets out seven specific goals for transport infrastructure, all of which have relevance for the National Land Transport Fund investment in land transport.

These goals are to achieve:

- A long term strategic approach to transport planning which maximises the potential synergies between regional planning and central government strategies
- A flexible and resilient transport system that offers greater accessibility and can respond to changing patterns in demand by maintaining and developing the capacity of the network. Improved operational management practice and the use of demand management tools especially in urban areas experiencing significant growth
- A network of priority roads that will improve journey time and reliability, and ease severe congestion, boosting the growth potential of key economic areas and improving transport efficiency, road safety and access to markets
- A continued reduction in deaths and serious injuries that occur on the network
- A public transport system that is robust and effective and offers a range of user options that will attract a greater percentage of long term users
- A rail system that enables the efficient movement of freight and complements other modes of passenger transport and freight movement
- Sea and air ports that are linked to the overall transport network to support efficient nationwide movement of passengers, domestic goods and exports and imports and are able to respond to technological changes and changing international safety and security standards.

The National Infrastructure Plan defines What Will Success Look Like as follows:

The transport sector is well served by a range of indicators. However, at a national level, the following indicators are most relevant to the critical issues identified in this Plan:

- Reduced incidents of severe urban congestion
- More efficient freight supply chains
- A reduction in deaths and serious injuries
- Better use of existing transport capacity
- Resilient and secure transport network
- More transport mode choices.

(From GPS and NIP)

Safer Journeys

Safer Journeys is a strategy to guide improvements in road safety over the period 2010 - 2020.

The long-term goal for road safety in New Zealand is set out in its vision:

"A safe road system increasingly free of death and serious injury"

To support the vision, Safer Journeys takes a Safe System approach to road safety. This approach means working across all elements of the road system (roads, speeds, vehicles and road use and recognises that everybody has responsibility for road safety. We have also identified the issues that are of most concern. These are the priorities for road safety in New Zealand. Safer Journeys describes the actions we will take to address these issues, using a Safe System approach that works across all elements of the road system.

2016-2020 Action Plan

This is the third and final Action Plan for New Zealand's road safety strategy for 2010 to 2020. The vision is to establish a safe road system, increasingly free of death and injury, using the Safe System approach.

Significant progress has been made under the two previous Action Plans across all key areas of the Safe System. This includes initiatives such as:

- raising public awareness through advertising campaigns
- lowering blood alcohol levels
- making our high risk roads safer through rumble strips and median barriers
- mandating electronic stability control for light vehicles.

The third Action Plan has renewed focus on areas of greatest risk and disproportionate harm, and present opportunities for the use of current and emerging technologies.

In particular, this Action Plan's focus is to:

- enable smart and safe choices on the road
- make motorcycling safer
- ensure roads and roadsides support safer travel
- encourage safe vehicles.

The New Zealand Energy Strategy 2011–2021 and the New Zealand Energy Efficiency and Conservation Strategy 2011–2016 will add a focus on energy efficiency to these goals. New Zealand's per capita energy use for transport is high compared to many other OECD countries. Improving transport energy efficiency offers major opportunities to improve the productivity of the overall economy.

To do this these strategies will focus on improving vehicle fuel efficiency, and increasing the uptake of low-carbon fuels and technologies. They will highlight the potential to reduce energy use in urban areas through walking and cycling and greater use of public transport. The strategies will place an expectation on local authorities to ensure integrated travel options through their transport and planning roles. Local authorities will also be expected to improve the efficiency of local transport networks and layouts so that people and freight can move about with greater ease and energy efficiency.

Connecting New Zealand

Purpose of Connecting New Zealand

The purpose of *Connecting New Zealand* is to summarise for stakeholders the government's broad policy direction for the transport sector over the next decade. It will assist stakeholders to better understand how the government sees the transport system developing over that period. *Connecting New Zealand* draws together the policy direction set out in a number of other guidance documents, including the *National Infrastructure Plan* and the *Government Policy Statement on Land Transport Funding 2012/13–2021/22*

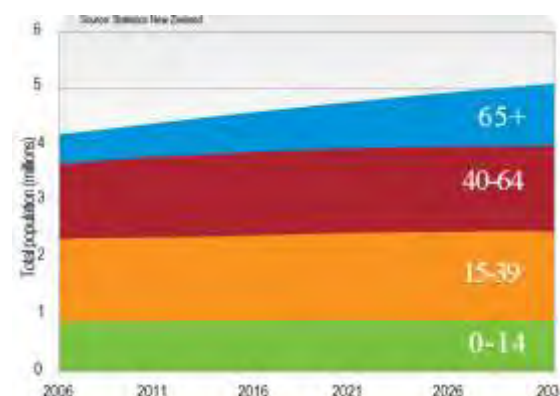
Government's overall objective for transport

The government is seeking an effective, efficient, safe, secure, accessible and resilient transport system that supports the growth of our country's economy, in order to deliver greater prosperity, security and opportunities for all New Zealanders.

Challenges for transport in New Zealand

New Zealand is a trading nation, but geographically we are further away from the economic centres of the world than any other developed country. To be internationally competitive, we need to improve the efficiency of our transport networks. We need to achieve this at a time when:

- our population is ageing
- people are changing where they live in New Zealand
- fuel prices are expected to remain volatile while generally increasing
- the freight task is predicted to double in the next 30 years



- international responses to issues such as greenhouse gas emissions and transport security can impose additional transport costs on our exporters

Government's three key areas of focus for transport

To deliver on its transport objective, the government is focusing on three key areas.

- **Economic growth and productivity** — transport has an important role to play in enabling the government's overall goal to grow the New Zealand economy to deliver greater prosperity, security and opportunities for all New Zealanders. The transport system provides connections — both domestically and internationally — for our communities and businesses, and meets the travel needs of our international tourists. The focus will be on addressing congestion by population and freight growth. Changes will support development of inland ports and distribution centres, making more use of rail, and investment in road and bridges to allow more widespread use of high productivity motor vehicles.
- **Value for money** — improving the performance of the transport system is critical. The government needs to be confident that the transport sector (central and local government in particular) is delivering the right infrastructure and services to the right level, and for the best possible price. Recognising the on-going increase in transport demand pressures increases the emphasis on value for money. To date and progress made included:
 - roads being able to carry more high productivity motor vehicles
 - improvements in rail freight travel time
 - the introduction of the One Network Road Classification system and the collaborative efforts of the Road Efficiency Group delivered better coordination and efficiency gains for maintenance activities. Maintenance costs per kilometre have reduced for some regions
 - the new public transport operating contracts have increased competition in the public transport markets and there is evidence that fare box recovery rates are improving.
- **Road safety** — implementing the Safer Journeys road safety strategy and its new Safe System approach, so we have a sustained reduction in deaths and serious injuries on our roads over time. In addition, there are many emerging safety technologies that have potential to reduce risk despite increases in travel such as technologies that enable the vehicle to detect potential problems and take remedial action sooner.

Other References

The following documents influence management of the Transportation activity:

- NZTA's Our Strategic Direction – reinforce the business case approach to better investment decisions
- The NZ Transport Agency Rules, Policies and Guidelines (including published manuals) provide guidance to programming planning and funding
- HRRR Guide

Land Transport Management Act 2003

The Land Transport Management Act contains particular requirements for content, development of and consultation on the District's Land Transport Programme prior to its adoption by the Council.

The original Act was amended in 2008 by the Land Transport Management Amendment Act, which introduced the requirement for a Regional Transport Committee (RTC) to develop a three year Regional Land Transport Programme (RLTP). The Waikato Regional Council is responsible for preparing the Waikato programme.

The programme is required to detail at least the first three financial year's activities, relating to road maintenance, renewals, improvements and public transport services, identified by approved organisations (road controlling authorities) in the region. The regional programme is then submitted to the NZTA for incorporation into the National Land Transport Programme; 10-year forecasts are also required.

Under the 2003 version of the Act road controlling authorities were only required to develop detailed individual annual Land Transport Programmes for the submission to NZTA.

The new requirements are covered in Section 12 of the Act as follows:

Overview of regional land transport programmes

1. A regional land transport programme allows approved organisations and the Agency to recommend funding for land transport activities or combinations of activities from the national land transport fund that will contribute to -
 - a. A region's outcomes that are identified in the relevant regional land transport strategy; and
 - b. Any outcomes, objectives and impacts identified by the Crown in any national land transport strategy or the relevant GPS.

2. Regional land transport programmes, which are prepared by regional transport committees (or, in the case of the Auckland region, ARTA), include -
 - a. Proposed activities and combinations of activities for 3 financial years; and
 - b. An indication of significant activities for the following 3 financial years; and
 - c. A 10-year financial forecast.
3. This section is intended by way of explanation only, and if this section is inconsistent with another provision of this Act or any other Act, then the other provision prevails.

Under the Act, the RTC is responsible for assessing and prioritising proposed transportation activities across the region in relation to both national and regional outcomes and funding priorities. These include, in relation to South Waikato District:

- Government Policy Statement (GPS)
- Regional Transport Strategies.

Utilities Access Act 2010

The Utilities Access Act 2010 provides for a coordinated approach to management of the road corridor. The Act requires the Corridor Managers to undertake a planning and access management role, and Utility operators to comply with an approved code of practice. It is expected that the requirements detailed in the act will be carried out as described in the Code of Practice developed by the New Zealand Utilities Access Group, should it be approved by the relevant Minister of the Crown.

Relevant Regulations Affecting this Activity

National Planning Documents and Standards

- Government's Sustainable Development Action Plan.
- New Zealand Standard SNZHB 4360:2000 'Risk Management for Local Government'.
- The National Land Transport Strategy.
- National Energy Efficiency and Conservation Strategy.
- The NZ Transport Agency (NZTA) Maintenance Guidelines for Local Roads
- The (proposed) National Environmental Standard relating to land transport noise from major roads.
- NZS 4404: 2004 Land Development and Subdivision Engineering
- SNZ HB 2002:2003 Code of Practice for Working in the Road (NZUAG Roadshare).
- National Land Transport Programme
- National Infrastructure Plan 2011.

Relevant Regulations

- The Building Regulations 1992.
- The Heavy Motor Vehicle Regulations 1974.
- Land Transport Rule: Setting of Speed Limits 2003 (Rule 54001)
- Land Transport Rule: Traffic Control Devices 2004 (Rule 54002).

3.3 Regional Land Transportation Plan (RLTP)

The Waikato Regional Land Transport Plan 2015-2045 (the plan) sets out the strategic direction for land transport in the Waikato region over the next 30 years. The plan contains two key components:

- a policy framework to direct decision-making and implementation measures for key regional transport stakeholders to advance the land transport objectives and priorities identified in the plan
- the region's bid for national funding via a programme of the region's transport activities for inclusion in the National Land Transport Programme.

The plan builds off the long-standing strategic approach adopted for the last two regional land transport strategies, focusing investment and effort on three core components including:

- strategic corridors and wider network connectivity improvements - recognising the Waikato region's strategic transport importance to the upper North Island, New Zealand's primary growth area
- road safety - recognising the need to continue to improve road safety outcomes for our region
- managing demand and transport choices - recognising the need to manage transport demand in our main urban areas to assist in meeting the transport objectives identified in the plan. Also recognising the need to provide appropriate transport choices across the region to enable people and communities to meet their economic, social and cultural needs.

RLTP objectives

The plan identifies six regional land transport objectives that represent the results the Regional Transport Committee wishes to achieve for the region's land transport system over the next 30 years. The objectives have been developed in response to the key issues identified for the plan.

- **Integration and forward planning** - An integrated and aligned land use and transport system.
- **Facilitating economic development** - An effective and efficient land transport system that enhances economic wellbeing, and supports growth and productivity within the Waikato region and upper North Island.
- **Road safety** - To achieve a significant reduction in risk, deaths and serious injuries across the Waikato region.
- **Affordability** - An adaptable and flexible approach to managing and developing the land transport system that optimises funding options and provides innovative management approaches to best meet the needs of the region in an affordable way.
- **Access and mobility** - Communities in the Waikato have access to a multi-modal land transport system that functions effectively to meet their social, cultural and economic needs.
- **Environmental sustainability and resilience** - An environmentally sustainable and energy efficient land transport system that is robust and resilient to external influences.

RLTP priorities

Key short-term priorities for the next 10 years are identified in the plan as required by the Act. These reflect the key issues that need to be addressed and/or significantly progressed over the life of the plan, and will help the objectives to be achieved.

- Completion of Waikato Expressway projects and associated improvements (this continues to be the region's top transport priority).
- Focusing on strategic inter-regional road and rail corridors.
- Focusing on improving safety, particularly reducing risk and addressing speed management.
- Optimising and growing public transport within Hamilton and between Hamilton and surrounding towns.
- Improving accessibility for transport disadvantaged groups.
- Building upon existing collaborative planning with a focus on emerging transport planning issues.
- Maximising efficiencies and optimisation across the transport system.
- Ensuring route security and resilience.
- Addressing National Energy Efficiency and Conservation Strategy requirements.

3.4 South Waikato District Council Strategies, Plans and Bylaws

Council Strategies

The following Council Strategies have impacts and are considered as part of the Transportation Activity:

- District Land Transport Strategy
- Walking and Cycling Strategy 2004

South Waikato District Bylaws/Policy

The Land Transport activity is governed by the following bylaws:

- Public Places Bylaw 2017 which addresses such matters as stock crossings on public roads, animal controls, carrying on of offensive trades, and hoardings

- Parking and Traffic Bylaw 2017 which governs all traffic-related activities such as parking restrictions, restricting certain classes of vehicles from certain roads, and associated enforcement provisions
- Speed Limit Bylaw 2017 to set speed limits on local roads in accordance with the Land Transport Rule: Setting of Speed Limits 2005
- Roadside Fencing Policy 2017 to set the scene for fencing requirements, specifically, excludes fences adjoining roads, national parks, railways, marginal strips and certain reserves.
- Stock Crossing Policy 2017 to manage stock crossing of public roads

The Council has appointed parking wardens for the purpose of policing the provision of this Bylaw; in particular time limited parking. The Police also have a responsibility for enforcing the Bylaw.

Zonings and Easements

Land Transport Network infrastructure is installed in road reserves as of right, but these are shared with other designated utility operators. Council controls the location of infrastructure and also the programming, quality and timeliness of reinstatement.

Both Council and NZTA have the ability to over-ride other zoning requirements to form public roads.

Generally the only parties that Council allows to have easements within the designated road corridor are other utilities in accordance with their enabling legislation.

Council also controls building “yard requirements” on narrow streets where “building line restrictions” may be registered against the title of individual properties.

Road Designations

As a road controlling authority, Council has a statutory right to form and maintain public roads. Where appropriate, land required for road can be “designated” and purchased to achieve the required outcome. This power may be used not only for providing new roads, but also for realignment of existing roads to improve safety. The process is called a “notice of requirement” under Part VIII of Resource Management Act 1991 where Council is a “requiring authority”.

3.5 Assets Constraints to Level of Service

This section lists constraints imposed by the existing assets, which may affect current or future levels of service, and explains why each is relevant.

Growth

Existing road widths, topography and alignment limit the number of vehicles that can be carried on the carriageway in a safer manner. Narrow road widths restrict passing or overtaking, requiring vehicles to pull over on to the shoulder to enable safe passing manoeuvres. This is a particular safety issue for heavy and wider vehicles with the introduction of High Performance Motor Vehicles (HMPV) (longer and heavier) and 50MAX by Central Government on narrow rural roads.

Resilience

The land transport system is vulnerable to a range of external pressures that present challenges for providing efficient and resilient network. Land use changes such as forestry to dairy farming, and the expansion of the Litchfield Fonterra Factory all require changes to the level of service provided to the existing Network. There are specific issues related to stormwater runoff (clearly evident challenge following June 2016 storm damage). Over the longer term, climate change is likely to cause more severe weather events which have the potential to severely disrupt parts of the district's land transport system.

Response planning for major events is the subject of an Emergency Response Plan prepared under the guidelines of the Risk Management Plan.

Affordability

The land transport system needs adequate maintenance and renewal funding. Rising costs, declining national and local revenue, and constrained funding have resulted in and will continue to present funding challenges.

Road Roughness

The degree of roughness of a road affects user comfort, fuel economy, and in some cases, maintenance cost. Road roughness is also affected by construction methods, seal joints, utility trenches, subsidence, and materials. While paver-laid asphalt concrete has the potential to offer a very smooth ride, it is not economic to use this construction option on the

District's roads due to its inflexibility and relative cost. Roughness is monitored regularly. The service levels are given in this Section (3) and include discussion around issues.

Environmental Performance

Significant issues arising from operation of SWDC's Land Transport Network system assets which are likely to impact on the environment include the concentration of sediment carrying pollutants, spillages of insecurely-loaded goods including chemicals, spillage of fuel in accidents etc. The road drainage system is limited in its capacity to collect and retain these pollutants.

Other Capabilities

While safety performance is a service level that can be measured, there are many vehicle, weather, environment and driver behaviour that influence this. Land Transport assets, including traffic safety assets, while designed to high standards, are limited in their capacity to prevent serious injury and damage to property when these other factors come into play.

3.6 Council's Service Level Goals

Council's Service Levels (new measure identified through the LTP process)

Table 9: Land Transport Service Levels

LAND TRANSPORT SERVICE LEVELS										
LTP References	Asset Management and Performance Reporting Measures									
	Customer Service Levels					Technical Standards				
Community Outcome	What is Measured	Data Source	Targeted Performance		Notes on Proposed Levels of Service	What is Measured	Data Source	Target/Past Performance		
			Baseline 2016/17	Ten Year Target				2015-16	2014-15	2013-14
Growth -Existing Businesses and industries are retained and supported	* Road quality - At least 70% of Council's roads (by length) will meet the New Zealand Transport Authority's (NZTA) target for roughness and not more than 15% of road length shall exceed the NZTA "maximum target roughness"	Condition Surveys, RAMM	95% result, with 3% exceeding the maximum acceptable standard	70% threshold reached and no more than 15% exceedance of NZTA guidelines	70% is considered to be a sustainable target given the available resources and community needs. Roughness is a standard that rates a smooth surface as zero and an upper limit for most purposes as 400. Urban roads are in general rougher than rural roads due to the number of manholes and works that interrupt the surface. Because of the lower speeds on local roads (non- arterial or connecting) in particular, a smooth road is less critical. Low use rural roads are also likely to feature in the 30% and 15% exceedance of the guideline. This includes those that aren't sealed. Priority for providing a smoother surface is set by safety considerations and usage	Injury Crash Levels relative to National averages (Reports where road factors relevant) There are no fatalities or serious injury crashes on to local road network that are directly contributable to road conditions	NZTA Group D statistics NZTA Database	No data available (NZTA) Achieved	No data available (NZTA) Not measured	No data available (NZTA) Not measured

			6.2%- not achieved.			<p>Old Measure 8% by the area of the district's sealed road network is resurfaced annually</p> <p>New Measure No more than 15% of the district's sealed transport network will exceed its useful life.</p>	RAMM data	Achieved	Achieved	Achieved
<p>Relationships - Quality infrastructure to support communities and businesses</p>	<p>Responsiveness-An annual audit of the footpaths network identifies that at least 90% of the footpath network has a displacement less than 20mm.</p>	<p>CSR's, Contractor</p> <p>Annual Audit</p>	99% achieved 20016-17 year	A performance level of 90% compliance to be met	100% compliance within a week may not be viable or sustainable over time, because of the work programme commitments and available resources. Also repairs may be in stages, with an initial filling and then a final sealing. Time has to elapse between the two to allow settling of the material					
	<p>Resilience- Transport services are safe and efficient</p>	<p>Maintenance-That Council will respond to 100% of all service requests within ten working days of notice</p>	<p>CSR's, Contractor</p>	99.8% achieved 20016-17 year	A performance level of 100% compliance to be met	100% compliance within a week may not be viable or sustainable over time, because of the work programme commitments and available resources. Also repairs may be in stages, with an initial filling and then a final sealing. Time has to elapse between the two to allow settling of the material	<p>Council Contractors comply with Transit NZ COPTTM</p> <p>Local Roads (temporary sign safety) standards</p>	<p>Annual Inspections of 10 sites</p>	93%	92%
						<p>Variation between planned and actual years expenditure is within following limits</p> <ul style="list-style-type: none"> - Maintenance Capital works 	<p>Year end Financial statement</p> <p>+ - 3%</p> <p>+ -5%</p>	+1.3%	+3.5%	0%

NZ Transport Agency Land Transport Programme Relationship Protocol Performance Measure and Targets

NZ Transport Agency is the main provider of funds for these activities. The Council currently obtains 50% financial assistance from NZ Transport Agency for road maintenance and Council's objective is to maximise the use of these funds to provide roads that meet the expectations of the community and land transport users.

In the past the level of this subsidy was reviewed by the NZTA on a three-yearly basis. NZTA is undertaking a review of setting the FAR rate and will be introduction for the 2015-2018 funding block. Currently our maintenance funding subsidy percentage is 50%. Improvements funding is paid at 60% and community coordination (road safety education) funding is set at 60% programme of maintenance and improvements is submitted for approval to NZ Transport Agency on a three year block programme with the next funding block being 2015-2018. Council's share of funding is provided for in its Annual Plan, LTP and Financial Forecast.

The Council enters into an annual agreement with NZ Transport Agency called a "Land Transport Programme Relationship Protocol" to facilitate:

NZ Transport Agency achieving its principal objective, to "contribute to an affordable, integrated, safe, responsive, and sustainable land transport system."

The local authority achieving its land transport obligations in Part XXI Local Government Act 1974, and Land Transport Management Act 2003.

The obligations of each party are set out in the agreement as follows:

- NZ Transport Agency agrees to provide to the local authority funding as specified in the National Land Transport Programme
- The local authority agrees to supply the outputs and capital projects as specified in the National Land Transport Programme, unless any such output or capital project has been suspended. The parties agree to comply with the terms and conditions of this Agreement
- The functions, responsibilities, manuals and memoranda which are applicable to the Agreement and performance measures applicable to each party are scheduled. The following NZ Transport Agency manuals contain the core policy and procedures to be followed in the observation of the Agreement
- Procurement Manual. This Manual contains the policy and procedures to be followed for the development and management of the National Land Transport Programme including the procedures to be followed for the awarding of all contracts for physical works and professional services performed as part of the National Land Transport Programme
- Project Evaluation Manual. This Manual contains the process to be followed for evaluating whether each new output or capital project and any options are economic and determine the basis for the funding priority
- RAMM Road Condition Rating and Roughness Manual. This Manual contains standards and guidelines pertaining to road condition rating and roughness for road assessment and maintenance management. Parts I and II are standards and therefore mandatory
- Evaluation Procedures for Alternatives to Roothing. This Manual contains the procedures to be followed for evaluating capital projects that have alternative to roading features
- Standards and Guidelines Manual. This Manual contains a list of both the mandatory manuals listed above and guidelines. The standards include Guides to Traffic Engineering Practice; Land Transport Safety Audit Procedures; Land Transport rules and applicable NZ Standards

The Council's performance measures in terms of the Protocol for 2015-2018 are detailed in the table below.

Table 10: Performance Levels

Performance Measures	TARGET
Accuracy of claims made by the Approved Organisation to the Agency	100%
Percentage of issues raised in audits by the Agency that are resolved within agreed time frames	100%
Percentage compliance with mandatory standards in the Agency's Standards, and Guidelines	100%
Percentage of contracts let that comply with procurement procedures approved by the Agency	100%
Percentage compliance with the reporting requirements set out in the Agency's Procurement Manual	100%
Percentage variation between planned and actual years total expenditure On routine and periodic maintenance of roads.	-3% to +1%
Percentage variation between planned and actual years expenditure on new and improved infrastructure. (Where "planned" is the approved allocation resulting from the February review of the NLTP)	+ 5%

Service Level Gaps

Council is currently working towards nationally consistent customer levels of service. Customer levels of service define the fit-for-purpose outcomes expected for each category of road in terms of safety, accessibility, amenity, reliability and resilience.

The work builds on the ONRC carriageway table and the ONRC performance report to assess gaps between actual and ONRC levels of service (under or over)

Assess service level gaps relative to ONRC targets

An assessment is underway looking at service level gaps (under and over), considering:

- Network-wide averages for Urban/ Rural roads
- Currently LoS, KPI's and response times
- By maintenance areas
- Other categories relevant to understanding the data
- Adding to the ONRC carriageway table, additional fields summarising whether carriageways are under/ over defined Levels of Service
- Developing a programme of validation, using suitable techniques
- With the assistance of asset/ area experts verify the conclusions of the gap analysis.
- Developing a methodology/ format to summarise and present results
- Financial implication on the LTP funding

Objective : Economic Growth				
	What we will measure	How we will measure	Current	Type of measure and How
Reliability	Predictability of travel time, and bus journeys.	Travel Time reliability is not currently measured across the classifications which exist on the South Waikato Network.	None	ONRC Outcome
				measure N/A
Resilience	Number of journeys impacted by unplanned events.	equal to length of the closure (days) as recorded on the spreadsheet for road closures x the average daily traffic volume (excluding Low Volume Tracks).	None	ONRC outcome measure reported in Quarterly Report
				Managed internal with input from Contractor
	Number of journeys impacted by unplanned events where there is no viable alternative route.	recorded on a spreadsheet currently not measured	None	ONRC outcome measure reported in Quarterly Report. Manage internal with input from Contractor
Accessibility	% of network not accessible to Class 1 heavy vehicles due to bridge capacity.	= the length of maintained road within each classification which cannot be accessed by any economically feasible route by a Class 1 vehicle.	Yes	ONRC outcome measure reported in Quarterly Report
	% of network not accessible to 50 max vehicles due to bridge capacity.	As above.	Yes	ONRC outcome measure reported in Quarterly Report
	Length of road where the condition of the carriageway will not facilitate year round access to all classes of vehicle.	The roads which are assessed by staff as not meeting this criteria for all vehicle types for the full year due to renewal or maintenance failures. This is a subjective measure.	None	ONRC outcome measure reported in Quarterly Report. Manage internal with input from Contractor
	Customer satisfaction with provisions made for cyclists, footpath facilities and car parks.	% of residents who are satisfied with provisions made for cyclists, footpath facilities and car parks as recorded in the annual resident opinion survey.	Yes	SWDC qaterly Customer Survey Report. Internal
	Average length of time to issue a consent for access to a road.	The average length of time to issue consent for access to a road as recorded on the spread-sheet for consent applications.	Yes	LTP- Planning timeframes. Internal
	% of footpaths which fall outside the required roughness level.	An annual audit of the footpath network identifies that at least 90% of the footpath network has a displacement of less than 20mm	Yes	LTP & DIA measure
	What we will measure	How we will measure	Current	Type of measure
Amenity	Sealed Road Smooth Travel Exposure (STE) Index (%).	Sealed Road Smooth Travel Exposure (STE) Index (%) from annual roughness measures and traffic counts.	Yes	LTP & DIA measure at network level ONRC outcome measure reported in Quarterly Report
	Sealed Road Average Roughness (NAASRA).	Sealed Road Average Roughness (NAASRA) from annual roughness measures.	Yes	ONRC outcome measure reported in Quarterly Report
	Customer satisfaction with unsealed roads.	% of residents who are satisfied with unsealed roads as recorded in the annual resident opinion survey.	None	N/A 4% of network unsealed
	Customer satisfaction with provisions made for cyclists, footpath facilities and car parks.	% of residents who are satisfied with provisions made for cyclists, footpath facilities and car parks as recorded in the annual resident opinion survey.	Yes	SWDC qaterly Customer Survey Report. Internal

Objective Road Safety				
	What we will measure	How we will measure	Current	Type of measure
Optimal Speeds	To be developed.	N/A	None	ONRC
Safety:	There are no fatalities or serious injury crashes on the local network that are directly contributable to road conditions	By recording the five year trend for crash statistics for the local road network recorded in the CAS database.	Yes	LTP & DIA measure at network level ONRC outcome measure reported in Quarterly Report
Objective : Value for Money				
	What we will measure	How we will measure	Current	Type of measure
Efficiency	Total Cost/km by classification for sealed road and unsealed roads maintenance and renewals benchmarked against other Councils.	This will be benchmarked against other Councils as per the RATA report	Yes	ONRC outcome measure reported in Quarterly Report
	Cost/vkt by classification for sealed road and unsealed roads maintenance and renewals benchmarked against other Councils.	This will be benchmarked against other Councils as the RATA report	Yes	ONRC outcome measure reported in Quarterly Report
	That Council will respond to 100% of all service requests within ten working days of notice	Number of public service request recorded in Council internal system.	Yes	LTP & DIA measure at network level
	8% by area of the District's sealed road network is resurfaced annually	Area of resurfacing as recorded in the RAMM Contractor database.	Yes	LTP & DIA measure at network level
	% of budgeted capital works programme completed annually.	% of budget spent, and % of programmed minor improvement, rehabilitation and resurfacing sites completed.		LTP

Other Service Level Gaps Identified by Council

Sealed Road Widths:

Several rural roads still have narrow (3.5 – 4.5m) seal widths which, while they do not allow passing opportunities for heavy vehicles, the likelihood of meeting oncoming vehicles would be rare. These roads are typically rural roads with very low traffic volumes and are short lengths with adequate sight distances. The focus now is to ensure that narrow through roads are sufficiently wide enough to accommodate travel in both directions, and programme widening on heavier trafficked roads. Although the goal was to address 2 – 3km of seal widening per annum, largely funded as Minor (safety) Improvements, “Associated Improvements”, or as non-subsidised works when financial assistance cannot be agreed with NZ Transport Agency, Council through the previous LTP process has made the decision to postpone this activity for the first three years of the LTP as a result of budget constraints and has resumed in the fourth year of the LTP. This will mean the projects that have been identified was deferred until such time the budget constraints were lifted.

Seal Extension:

Council plans to continue reducing the small length of unsealed roads until there are few serving any homes. While there is not a specific service level requirement for all district roads to be sealed, the benefits of seal extension are significant to individual rate payers.

The current goal is 400 - 450m every two year period, as funding allows starting in 2018/19. 100% council funded.

Service Response Times:

Response times were not measured or reported prior to 2008. Reporting has improved during the planning period now that there is a link between the Council NCS “service request” system, and the office of the principal road maintenance Contractors. The link is necessary to establish “real time” responses, and signing off requests when actions are completed. Currently council is reviewing all KPIs. A decision will be made to replace repair time frames with response times to ensure efficiencies; effectiveness and value for money were applicable.

Footpath Requiring Rehabilitation:

The “condition rating” of footpaths indicates a significant improvement between the surveys in 2014 and 2017. Council continue to maintain and renew footpaths that have been identified in the survey. A three year renewal programme is in place to address the capital improvement programme. The next footpath “condition rating” will be undertaken in 2020. Council has also undertaken alternative treatment addressing trip hazardous by grinding down raised joints on concrete footpaths thus getting value for money rather than have them replaced. This treatment is pro-active resulting in a large quantum of working being completed within a short period of time and cost effective. Council is also looking at a tree replacement programme to address footpaths that have on-going root damage.

Road Roughness Standard:

While in the past the annual surveys showed an average roughness of 97 NAASRA counts on the total network over the last three years the urban network has improved resulting in an average roughness of 92 NAASRA count on the network. The improvement is associated with targeting the rough urban streets and more attention to service cross repair standards. The target measures which are promoted for the planning period will provide a goal for the higher standards in the NZ Transport Agency maintenance guidelines.

3.7 Balancing Conflicting Needs

Through the functions of the District Council, conflicting demands are balanced with each other.

To safeguard the infrastructure and guarantee Council’s ability to build and maintain it, use of land is controlled by district plan designations and easements. The relationship between the cost of construction and the quality and availability of the infrastructure is controlled by bylaws, policies, standards and district plan. These include the potential use of roads as flood flow paths in extreme rainfall events.

The use of the Land Transport network by motorists is controlled by traffic and motor vehicle regulations which balance speed, safety, noise and pollution with the access needs of local residents. All of these controls have the effect of limiting or sharing access to, and responsibility for the Land Transport Network infrastructure. They therefore affect all members of the community for the benefit of the public in general.

3.8 Balancing Competing Needs

Road renewal and new work expenditure estimates are prioritised using detailed benefit-cost analysis. The following are examples of how the competing needs of users are balanced by this approach. All aspects are considered in the assessment of each proposed project.

Volume Capacity

Speed and delay issues for heavy commercial traffic and lighter, faster passenger vehicles are balanced by providing shoulder maintenance or local pavement widening.

Strength Capacity

The pavement strength required for heavy commercial traffic is a critical design factor especially with the introduction of heavier vehicle over the network in an attempt to reduce travel times. In providing it, authorities are subsidised by national funding taken from sources that include road user license charges and fuel tax. These collect more revenue from commercial users than from private car owners.

Safety and Cost

Proposed improvements which deliver safer road conditions are assessed for funding on a benefit-cost basis which is derived from the deficiency database. The cost of improvements is balanced against the projected reduction of personal and combined risk and in the cost of serious injury crashes and fatalities. It is not possible to value all aspects of road accidents, and while there will always be arguments about the intangible costs, at least a mechanism exists to make comparisons for tangible issues.

Operator Cost

Roughness measurements are taken into account in determining benefit of reconstruction and smoothing treatments. The algorithm links pavement shape to rolling resistance and traffic counts, so that funding is targeted to uneven, high-volume roads.

Time savings are also taken into account in determining benefit- cost- ratio (BCR) of widening, realignment or improving.

Use of Road Corridor

The Land Transport function of Council controls competing needs of other utilities such as telephone and data, power, water supply and drainage for use of ground in the road reserve.

Council has voluntarily implemented the National Code of Practice for Utilities Access to the Transport Corridors since the initial 'Implementation Version' was released in 2009. This code has been developed with the objects of developing a nationally consistent process, formalising current industry best practice and minimising Third Party Damage problems. It is developed within the context of the Utilities rights of the access to the Road Corridor and the Road Corridor Manager's rights to set reasonable conditions. All requests by Utility operators will be managed through the Road Opening Notice put in place by Council. The cost of these applications is included in the Council's Fees and Charges 2017-2018 and a discount was introduced to encourage utility providers to make the forward works programme available to Council which would be used for better planning and co-ordination of roading projects and utility installation.

Refer to www.nzuag.org.nz for background to this initiative.

3.9 Balance against Sustainability

Impact of Growth

Demand projections are covered in the following section. In summary, at present and for the foreseeable future, Council should not require many additional roads, intersection capacity improvements, parking, footpaths or associated infrastructure.

Having stated this, it is possible that the demand arising from a new large industrial customer, land conversion, or rapid growth in demand from an existing one, could require a review of the position.

Funding for renewal of old assets is provided by allowing in the cost of the service for the depreciation of these assets. Funding for new assets, where these service new homes or industries is provided for in part by having them built or contributed to by developers and vested in the Council.

The challenge will be obtaining adequate revenue, at a level that the community agrees is financially sustainable in the current economic and population climate, to provide the required capacity or service level improvements in advance of development demand or improved service level needs and timeframes.

Role of Private Assets

The role of private assets within the Land Transport network activity is significant within the District, principally in regard to forest roads that are either owned or predominantly used by Matua Plantations (Hancock Forest Management), and Carter Holt Harvey Properties Ltd. The Council has no direct responsibility for the private roads and Maori roadways in the District, but monitors their use where it can significantly affect adjoining local roads.

The Council maintains a liaison with the major forestry company, Hancock Forest Management (NZ) Ltd., on their programmes for clear felling and logging truck operations that impact on local roads. The company's preference for using their own internal roading network is to the benefit of ratepayers and road users in the District, but commercial pressures may change that position at any time. Forestry and quarry access roads require a higher level of maintenance generally but increased milk tanker size and increased milk flow has also required increased maintenance on farm access roads generally.

The forest roads fall into two broad categories:

- Private roads owned and maintained by Hancock Forest Management. These are generally accessed by permit through gates at the end of public roads.
- Public roads over which Hancock FM and their Contractors have assumed the right to operate non-regulation axle loads. The predecessors to Hancock (CHH Forests Ltd., and NZ Forest Products Ltd.) had an agreement with Matamata County Council to maintain 45.7 km of the rural road length and have the right to use off-highway loaded vehicles on those sections. The roads were considered "off highway crossings" and granted in terms of old road transport regulations. The maintenance of these roads is not eligible for NZ Transport Agency financial assistance

The sealed and unsealed roads maintained by Hancock FM amount to almost 3% of the length of the District's Land Transport assets. The Regulations covering "off highway" use of public roads has moved from the "Heavy Motor vehicle regulations 1974" to the "Land Transport Rule Vehicle Dimensions and Mass 2002" – ref section 5 of the Rule, and www.landtransport.govt.nz/factsheets/13.html for further information.

The standard of sections of private road that have been developed by Forestry Companies and others along "unformed public roads" raises a question of Council responsibility for safety and maintenance liabilities. Council would favour the sale of some of these roads to the occupier/s of adjoining land, or allowing them to be vested as "formed" public roads e.g. Sections of Puriri, Mossop, Redwoods, Jack Henry and Mamaku South Roads. To date there has been

approximately 46 km of road vested to Council. This include road formed during Forestry to Dairy conversions. A database of unformed roads has been developed in the GIS records.

Other classes of private assets related to the Land Transport activity are as follows:

Stock underpasses, which require a permit from Council and is subsidised by to a minimum value of \$5000, 00 and a maximum of \$25,000. The subsidy is based on traffic volume. The presence of an underpass is recorded as an encumbrance on the title of the adjacent land. Although maintenance (and renewal) of the stock underpass is the responsibility of the land owner Council will initiate an inspection of the stock underpasses as part of the bi-annual bridge inspection. Refer Council "Stock Crossing" policy (to be reviewed).

Encroachment fences (private fences built on road reserve with Council's permission to extend grazing areas). These are subject to conditions both on the material of the fence, and on maintaining the enclosed land to prescribed standards. Refer council "Roadside Fencing" policy.

There are a few instances of pipelines running under the road, typically for industrial and farming use. These are subject to easement requirements under Sec 338, Local Government Act 1974.

Trees growing on private land that encroach on road reserve are usually treated in accordance with normal property rights.

Vehicle crossings are required to be formed to each allotment having road frontage in accordance with Sec 18.4.2.3 SWDC Operative District Plan. See also the requirements in Sec 321, Local Government act 1974. The construction and on-going maintenance remain the responsibility of the land owner(s) gaining access over the formed crossing point. Rural entrance culverts constructed to Council standards (Figure 17 or Figure 18 Drawing 1882) are vested on completion and become part of the roading asset. A rural/urban vehicle crossing standard and guidelines implemented by Council sets out the guidance to all vehicle crossings in the District.

Gates across public roads can be permitted under Sec 344, Local Government Act 1974. In general terms they cannot be locked, and the public have a right "to pass and re-pass" under Common Law. The gates on Leslie (and Cecil) Roads are particular examples and while these roads are not maintained by council public have been aware that the drive at the owner risk on these roads

Fences: The provisions of the Fencing Act 1978 do not apply to boundary fencing on "roads", national parks, railway land; "marginal", and "esplanade" strips. See also Sec 289 Local Government Act 1974. Special care should be taken to ascertain liability on "walkways" which can be "Pedestrian Access ways", part of the adjacent street, or an access strip to school, reserve, or other parcel of land.

4 PLANNING FOR FUTURE NEEDS

4.1 NZ Transport Strategy: Principles

Sustainability and Resilience

To ensure that transport is underpinned by the principles of sustainability and integration, transport policy will need to focus on improving the transport system in ways that enhance economic, social and environmental well-being, and that promote resilience and flexibility. It will also need to take account of the needs of future generations, and be guided by medium- and long-term costs and benefits.

Integration

Transport policy will help create an efficient and integrated mix of transport modes. To facilitate integration, co-operation and collaboration between stakeholders will need to be encouraged. Transport policy will also need to ensure the efficient use of existing and new public investment.

Safety

To ensure that transport is underpinned by the principles of safety and responsiveness, policy will need to ensure high standards of health, safety and personal security for all people, including users, workers, and operators. It will also need to ensure there is a robust health and safety framework, complemented by an emphasis on individual and business responsibility.

Relationship/Responsiveness

The diverse needs of urban and rural communities need to be recognised. Those who use transport, and those who are affected by it, will need to be encouraged to participate in transport policy development. Transport policy will need to foster the government's goals for partnership between the Crown and Māori; between central government and local government; and between government and citizens and communities, including business.

4.2 Government policy Statement:

The Government Policy Statement on land transport outlines the Government's strategy to guide land transport investment over the next 10 years. It also provides guidance to decision-makers about where the Government will focus resources. The Land Transport Management Act 2003, sets out the scope, and requirements for the GPS.

The policy influences decisions on how money from the National Land Transport Fund (the Fund) will be invested across activity classes, such as State highways and public transport. It also guides the NZ Transport Agency and local government on the type of activities that should be included in Regional Land Transport Plans and the National Land Transport Programme.

The GPS three priorities 2012/13 – 2021/22 are:

- “Economic growth and productivity”- This GPS continues and reinforce the focus on increasing economic growth and productivity as the primary objective for land transport expenditure. The expectation is that land transport funding will be directed into high- quality projects and activities that will support improved productivity and economic growth.
- “Value for money”- To gain the most from our land transport investment, GPS 2018 requires a sharpened and broadened focus on value for money. In doing so it raises expectations beyond those set by GPS 2015 which tend to focus on value for money at the level of prioritising projects and activities for funding. In contrast GPS 2018 will also require demonstrable value for money across all aspects of the development, delivery and management of the National Land Transport Programme.
- “Improving road safety”- The Safer Journeys strategy sets out a changed approach to lowering the level of death and serious injury on our roads. This approach, the Safe System, require effort to be focused across all elements of the road system(roads, speed, vehicles and road use) and recognises that everybody has a responsibility for road safety.

4.3 Summary of Current Service

Road Safety – Engineering, Education, Enforcement

Engineering

The engineering aspects of road safety are concerned with the safe design construction and maintenance of roads to provide an appropriate level of protection for the road user. This aspect is fully covered in section five of the AMP.

Education

The Council has an annual Road Safety Programme based on high and medium concerns that is funded (55%) through the NZ Transport Agency. Under this programme the Council employs a part-time Road Safety Coordinator to prepare and implement an approved set of educational projects that target high risk areas in the South Waikato. Most of the serious crashes in the District occur on the State Highways and projects are developed in partnership with the NZ Transport Agency, NZ Police (BOP District), Waikato Regional Council, Accident Compensation Corporation, and Taupo District Council. The NZ Transport Agency maintains and makes available statistics on vehicle crashes and research information.

The annual Road Safety Action Plan is based on issues highlighted through the Safer Journeys road safety strategy for 2010-2020, regional issues as outlined in the Waikato Regional Road safety Strategy 2017-2021 as well as local issues highlighted by data sources such as CAS, New Zealand Police, ACC and locally obtained data.

Projects and campaigns are developed in partnership with the New Zealand Transport Agency, New Zealand Police, Waikato Regional Council and where applicable Taupo District Council.

Head-on and intersections crashes are identified as a local issue. The figures below shows the number of fatal and serious injury crashes in the district over a five year period. These figures include State Highways within the South Waikato District. Both fatalities and serious crasher have over years trended down with all of the fatal crashes occurring on State Highways during the last two years.

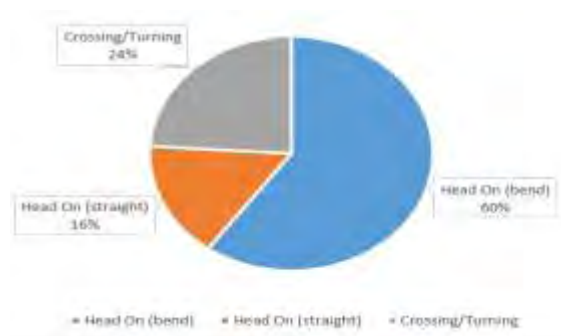


Figure 15 Fatal and Serious Crash Movement 2011-2016

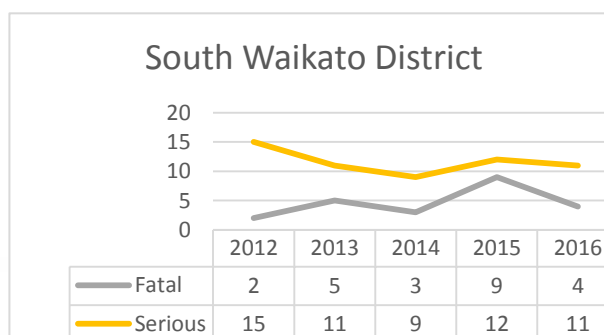


Figure 16 Fatal and Serious Injury Crashes

Table 11: Community Programme Forecast 2017-2018

Safer Journeys Area	NZTA Funding	Council Funding	Total Cost
Younger Drivers	8,400	6,600	15,000
Alcohol & Drugs	6,888	5,412	12,300
Speed	10,296	8,089	18,385
Distraction	5,208	4,092	9,300
Fatigue	4,480	3,520	8,000
Vehicles	3,360	2,640	6,000
Roads & Roadsides	5,320	4,180	9,500

Other	5,320	4,180	9,500
Total	48,992	38,493	87,485

Similar programmes will be developed with the community and road safety partners for the foreseeable future with a similar commitment of physical and financial resources.

The 2017-18 Road Safety Action Plan together with engineering will focus on the following key issues for the district. These are aligned with the Road Safety Strategy 2010.

Younger Drivers

Increasing the safety of younger drivers is an area of high concern in the safer journeys road safety strategy 2010-2020. Younger drivers are of medium concern in the communities at risk register 2017.

In the South Waikato District there were 23 fatal and 52 serious crashes involving drivers aged between 16-24 years of age. (2011-2016 CAS data). Learner and restricted drivers made up 31% of drivers at fault in fatal or serious crashes (2011-2016 CAS data).

Young drivers account for around 30% of regional death and serious injury crashes. (Waikato Regional Road Safety Strategy 2017-2021)

Alcohol & Drugs

Alcohol and drugs has being identified as a high priority in the safer journeys road safety strategy 2010-2020.

In the South Waikato District there were 9 fatalities and 19 serious injury crashes directly attributed to alcohol. (5 year CAS data). Alcohol was a factor in 22% of injury crashes in the South Waikato District. (2011-2016 CAS data).

Nationally for every 100 alcohol or drug-impaired drivers or riders who died in road crashes, 47 of their passengers and 24 sober road users died with them.

Over the years 2013–2015, alcohol/drugs were a factor in 29 percent of fatal crashes, 19 percent of serious injury crashes. (Alcohol and Drugs crash facts 2016 Ministry of Transport)

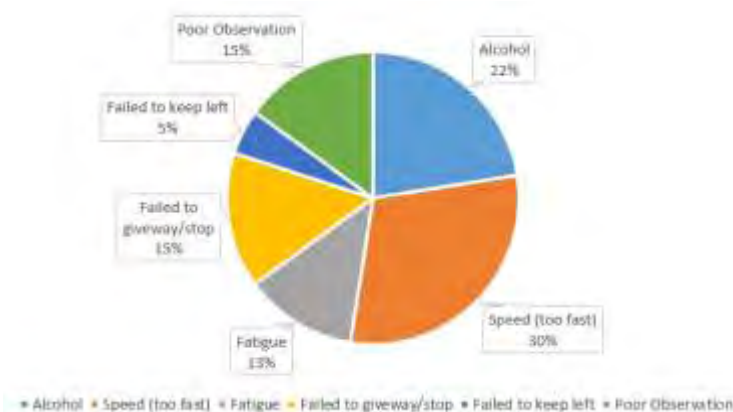
Speed (incl. drive to the conditions)

Speed has identified as a high priority in the safer journeys road safety strategy 2010-2020.

In the South Waikato District there were 12 fatalities and 24 serious injury crashes where speed (too fast for the conditions) was the primary factor. (2011-2016 CAS data). Speed (too fast for the conditions) was a factor in 30% of fatal and serious injury crashes in the South Waikato District. (2011-2016 CAS data)

Speed or driving too fast for the conditions, continues to be a significant contributor to fatal and serious crashes in the Waikato region and shows an increasing five year trend, accounting for 24 percent of high severity crashes. (Waikato region road safety analysis Opus, September 2016).

Council plans together with education review speeds within the South Waikato through the speed management programme. Funding will be sought to undertaken an assessment of the high risk roads where speed was a factor.



Distraction

Distraction (attention diverted) has being identified as a high concern for the South Waikato District in the 2017 Communities at risk register.

Observations carried out in the South Waikato District as part of intersection monitoring and data collection showed that 40% of drivers were distracted (Phone, Smoking, Eating, Other) while travelling through or using intersections/Roundabouts. (10 observations carried out over 2 year period)

The South Waikato District has 3.25 times the national average of distraction crashes resulting in fatal or serious injuries per head of population. (Road Safety Action Planning Tool NZTA)

Fatigue

Fatigue has been identified as a high concern for the South Waikato District in the 2017 Communities at risk register.

Fatigue is an area of medium concern in the safer journeys road safety strategy 2010-2020.

In the South Waikato District there were 5 fatal and 15 serious injury crashes where fatigue was a factor in the crash. (2011-2016 CAS data). Fatigue was a factor in 17% of injury crashes in the South Waikato District. (2011-2016 CAS data)

The South Waikato District has 3.7 times the national average of fatigue crashes resulting in fatal or serious injuries by head of population. (Road Safety Action Planning Tool NZTA)

Vehicles

Improving the safety of the light vehicle fleet is an area of medium concern in the safer journeys road safety strategy 2010-2020.

Vehicle were a factor in 7% of injury crashes in the South Waikato District. (2011-2016 CAS data)

The New Zealand vehicle fleet is one of the oldest fleets in the developing world with the average age of a light fleet vehicle over 14 years. (2015 New Zealand Fleet statistics MOT) The Waikato region fleet age mirrors that of the national fleet.

Stakeholders (South Waikato District) will continue to ensure that appropriate safety checks are in place for operators for operators of vehicles with the highest crash risk in the region and will work with operators on their safety programmes. (Waikato Regional Road Safety Strategy 2017-2021)

Roads and Roadsides

Safe roads and roadsides is an area of high concern in the safer journeys road safety strategy 2010-2020.

In the South Waikato District there were 8 fatal and 15 serious crashes where the road and/or roadside was a factor. (2011-2016 CAS data). Loss of control on bends and/or straight roads were factors in 65% of crashes. (2011-2016 CAS data). Midblock crashes were 83% of fatal or serious crashes in the South Waikato District. (2011-2016 CAS data)

The minor safety improvement programme will be used to address this low cost high benefit outcomes.

Other

Older road users (75yrs and above) are a high concern for the South Waikato District in the 2017 Communities at risk register.

In the South Waikato District there were 5 fatal and 10 serious crashes where the driver was 75 years or older. (2011-2016 CAS data). In the South Waikato District Drivers over 70 years of age were at fault or part fault in 8% of crashes. (2011-2016 CAS data).

New Zealand has an aging population which will result over time in an increasing incidence of disability and impairment. Local authorities need to be planning now for future changes in our population structure and the impacts of this on transport use. (Waikato Regional Road Safety Strategy 2017-2021)

The South Waikato District has an aging population and a low level of public transport.

Urban intersections

In the South Waikato District there were 2 fatal and 5 serious crashes at urban intersections. (2011-2016 CAS data). Urban intersection crashes were the location for 60% of fatal and serious crashes involving intersections in the South Waikato District. (2011-2016 CAS data)

Public surveys and questionnaires show a poor level of understanding of intersection and round a bout rules.

The average rate of full understanding of rules from questionnaires carried out over the years 2015-2016 has been 58% with the last two surveys being only 48%.

Enforcement

The only regular aspect of enforcement relating to roading conducted by council is enforcement of the parking bylaw (Parking and Traffic Bylaw 2008) in designated urban areas.

The New Zealand Police deliver the bulk of road safety enforcement with dedicated and targeted highway patrol vehicles. The South Waikato District Council in conjunction with the Taupo District Council consults with the New Zealand Police on police involvement with community programmes through the use of Road Safety Action Plan meetings.

Alternative Modes of Transport

Public Transport

Previously Other than school bus services, the only local publicly accessible transport service operating in the district is the Mangakino/Tokoroa bus service, taxis, hospital/airport links, and inter regional bus lines. The local taxi company operates a Total Mobility Service in Tokoroa for transport disadvantaged; particularly for wheelchair-bound people. The service is funded through Environment Waikato's Passenger Transport Programme, which receives 40% funding assistance from Waikato Regional Council and Council meets the balance 60%. This funding pays for half of the fare and the passenger pays the other half. A taxi company is contracted to provide a hoist that lifts the wheelchair and occupant into the van.

Demand is increasing due to the district's aging population and higher expectations of freedom of movement. South Waikato District Council have recognised that residents in Tokoroa and the District in general have significant challenges in accessing transportation and therefore reaching essential services.

Council allocated \$200,000 of funding, out of the Economic and Community Development Fund, to identify the public transport services currently provided and to look at the unmet public transport needs of the people of the South Waikato in 2014-15. From this work it is planned to run a trial of a public transport service in the South Waikato.

A Public Transport Community Steering Group was established to work on these issues and consulted widely with the community. Currently the following service is in place with on-going growth:

- a public transport service around Tokoroa (three circuits / five days per week) with two return trips between Tokoroa, Putāruru and Tirau
- an information service which will provide information on all available public/community transport services available to people in the South Waikato. This will include information on the public transport trial identified above, various community services offering transport services, transport services offered by various public health providers and so on.

Waikato Regional Council continues to support and funded the 'Urban Connector' public transport service. Comparison of the usage from July to November 2015 for the same period in 2016 has shown a growth of 329% in the district service and 29% in the Tokoroa service.

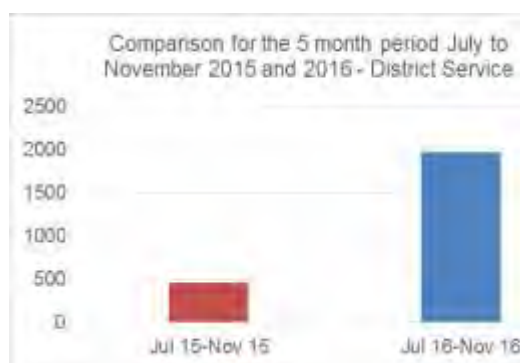


Figure 17 Usage of the District Service



Figure 21 Usage of the Tokoroa Service

Table 12: Total Mobility Expenditure Forecast

Expenditure Forecast	2014-15	2016-17	2017-18
Public Transport	\$95,000	\$125,613	\$89,808
Total Mobility	\$26,000	\$26,000	\$26,000

Walking and Cycling:

Council adopted a “Walking and Cycling Strategy” in 2004 (to be reviewed), and confirmed 23rd February, 2006. The vision is “To provide a variety of safe convenient, and attractive walkways and cycle ways in urban and rural areas that (helps create a healthy environment and) makes the South Waikato a desirable place to live and visit”. The “Walking and Cycling Strategy” will be revisited in the near future to include the “Waikato River Trail” and the outcome of the Regional Walking and Cycling Strategy 2009-2015.

Rail

A potentially effective alternative to road transport in the district is the railway. The Kinleith Branch railway is a highly productive spur line conveying timber and agricultural products from Kinleith to other places particularly Port of Tauranga. There are large volumes tonnes of raw logs sent from Kinleith to the port annually. A further 250,000 tonnes of pulp together with some chemicals, e.g. chlorine, were transported by rail. Back loading of chemicals and other timber industry freight results in a total timber industry tonnage of approx. 1,420,000 tonnes per annum by rail.

In addition 21,000 tonnes of cheese from the Lichfield Dairy Factory leaves by rail and this, together with other assorted dairy materials and fertilizer, totals 100,000 tonnes per annum, i.e. a grand total of some 1,520,000 tonnes of freight per annum by rail. This equates to 44,800 B-Train road transport equivalents or 190 truck and trailer units per working day throughout the year.

Had this been transported by heavy vehicles the effect on roads, particularly state highways, in the district would be significant. Full utilisation of the railway corridor needs to be encouraged, not only to protect the highways from greater wear and tear, but also to maintain a healthy competition between the competing modes of transport.

There are railway sidings in Tirau, Putāruru and Tokoroa that currently have little use but the potential for development remains.

In 2015 Council developed a road/rail freight terminal in Tokoroa through a partnership between RJ Lincoln Logistics (RJL) and Kiwi Rail. The objective was to allow direct container loading and unloading off rail to generate employment, transport and storage business opportunities, encourage new business, and provide an efficient freight solution that reduces the cost of doing business.

There has been extremely strong support for existing and new business development resulting from the development of the Road/Rail Terminal. Over the next three years, container handling is forecast to increase from 2600 to 4750 TEUs (standard container size for a ship); the move to a road/rail solution is expected to reduce road transport kilometres by 850,000 km; and Kiwi Rail estimates an increase in their revenue of \$1million. The project is forecast to create well in excess of 30 new jobs for the district. The improved transport connection to the Port of Tauranga, along with the changing economic makeup of the district, is also expected to be the driver for new industry (such as for dairy processing) to consider Tokoroa as a viable location.

It has provided a much needed new opportunity for economic growth in one of the district's key areas of opportunity - the development of a logistics hub for dairy, forestry and engineering. This has capitalised on the district's strategic advantages of central location for farming and forestry, access to State Highway 1 and rail, low cost and available industrial land, proximity to ports, a thriving and innovative engineering sector and a willing and business-friendly Council.

Air

While Council operates an airfield near Tokoroa it has very limited use for commercial conveyance of goods or people. It is occasionally used for top-dressing. Based on its primary function as a facility for various community organisations, policies and processes are discussed in the Community Facilities and Property Asset Management Plan.

Roading Standards

The roading standards that have been adopted are widely accepted national standards and are supported by NZ Transport Agency as acceptable for financial assistance towards works that conform to those standards.

Urban geometric standards are set out in Councils Code of Practice for Subdivision and Development. This Code sets out standards for all aspects of subdivision and Part Three gives guidelines for the design of streets. Table 1 from the Code gives the hierarchy of streets, categorised initially as Primary



and Secondary Streets, and further subdivided to the primary/collector/access and low volume t with further division for industrial/residential development. The recommended carriageway widths are based on the number of dwelling units served (du) for residential streets, and traffic volume for collectors and arterials. The standard shows a recommended pavement structure which can be adapted to the local ground conditions which prevail in the District. The Code of Practice for Subdivision and Development (September 2009) has been reviewed and is operative. A new Regional Technical Specification is currently being adopted to replace individual codes within the Waikato. The code with provide more consistence for the regional.

There are many streets in our urban areas which are wider than the accepted standard. NZ Transport Agency accepts the existing situation but will question "over width" construction of new streets and may not accept full maintenance costs for subsidy purposes. The standards do not preclude innovative design in urban streets, the basic criteria for acceptability being that the maintenance of the trafficable surface is no more costly than a conventional sealed carriageway.

Geometric standards for rural roads are set out in the AUSTRoads publication "Guide to Geometric Design of Rural Roads". This document provides general guidelines for design speed, curvature and sight distance, road reserve width, geometric standards, super elevation of curves, pavement design, surface treatment, traffic services etc.

Roads are grouped according to the volumes of traffic using them, and the volume of heavy traffic on our collector and local roads often dictate their design standards. Designs are based on Annual Average Daily Traffic so that short-term high usage does not dictate the adopted standard. For instance, the no exit end of a local forestry access road would not be given a design seal width of 6.0 m on the basis of the traffic generated by clear felling of the forestry area behind it once in every 25 - 30 years. The pavement structure would however be constructed to withstand very heavy loading over the short period without premature failure. Council has adopted a set of Standard Cross-sections in Drawing No SWDC 517 (refer Appendix B).

Construction standards also depend on road gradient. In the South Waikato the gradients are generally level to rolling with very few roads in what could be termed mountainous topography.

The standards used for roading structural design purposes include:

AUSTRoads Standards:

- Rural road design; "Guide to Geometric Design of Rural Roads" AP-1/89
- Pavement design; "A Guide to Structural Design of Road Pavements" and the New Zealand supplement to the Guide (May 2000)
- NZ Transport Agency (previously LTNZ or Transit NZ) Manuals:
- "Manual of Traffic Signs and Markings" MOTSAM 2007/08
- "Bituminous Sealing Manual" 1993
- "Bridge Manual" SP/M/022 2003

ARRB; "Sealed Local Roads Manual" Reference manuals used as required include:

- NZ Transport Agency (previously LTNZ) publications;
- "Road Safety Surveys – RSS Series"
- "Road and Traffic Guidelines – RTS Series"

AUSTRoads Standards:

- "Guide to Traffic Engineering Practice, Parts 1 to 14"
- Land development desk top user manuals
- "Quickpave" SWDC user manual
- Appropriate parts of NZS 4404
- Appropriate parts of SWDC Operative District Plan and associated Code of Practice.
- The standard for street lighting is AS/NZS 1158.1 Part 2: Pedestrian area lighting as revised in DR 98380

Culvert Design Standards

The standards for culvert design was set out in a report by A Shaw dated 13 September 2002 and were adopted as Council policy from 1st January, 2003.

In designing the stormwater system, the primary and secondary flow path shall be considered to ensure that a flood protection system is designed which provides a minimum standard of protection according to the following criteria:

- I. 1 Year Return Period Flood - for design of culverts under local roads

- II. 2 Year Return Period Flood - for design of culverts and drains abutting collector and no exit local roads
- III. 5 Year Return Period Flood - The minimum standard for any principal piped and open channel stormwater system in urban residential areas and rural arterial roads that affects vehicle access
- IV. 10 Year Return Period Flood - For design of stormwater systems to protect important recreational fields, and roads without alternative access
- V. 50 Year Return Period Flood - For design of stormwater systems to protect residential property, commercial and industrial buildings
- VI. 100 Year Return Period Flood - For design of stormwater systems to protect major communal facilities related to supply of electricity, telephone, water and sewage disposal

The rainfall intensities to be used for calculating urban runoff shall be taken from the following Table.

Table 13: Duration/Intensity of Rainfall

Duration of Storm (minutes)	Intensity (mm/hr.)				
	2 yr.	5 yr.	10 yr.	50 yr.	100 yr.
10	72	96	114	156	174
20	51	69	84	114	126
30	42	58	70	96	106
40	35	47	58	79	89
50	30	41	50	68	77
60	27	36	44	60	68

Stormwater Connection Capacities (Commercial/ Industrial)

Each stormwater connection shall be capable of serving the whole of the building area of the lot, except where this requirement seems unreasonable and can be shown that the proposed connection is adequate for a pre-determined building location and floor plan.

4.4 Ensuring there is Sufficient Service

Current Demand

There are few capacity issues relating to volume or strength, road safety, roughness, parking or pedestrian traffic at this time. Demand analysis is based on current projections of population and traffic volumes. The only significant issue is lack of carriageway width on some rural roads for increasing HPMV and MAX50 vehicles, car parking capacity for the growing eco-tourism and road safety as public expectations rise.



Traffic Growth

The number of traffic movements on roads is a measure of their use, and trends in traffic volumes are indicators of growth.

In 2000 a system of traffic growth measurement was put in place by selecting six sites (4 rural, 2 urban) for regular annual traffic counting. The results of ten years' counts are shown below. This equates to an increase of traffic on local roads (and streets) of 6% over ten year period, or just over 1% per annum. The spike in 2009 is directly related to the re-alignment of SH1 North of Tirau resulting in traffic using local roads to bypass this section of works during the 18 months of construction. While the urban permanent sites show a decline in the traffic the rural traffic counts continue to increase over the years. The percentage of heavy vehicles has increased as a result of the introduction of the High performance Motor Vehicles and 50MAX. These movements are associated with movement of timber, chicken feed, metal etc. Council will need to revisit the standards of the heavy vehicle routes during pavement rehabilitation projects. Refer Appendix B for heavy traffic routes (HPMV) and Appendix E the source data

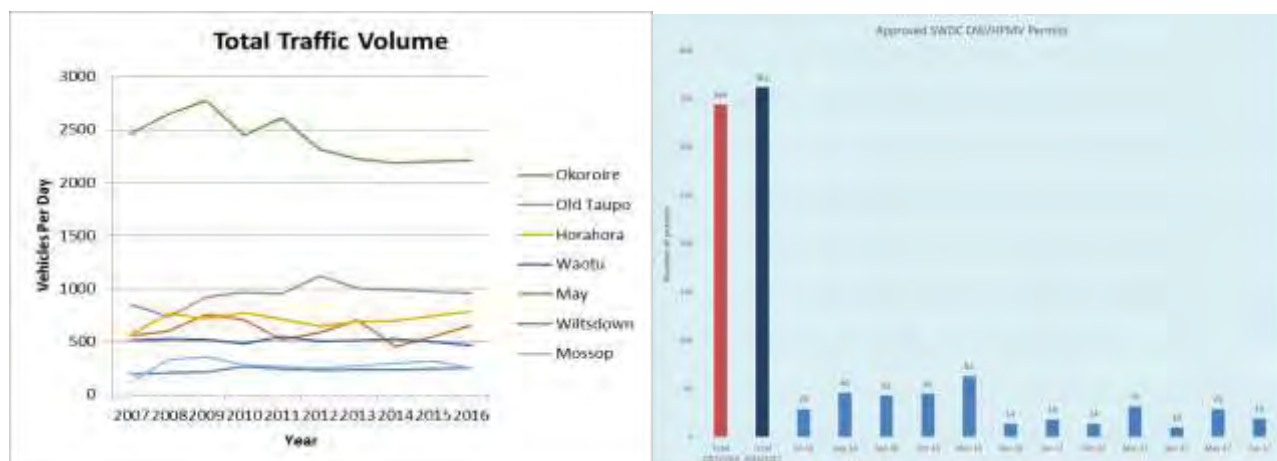


Figure 18 Local Roads Traffic Growth at Permanent Sites

19 Approved HPMV/OW Permits SWDC

Projecting Future Demand

An analysis of the traffic growth on State Highways in the District (Tokoroa) from NZ Transport Agency's indicates a traffic growth of approximately 8% annually.

Traffic growth projection assumptions are:

- Increased heavy vehicles from land conversion from timber to dairy
- Expansion of the Fonterra Lichfield Plant
- Increased vehicles per head of population
- Vehicle prices including second-hand imports more available

Fuel prices will fluctuate depending on:

- NZ\$ strength against the \$US oil currencies
- demand by the emerging industrial powers
- perceived risk in the world economies
- output of oil by OPEC nations

A small increase in local residential traffic and the roading network arising out of the dairy conversions and vested assets,

Heavy vehicle counts are typically 14% on the local State Highway network, and 27% on local roads. Any increases due to dairy conversions might be offset by a reduction in sawn timber transport in the short term

Major roading rehabilitation projects are generally designed for life expectancies of 25 years or more. It is important therefore to take into account in the design any effects during the design life of a pavement the demand drivers identified above.

Cycle Traffic

Council has two cycle ways in the district, both in the Tokoroa area. One is from Baird to James Higgins Park and the other is alongside Kinleith.

This is an area of expected growth and demand within the total district for safe and accessible cycling facilities. Council is currently undertaking a study to assess the demand on cycle within the District starting with primary and intermediate school in Tokoroa. The object of the survey is to see what the usage is with an I plan to identify common routes and accommodate any improvements or upgrades with scheduled roading projects.

Per-Head Demand Trends

Per-head demand trend has been upward, and is likely to be driven by the following factors:

- The number of vehicles per household has increased in the last several years. This is thought to be due to the second-hand imported car market, which makes vehicles more affordable. (It also decreases the average age of the NZ vehicle fleet, which improves vehicle safety, economy and emissions)

- There may be a tendency for more parents to drive children to school due to perceived changes in road safety and safety of children (a key driver in large cities which may be spreading to provincial towns)
- The community appears to be engaged in additional activities and generally becoming more mobile
- The improving desirability of the South Waikato as a place to live.

Non-Resident Population Trends

The current vehicle counts do not differentiate between residents and visitors. This is an area for further work, identified in the improvement plan. Measurements of this component will also be useful to monitor goals such as increased tourism in the district. Assumptions can be made using traffic counts on highways in and around urban areas to estimate local versus interregional traffic streams.

Economic Activity Trends

Land Transport network demand drivers are not limited to population and visitors. Commercial and industrial use has the potential to impose high and/or seasonal demands on the system.

Demand drivers include:

- Changes in land use from forestry to dairy
- Increased input and output from dairy, meat and timber processors (as forest currently maturing becomes available for use)
- The effect of future 4-laning of SH1 from Auckland to Tirau
- The proposed heavy vehicle bypass of Taupo
- Economic development in the District and Region
- Change in use of rail transport
- Possible increases in water use by the bottling industry.

Technology Trends

The following section identifies changes which may affect level of service or provide solutions for maintaining and improving it.

Trends Affecting Demand and Capacity

There is potential for a gradual return to smaller and more economical private transport vehicles due to increased cost of fuel. However, these changes affect new vehicle numbers. Given the relatively low incomes of the district's population, it will be several years before smaller more fuel efficient cars have an impact here. Further, the effect of such changes on traffic volumes is negligible, since it is a weak driver of change in vehicle numbers and movements.

Trends Affecting Construction

Materials used in Land Transport Network infrastructure are not anticipated to change significantly in the plan period. In particular, bitumen is a by-product of crude oil distillation, which means that although the price of crude oil may increase, demand for petrol, diesel and lubricants will ensure that bitumen is available and economical. The quarry resource in the district is equal to the future demand. Therefore there are no significant foreseeable drivers for changes in technology.

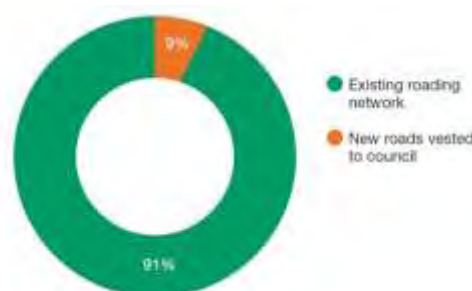
Trends Affecting Management

Performance and management of road assets is advanced in New Zealand. Since the traffic volumes are relatively low in the district, it is envisaged that the current day to day management will stay the same. Medium to long term projections will improve with the use of the dTIM's modelling exercises.

Changes in Network Length

The past growth in dairy farming arising out of forestry conversion had an effect on the roading network, with an increase in formed roads vested to Council: 46km over the last 6 years.

This is equivalent to an average 15km or 3.5% per annum of the current sealed network (less assumed forestry maintained roads) of 419km. This increase has had an impact on maintenance/ operations, and renewals over the planning period. Although provision for this anticipated growth was made in the financial forecast one year following each anticipated increase i.e. an allowance has been made



for the roads vested to be presented in the first year with no liabilities or backlogs of maintenance or renewal needs. The amended budgets for the first three years in the LTP have now removed these allowances.

One Network Road Classification (ONRC)

The One Network Road Classification (ONRC) involves categorising roads based on the functions they perform as part of an integrated national network. The classification will help Council and the Transport Agency to plan, invest in, maintain and operate the road network in a more strategic, consistent and affordable way throughout the country

The ONRC project has three elements. The first is classifying roads into categories based on their function in the national network. This was completed in December 2013 following extensive engagement with road controlling authorities and other stakeholders. Moderation of Council's classified network was undertaken in 2015.

The second element is the Customer Levels of Service (CLoS), which define what the fit for purpose outcomes are for each category in terms of mobility (travel time reliability, resilience of the route), safety, amenity (travel quality and aesthetics) and accessibility (land access and road network connectivity).

The third element is the development of the performance measures and targets, which will effectively determine how the categories and customer levels of service translate into specific maintenance, operational and investment decisions.

Because the ONRC will be used to develop the next National Land Transport Programme 2015-18, it will be important for council to use the One Network Road Classification in their own investment decision making and asset management planning.

The Transport Agency has outlined its expectations, and for the 2018-21 NLTP, council has to apply the ONRC to their network, identify differences in CLoS, agree appropriate Performance Measures and understand the financial implications of the ONRC.

To date Council has:

- Re-classified the network in line with the ONRC
- Applied the performance measures, bot through desktop assessment and assessment and through visual inspection of a representative sample of the network
- Established the gap in CLoS by identifying the current performance of the network against the performance measures and targets
- Established what customers are currently receiving
- And in the process of Identifying if Council is under or over delivering

Council has developed a transition plan (March 2015) and updated in March 2017 to close the gap in CLoS taking into account affordability and value for money.

Table 14: South Waikato DC ONRC Performance - July 2016

Road Type	ONRC Class	Number of TL Sections	Length (cl.km)	PM1 - Peak Roughness		OM1 - STE	OM2 - Road Smoothness		Pavement Strength	
				ONRC Target	SWDC % Worse 2016	SWDC STE	ONRC Target	SWDC Avg NAASRA	Avg SNP	Avg Deflection
Rural	Arterial									
Rural	Primary Collector	40	20.01	120	1.0%	100.0%	100	76	2.88	1.17
Rural	Secondary Collector	230	142.14	130	2.3%	99.5%	110	77	2.29	2.02
Rural	Access	205	162.85	150	1.6%	99.1%	120	85	1.78	2.88
Rural	Low Volume	90	58.10	180	3.1%	95.7%	140	105	1.61	3.20
Urban	Arterial									
Urban	Primary Collector	66	15.07	140	5.6%	95.7%	110	109	2.05	2.25
Urban	Secondary Collector	109	28.69	140	11.3%	98.1%	110	109	2.02	2.18
Urban	Access	112	28.83	150	4.9%	96.0%	120	112	2.11	2.44
Urban	Low Volume	323	42.21	170	1.6%	97.8%	140	111	1.84	2.65
Total Network		1,175	497.89							

Demand Management Plan

SWDC does not have a Land Transport demand management plan at present but will review the need for this plan at a later date. Sections 4 and 5 have outlined several of the factors that would be investigated in such a plan, to gain an understanding of the components of existing and future demand. Table 16 in illustrates the demand management framework.

4.5 Future Service Level Requirements

Resident Population Demand for Changes

The Council desires to respond to annual resident surveys, providing levels of service for roads in the District that meet the expectations of 83% of road users or better. Levels of service is under review following the completion of the One Network Road Classification and will include feedback received from public consultation. Areas where higher levels of service could be achieved are:

- Improved footpaths and footpath maintenance response
- Optimised quality control in all aspects of road maintenance and construction
- Effective “partnership/ collaboration” with maintenance Contractors and outcomes based contracts
- Continue sealing of unsealed roads
- Continue to address under width roads
- Use of the Centre of Excellence for better Assets Management (RATA)

In general, urban street widths are currently adequate for their purpose. Some streets exceed current design standards and could be considered for narrowing when the kerb and channel reaches the end of its design life.

Recent examples of this activity, in Tokoroa, are sections of Manaia, Arthur and Stanley Streets.

Some of the main streets in Tokoroa’s CBD area would benefit from extra width for the traffic they now carry, but there is limited ability to change this.

Deficiencies in rural roads seal widths are being addressed with a continuing improvement programme. There is a lack of seal width on older road sections that have not been rehabilitated since the 1950 - 60’s. This is generally accompanied by a lack of formation width also. Under width roads are a safety issue and the rural road trend for larger heavy vehicles, such as milk tankers, has required an on-going programme of seal widening. Council as a result of the LTP process has opted to remove the seal widening programme for the first three years of the LTP and resume in the fourth year due to financial constraints.

Table 15: Rural Road Seal Width Deficiencies

Rural sealed carriageway widths						
ADT	Carriageway Width					
	<=3.7m	3.8 - 5.4m	5.5 - 5.9m	6.0 - 6.4m	6.5 - 7.2m	>=7.3m
0 - 29	8.47	4.44	1.7	6.55	0.77	0.80
30 - 99	5.56	26.21	26.54	30.49	4.95	15.07
100 - 249	0.1	3.08	22	70.68	40.52	0.99
250 - 499			0.08	26.5	24.95	6
>500				11.72	19.66	24.1
Total length	14.13	33.73	50.32	145.94	90.85	46.96
Length Underwidth	5.56	3.08	22.08	38.22	19.66	0

Externally Mandated Changes

Changes in Legislation

The LTMA and its Amendment Act place a much greater emphasis on compliance with the Regional and National Land Transport Strategies. The following statement is an extract from the Environment Waikato Regional Transportation Plan:

“Role of modes” in the South Waikato, Taupo and Rotorua sub-region:

Road Transport is expected to remain the most significant mode for some time to come with the key function being the movement of people and freight within the sub-region.

Rail: The potential for increased use of the rail network is being investigated. However, there is a desire to protect and maintain all existing corridors and make improvements required to increase the role of this mode, particularly for freight (forestry products).

Passenger Transport: Passenger Transport services continue to be supported locally. Within the Taupo area, as the growth strategy is implemented and growth cells develop, the provision of passenger transport services will become more viable. Within other parts of the sub-region, the focus will be on improving accessibility for smaller rural centres, and providing for the ageing population. Council is currently investigating through a working group an opportunity to work to other providers to co-ordinate a more effective, efficient and sustainable service for all users.

Walking and Cycling: There is a growing role for cycling and walking in towns and rural areas in the sub-region (including long-distance recreational cycling).” Sub-Regional Actions identified in the Regional Walking and Cycling Strategy.

Sub-Regional Actions identified in the RLTS which involve Council are shown below:

Table 16: Sub-Regional Actions RLTS

No.	Actions	Support Agencies	Timing
A15.1	NZTA to undertake a transport corridor study and structure plan for Tirau to provide for development of the town in an integrated way	South Waikato District Council	on-going
A15.2	NZ Transport Agency to identify and develop a programme Business Case for safety, efficiency and resilience improvements to be undertaken within the sub-region to address deficiencies long this strategic route: SH1 Piarere (SH29) to Taupo SH1 between Taupo and Waiouru SH1 Cambridge to Piarere	South Waikato District Council Taupo District Council	on-going
A15.3	Environment Waikato to continue to investigate, support and where feasible implement, passenger transport initiatives which provide access to essential services for rural communities and employment opportunities within the sub-region (in conjunction with the review of the Regional Passenger Transport Plan)	Taupo District Council South Waikato District Council Waikato District Health Board Lakes District Health Board Land Transport NZ	on-going
A15.8	South Waikato District Council to develop and implement cycling and walking strategies	Waikato Regional Council	on-going
A15.9	Road controlling authorities protect existing and future rail corridors to ensure that the future expansion or increased use of the existing rail corridor is not compromised	Kiwi Rail Territorial Authorities	on-going

Table 17: Demand management strategy for the South Waikato/Taupo sub region

MODE/ACTIVITY	DEMAND MANAGEMENT APPROACH	SUPPORT AGENCIES	TIMING
Land use planning	Implementation of the Taupo Growth Strategy is incorporated within the Waikato Regional Policy Statement and will integrate land use and transportation planning. Ensuring that any land use growth occurs in appropriate locations in the South Waikato district.	South Waikato District Council Taupo District Council	2011/41
Walking and cycling	Strong encouragement of walking and cycling as an alternative mode, through progressive implementation of the footpath infrastructure improvements within Taupo and Tokoroa and a number of cycling initiatives. Taupo has prepared a strategy for horse riding. School travel planning (including walking school bus initiatives) will be encouraged across the sub-region.	South Waikato District Council Taupo District Council	2011/41
Public transport	There is a desire to encourage better utilisation of existing public transport, especially services currently provided between centres within the South Waikato. Planning through the Taupo Growth Strategy will also assist the role that public transport can play in the future as growth cells develop and public transport becomes more viable.	South Waikato District Council Taupo District Council	2011/41
Rail	Rail as a potentially larger freight alternative into the future, can assist in managing demand for road space within the region.	South Waikato District Council Taupo District Council	2011/41

Changes in Funding Categories 2018-21

Work categories detailed in the NZ Transport Agency “investment Manual are described in the National Land Transport Programme (LTP) and mirrored in the Regional LTP. The categories including financial assistance rates review will provide better alignment with capital, renewal and operating expenses accounting definitions used by local authorities.

- “Maintenance Operation” (100) costs are limited to specific operations required to preserve but not replace whole sections of asset. Seal Widening is no longer categorised as a “maintenance” activity and has to be funded as “improvements” associated with “rehabilitation” works (56-58%), as “associated improvements” (55%), or as non-subsidised works. The backlog of rural roads that are more than 1 metre under-width’ will have to be prioritised to allow for steady progress in this safety related activity
- “Renewal of Local Roads” (200) investment covers replacement of existing assets to an agreed level of service as they wear out. The new categories of resurfacing, drainage/ traffic services renewals, associated improvements, and pavement rehabilitation are “capital” works in the Council ledgers, and an improvement on previous work categories. Individual activities include provision for professional services – generally by “Southtech” business unit (56-58%)
- Improvement of Local Roads” (300) is capital works that increase capacity/ service levels, road studies, seal extension, replacement bridges, new roads, and “minor (safety) improvements. Each activity includes provision for professional services
- “Community Focused Activities” (430) are activities for “development and implementation of community programmes relating to safe and sustainable use of the land transport system” (56-58%)
- It covers part of the Safety Co Coordinator’s salary, approved Community Programmes (refer section 8.1) and Advertising.
- “Procurement Procedures” are detailed in Sec 25 of the Land Transport Management Act to allow “payments from a land transport disbursement account”. Council is required to have a “procurement policy” approved by Land Transport “to obtain the best value for money spent by the NZTA, and approved organisations (Council) with regard to the purpose of the LTMA”. A revised policy is under consideration by Council

5 ACTIVITY MANAGEMENT

5.1 Summary of Assets

The following section summarises the South Waikato District's Land Transport Network Assets, discussing the strategies and tactical plans for each asset group. The primary information management source for these figures is the RAMM system. The chart below summarises replacement value of the assets under management, detailed in the report 1 July 2017. The valuation was undertaken in-house with the support of Opus.

Figure 24 describes the nature and value (as at 2017) of the Land Transport Asset components. Total surface area is about 3.27 million square metres. Most of the asset types are described technically by a set of NZ Transport Agency "work categories" referred to in Chapter 3.

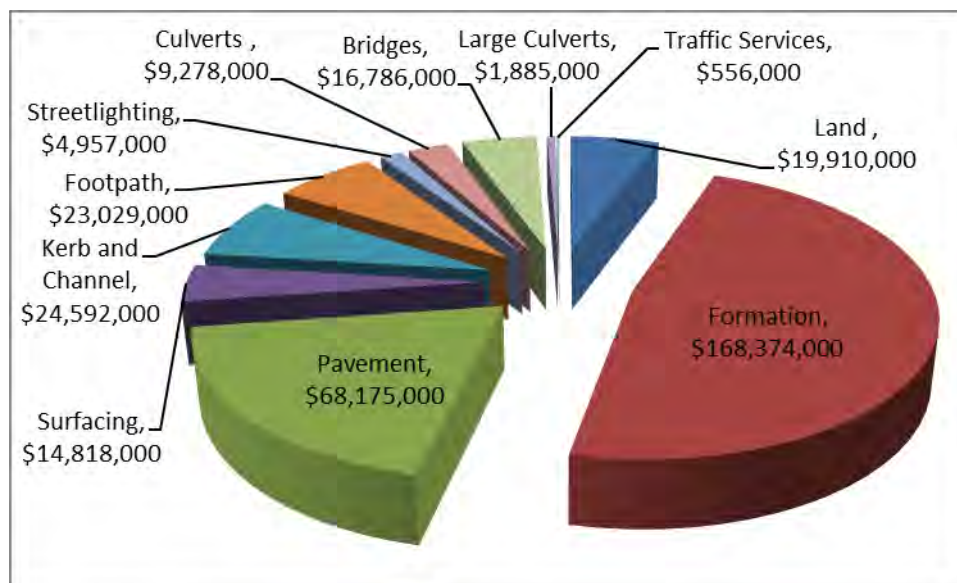


Figure 20 Optimised Replacement Cost

Road Classifications

Roads are classified by their function in terms of the roading network. The previous classification was a three level hierarchy of arterials, collectors and locals roads and has been replaced by the ONRC classification of primary collector, secondary collector, access and low volume roads.

The State highway network is classified by NZTA which will include the performance measures and targets.

The new classification applies to urban and rural areas and is the foundation of transportation and development planning. The systematic management of our roading network will be based on this classification for consistency across New Zealand. Changes in land use throughout the District have been included in the review of the road network hierarchy, ensuring that it aligns with current transport activities, and will cater for future land use activities.

The SWDC Road Network has been classified and moderation completed. This initial assessment of the network was reviewed and minor alterations undertaken to provide consistency across routes and cross boundaries.

In the case of the SWDC, several factors were not relevant due to the lack of a major public transport system, low numbers of active mode transport participants and no local inland ports or airports or relevance. The process utilised both the ONRC module in RAMM and Council's own systems. Council's traffic count is continuously being updated, is of a reasonable standard and well documented.

Table 18: SWDC Road Network by ONRC hierarchy

ONRC Category	Km of network		Customer usage	
	Km	%	VKT (000s)	%
Primary Collector	30,615	6%	23758	31%
Secondary Collector	161,297	30%	35465	46%
Access	197,174	37%	13602	18%
Low Volume	149,094	28%	3632	5%
Total	538.16	100	76,456	100

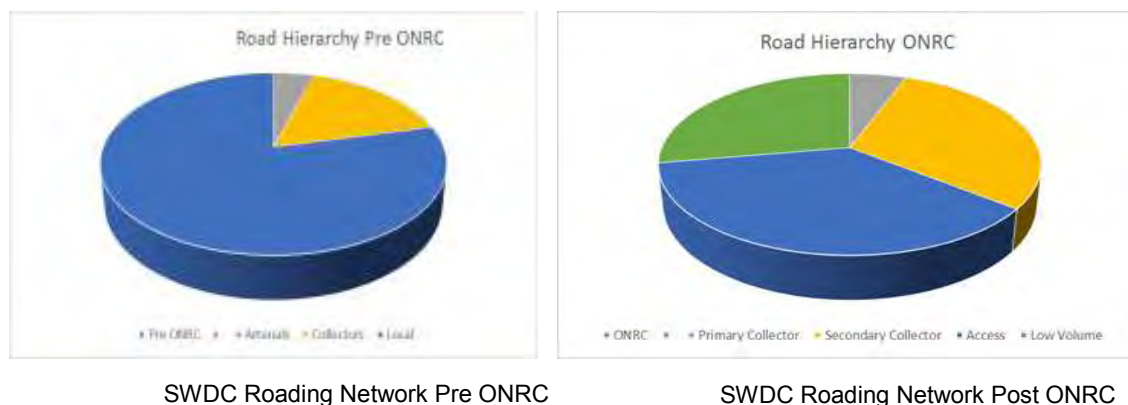


Figure 21: Road Classification Existing vs. One Network Road Classification

The network has been further subdivided into treatment lengths which are defined in the RAMM system. Each treatment length is identified because it has common asset characteristics in terms of construction, seal age, dimensions, condition and performance over its full length, and these characteristics are sufficiently different from adjacent treatment length to require it to be separately identified.

Each treatment length is subdivided into a common set of components. The components are:

- Land - the road reserve upon which the road is located.
- Formation or Earthworks – the re-contouring of the natural ground to provide the road’s foundation.
- Pavement – the constructed layer/s of aggregate that provide the strength and load carrying capability of the road.
- Surfacing – the sealed surface layer that provides the traffic wearing course, traction and waterproofing for the pavement.

Land under Roads

Land under roads, are Land Transport assets. On local roads this land is vested in the ownership of the Territorial Local Authority and for State Highways it is controlled by NZ Transport Agency. The term “road” includes service lanes and most pedestrian access ways, which are a feature in Tokoroa’s street network.

The Council may close roads and sell the underlying land, or acquire additional land for roads, and may assign rights of occupation of parts of the road reserve for underground utilities etc. subject to appropriate legal processes and in accordance with statutes, primarily the Local Government Act.

The following table sets out the lengths and areas of land that underlie South Waikato roads:

Table 19: Areas of Land that Underline South Waikato Roads

Type	Rural	Urban
Width (metre)	Area (ha)	Area (ha)
Roads ≤20m	786.5	216.7
Roads >20m	63.1	6.6
Unformed Road	293.8	0.8
Total	1,143.4	224.1

Most roads in the District have a 20m wide road reserve but there are several with 30m and 40m wide reserves. Some urban streets, principally cul-de-sacs, are often less than 20m. Table 19 is derived from the July 2015 South Waikato District Council Asset Valuation- Land under Roads assessment provided by Reid & Reynolds Limited trading as Telfer Young (Rotorua).

Earthworks Asset Group

Purpose

Earthworks (also called ‘formation’ or ‘sub-grade’), represent the re-contouring of the natural ground to provide the road’s foundation. The “formation” asset includes shaping such as cut or fill embankments, widening, road shoulders, water tables and formed side drains, fencing, entrances, and utility services.

Any alterations to utility services, fencing, vehicle crossings (excluding culverts) arising out of roading works are considered part of the road “formation”, and costs are not capitalised.

Materials

The earthworks are typically constructed of local soil and may be clay, sand or other in-situ material. Where a road has been completely re-built, previous “pavement” layers will be considered part of the road formation. The road ‘formation’ is the total width of the shaped platform on which the drains, berms, and carriageway are constructed. It varies in width according to the design standard and hierarchy for each road, and is typically about twice the seal width.

Retaining Structures

Occasionally special structures are constructed to retain the road formation or embankments above it, e.g. tunnels, retaining walls, fords etc. Such structures, if they deteriorate with time, require provision for maintenance and replacement. There are few minor structures of this nature on Council roads. Council has assessed these structures with no remedial works required during the next LTP.

Pavement Asset Group

Purpose

The pavement is the constructed layer of base course metal (AP40) or stabilised material that lies over the road formation. This provides the strength to spread high vehicle wheel loads before they are transmitted into the weaker soil formation. The thickness of this layer varies according to the underlying strength of the formation and the loads it will be subjected to over its lifetime and associated with the classification.

The pavement is constructed in various ways depending on what sort of surfacing, if any, is to be applied to it. The width of pavement is standardised for various levels of traffic use.

In urban areas the pavement is usually defined by the width of carriageway between kerb lines. In rural areas the pavement is contoured off the road shoulder, to provide support to the primary sealed carriageway, and a secondary pull off area (shoulders).

Materials

Locally-quarried rock (greywacke) is crushed to produce aggregate that will be compacted into interlocking layers during construction. Where drainage under the road is necessary, a free-draining layer may be provided over the formation.

In keeping with the load spreading function mentioned above, the quality of the pavement layers increases closer to the road surface.

Condition

The majority of urban streets have low rates of wear and tear due to low speed and predominantly light vehicles. There is a reasonable length of minor urban streets which are showing roughness values greater than 150, but because of low traffic volume and speeds this does not necessarily indicate pavement “failure”, and may not be considered uncomfortable by users. Other contributors to the high urban roughness are associated with seal joints, manhole cover, utility trenches, raised pedestrian crossing and rail crossing. These streets are expected to continue to perform satisfactorily for many years with the only maintenance being a reseal when the existing seal becomes worn or brittle.

Figure 26 shows that majority of high roughness pavements are on low traffic roads- mainly in the urban communities. An average of approximately (1200m) urban and (2000m) rural annual programme of rehabilitation of both pavement and adjoining urban kerb lines will slowly reduce the backlog of “roughness”, and substandard kerbing over time.

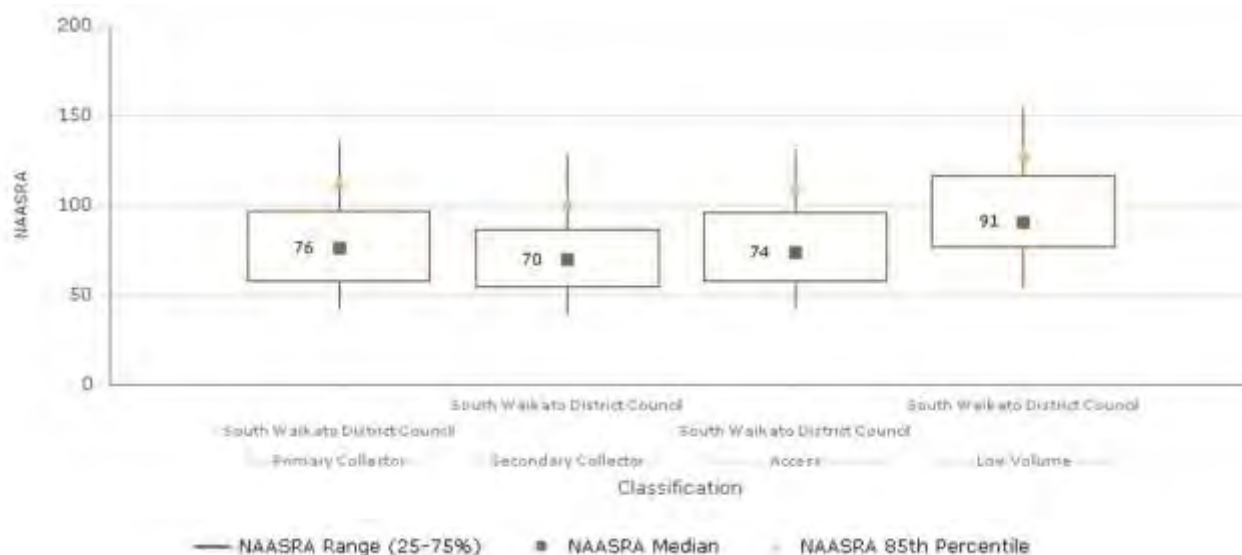


Figure 22: Peak Roughness against Classification

Surfacing Asset Group

Purpose

The term 'surfacing' is applicable to sealed roads. Surfacing provides a smooth-riding, durable, skid-resistant wearing layer on which traffic will travel. On sealed roads, it protects the underlying pavement from moisture and provides an anti-skid surface for motor vehicles.

Materials

The surfacing of a sealed road is regarded as a capital component of the road because it is designed for a particular life expectancy, always in excess of one year, before it requires resealing. There are several types of surfacing that can be applied including chip seals of various chip sizes, structural asphaltic concrete which also forms part of the pavement, and bituminous slurry seals. The former comprise by far the majority of surfaces on South Waikato roads; asphaltic concrete (or 'hot mix') is used selectively in special situations (roundabouts, CBD and intersection with large percentage heavy vehicles) where chip seal does not perform well due to the scrubbing action of turning traffic. Council is also investigating the use of structural asphaltic concrete on major intersection with a high number of heavy vehicles.

Bitumen used in chip-sealing operations in the District is almost exclusively 130/150 penetration grade in recent years, and is applied under contract by reputable sealing Contractors to NZ Transport Agency specifications.

Sealing chip is supplied by the Contractor as part of the contract from an approved quarry. There is one quarry in the district and several others in adjoining districts that are able to supply approved sealing chip and base course metal.

The total useful life of a surface asset has been set using parameters available in RAMM and common practice life values. The "pavement use" category and material type where the two parameters used.

Note that a question has been raised during peer review regarding the useful lives of seals in local roads and also as a result of a large number of seals expiring earlier than their useful life. These values have been found to be incorrect in this District due to flexible subgrades causing early cracking and failure. An exercise was undertaken during the 2015-2016 to revisit the useful and design life as a result of the introduction of High Productivity Motor Vehicles and the impacted on earlier designed seals by driving the District and assessing the actual condition of the seals and amending the table.

The following table shows every combination in the RAMM database with the corresponding total useful life in years. The default values have been revised to reflect SWDC lifecycles.

Table 20: Surfacing Total Useful Life (years)

SURFACING	USE 1	USE 2	USE 3	USE 4	USE 5
AADT	<100	100-500	500-2000	2000-4000	4000-10000
Asphaltic concrete (and "Stone Mastic Asphalt")	15	13	12	11	10
Bicouche / Sandwich	14	12	10	9	8

First coat seal	5	3	2	1	1
Second coat seal	14	13	12	11	10
Locking coat seal	8	7	6	5	4
Reseal – Rural	15	13	12	11	10
Reseal – Urban	13	12	10	10	9
Slurry seal	8	7	6	5	4
Texturising seal	7	7	7	6	5
Two coat seal as 1st	5	5	4	2	2
Two coat seal as 2nd	14	14	12	12	10
Two coat as reseal	13	13	11	11	9
Void fill seal - Rural	13	11	9	3	2
Void fill seal - Urban	12	10	4	3	2

Kerb and Channel Asset Group

Purpose

Concrete kerb and channel of various shapes is provided along the edge of most urban streets to collect stormwater runoff, protect the edge of the pavement and provide an edge for collecting litter and ease of mechanical street sweeping. It is also used to a limited extent in rural areas for pavement protection and minimising batter setback. Kerb and channel is generally installed at the time of pavement construction, and renewed with pavement rehabilitation projects. Kerb crossings are provided in the kerb line to provide vehicular property access, and access to and from the footpath for prams and electric carts.

Materials

Kerb and channel may be composed of continuous slip-formed channel and kerb in a single monolithic section, or of cast-in-situ concrete channel section set against precast kerb blocks, which are laid in a bed of site concrete and pointed on site. Various precast profiles are available for standard kerb, pram and vehicle crossings, catchpit backing sections etc.

Condition

Historic surveys indicate a deteriorating condition so Council needs to accelerate the kerb and channel programme under the Drainage Renewal activity. In recent years this has not been done in isolation, but combined with adjacent pavement rehabilitation projects which present a tidy finish to the street on completion.

Drainage Asset Group

The drainage assets consist of culverts, sometimes fitted with inlet and outlet structures; subsoil drains, water tables and catchpits or catch basins.

Catchpits are installed to collect and lead stormwater into the piped reticulation system. These are regarded as stormwater assets in Council's asset register but are maintained under the street cleaning programme. Water tables, although functioning as road pavement drainage assets, are part of the formation and require cleaning and re-shaping frequently. They are therefore not regarded as a capital drainage asset. Data on inlets, outlets and subsoil drains has not been captured to date. Their value is unlikely to be material and maintenance is usually part of culvert or water table cleaning.

There are culverts in the District of various diameters as shown in the Figure 27. The position of culverts is recorded in the RAMM system and the construction date of a culvert is taken as the year that the road was first constructed or first-coat sealed. Where the age or construction date is unknown, the construction date has been assumed as 1 January 1981.

Purpose

Rural culverts are primarily used to carry water under the road where the road cuts across a natural watercourse. They are also used as a vehicle bridge across entranceways to properties and to discharge stormwater runoff from the road surface into waterways to protect the road formation from damage and prevent flooding across the road.

Materials

Culverts are largely constructed of reinforced concrete pipes but several alternative materials are found. Concrete pipes up to 600 mm diameter are generally rubber-ring jointed while flush-jointed concrete or corrugated aluminium pipes are

used for larger diameters. The detection of premature deterioration (rusting) in corrugated galvanised steel culverts following the replacement of 3 culverts during 2016/17 has resulted in a recent change to the aluminium equivalent. The ends of larger culverts are protected with inlet and outlet structures, often using weak-concrete filled sandbags.

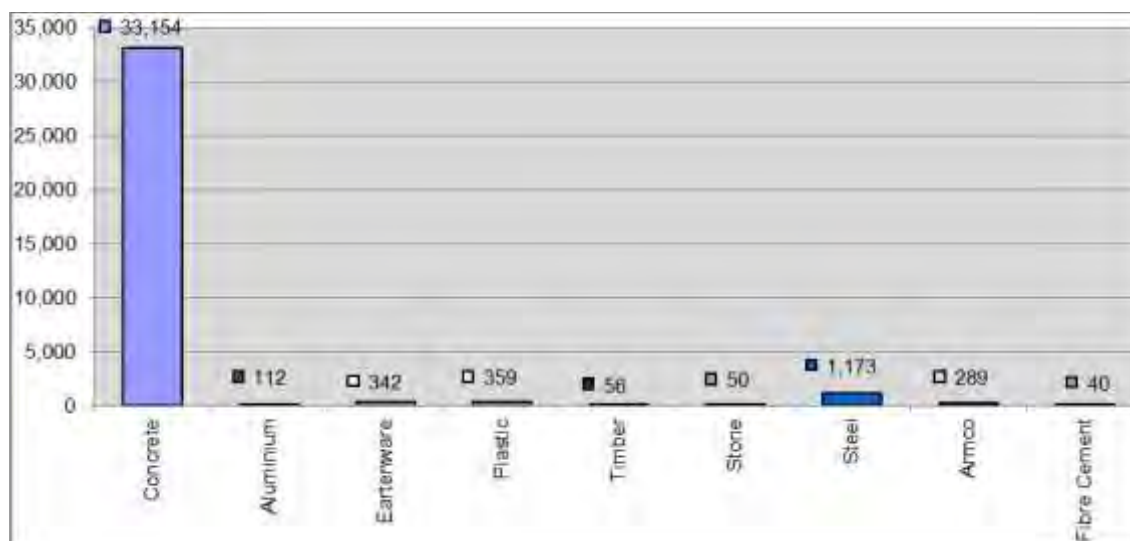


Figure 27: Culvert Length (metres) by Material

Structures Asset Group

A schedule of the 34 bridge structures is provided below with construction dates.

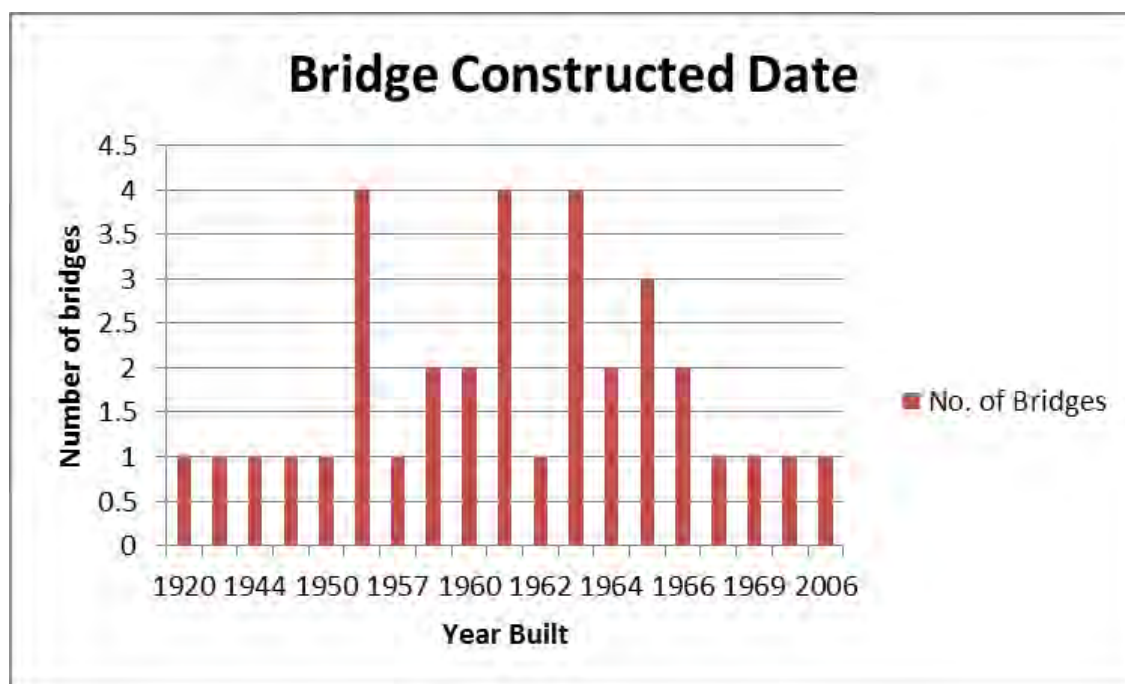


Figure 238: Bridge Construction Dates

Table 21: Bridge Structures

Road	Obstacle	RAMM RP	Length (metres)	Construction Date
Arapuni	Huihuitaha S	10,852	18.97	1966
Arapuni	Mangakaretu S	2,674	5.43	1963
Arapuni	Pokaiwhenua S	3,800	12.6	1964
Arapuni	Waikato R	14,170	51.83	1920
Arapuni	Waipa S	6,970	20.5	1965
Baird	Matarawa S	1,016	17.19	1963
Domain	Oraka S	1,570	18.97	1965
Horahora	Pokaiwhenua S	4,280	54.9	1944
Jones	Kinleith Rail	40	16.46	1950
Kakahu	Kakahu S	2,226	22.17	1958
Lake	Oraka S	488	25.3	1955
Langlands	Oraka S	1,155	27.43	1945
Ngatira	Oraka S	5,098	12.65	1963
Okoroire	Oraka S	492	19.81	1962
Okoroire	Waihou S	5,558	41.66	1961
Old Taupo	Otaneroa S	2,455	6.4	1967
Old Taupo	Parahikatea S	19,980	4.57	1960
Old Taupo	Waipa S	2,080	9.14	1973
Paraonui	Mangamingi S	6,758	12.19	1957
Paraonui	Whakauru S	5,370	7.62	1963
Princes	Kinleith Rail	25	20.12	1961
Scott	Kinleith Rail	525	18.29	2005
Pearsons	Waipa S	2,765	15.7	1961
Sloss	Whakauru S	89	7.72	1965
Taumangi	Oraka S	805	20.5	1961
Taumangi	Kinleith Rail	1,542	18.59	1969
Totmans	Mangawhero S	1,933	6.1	1955
Totmans	Waipahihi S	4,634	4.57	1955
Te Rere	Ngutuwera S	778	7.72	1964
Waiomou	Waiomou S	952	25.3	1958
Waotu	Mangaorua S	11,355	11.05	1966
Waotu	Pokaiwhenua S	2,025	21.34	1955
Wiltsdown	Pokaiwhenua S	2,020	9.14	1938
Wiltsdown	Waioraka S	5,287	9.45	1960
Total as at July 2017			601m	

A schedule of the 11 major culverts over 3.4m² waterway area that are deemed to be structures are provided below.

Table 22: Major Culverts

Road	Obstacle	RAMM RP	Length (metres)	Construction Date
Darby	Huihuitaha S	1,547	12	1979
Horahora	Piarere S	300	45.05	1946
Horahora	Waipa S	9,330	16	1946
Lake Arapuni	Huihuitaha S	2,110	10	1979
Manfield	Whakauru S	20	27.72	1979
Old Taupo	Waioraka S	19,290	19.4	1945
Parapara	Oraka S - Trib	5,110	50	1930
Princess Beatrix	Matarawa S	75	27.72	1978
Waotu	Waipa S	9,166	6.6	1979
Wawa	Kinleith S	40	10.5	1947
Wiltsdown	Mangaorua S	16,500	12.2	1979
Total as at 1 July 2017			237m	

In addition there are currently 39 stock underpasses under Council roads. More are being installed each year as the trend to larger farm units leads farmers to own land on both sides of the road. The ownership and maintenance of an underpass remains with the property owner and is not considered a Land Transport asset. Council may offer to subsidise the cost of an underpass in accordance with the NZ Transport Agency policy, and requires the owner to enter into an easement agreement to install the underpass under the road and maintain it. Council will initiate an inspection of these underpasses as part of the bi-annual bridge inspection and will report the condition of the underpasses to the farmer. Any structural repairs will be undertaken by the property owner.

Purpose

Bridges and major culverts are usually required to provide a path for water (or occasionally, other infrastructure such as railway or road) under the Council's road.

Materials

Bridges are usually reinforced concrete structures. Where longer spans are required, prestressed or post-stressed cables are included, usually within the concrete structure.

Many of the larger culverts are of more recent construction and include concrete, woodstave and proprietary 'Armco' steel, and aluminium materials. These modern alternatives, with the ability to span greater distances than previously, are able to be used as substitutes for small concrete bridges when it is time to replace them.

Condition

Many of the previously timber bridges in the District were replaced with reinforced concrete bridges between 1955 and 1973 by the former Matamata County Council. These bridges were of standard Ministry of Works and Development design and detailing of that time. As a consequence of the conservative design loadings, the capacity of these bridges to carry present day vehicle loads is generally very good. All bridges in the District have been rated for overweight and over-dimension loads. The last timber bridge to be renewed was the Scott Road railway over bridge in 2005.

There are several single-lane bridges in the network, but the current volume of traffic on them does not demand that they be upgraded to two-lane bridges. The exception is a single lane bridge on Horahora Road which has traffic volumes up to 700 vehicles a day. The upgrade of the Oraka Bridge over the Oraka River on Okoroire Road is scheduled to be undertaken in year 2019/20 of the LTP. The structure is on an over dimensional and overweight bypass route identified by NZTA. The route is a bypass to a height restriction imposed by the overhead rail bridge south of Tīrau on State Highway 1. The strengthening of the Oraka Bridge will increase the capacity of the bridge so that it can cope with heavier haul route. Council will seek 100% funding from NZTA. Following the blowout of three Armco culverts during heavy flows and a general inspection Council will be programming the replacement of these culverts during the next LTP. To date the following culverts have been identified for replacement;

- McMeekan Rd
- Parapara Rd
- Old Taupo Rd

Street Lighting Asset Group

There are approximately 2,595 street lights including NZTA managed by Council in the district, of which some 349 are attached to power poles not owned by Council. In these situations only the lantern and bracket are Council assets. The ownership of street lighting assets was resolved in 2000 when Council purchased from United Networks Ltd the poles and fittings that it did not already own, under a transfer and purchase agreement. Council also maintains lights on State Highways by agreement with NZ Transport Agency, at their cost. While there has been a number of LED trials within the District over the years Council is currently looking at converting the entire network with LED lighting. The street lighting strategy with a business case is currently underway for the replacement of the entire network with LED luminaires. Council plans to also have an infill programme to ensure the appropriate lighting standard is achieved including the replacement of all old timber and concrete poles completed within the 2018- 2028 LTP period. It is intended that saving from both maintenance and power cost will help Council fast track the replacement programme.

Purpose

Streetlights are provided in urban areas to assist pedestrian movement and safety; as a deterrent to crime; and to a lesser extent to enhance the amenity of a neighbourhood without obtrusive effects. They also provide assistance to road traffic. This last function is the main purpose of rural carriageway lighting, which is principally located at high trafficked intersections.

Streetlight assets have been individually recorded in the SLIMS database. It has been noted that the database contains a number of amenity lights that are not part of the Land Transport assets. These are separately identified for funding reasons.

Council's streetlight maintenance Contractor will be awarded on the 1st July 2015 to McKay for the period of three years. Power is supplied under a joint venture contract with Matamata - Piako DC and Hauraki DC by Genesis.

Materials

Poles owned by the Council are generally 7m timber, fibreglass, pre-stressed concrete, or galvanised steel octagonal section. Brackets (outreach arms) are usually of galvanised steel. The light housing models and lamps vary depending on age and may be High pressure sodium vapour (HPS); Mercury Vapour (MV); and metal halide/halogen lamps. Significant Improvements have been made over the past decade to renew obsolete inefficient lamps, and old laminated timber streetlight columns.

A summary of pole and lamp types on local streets is shown, effective 1 July 2017.

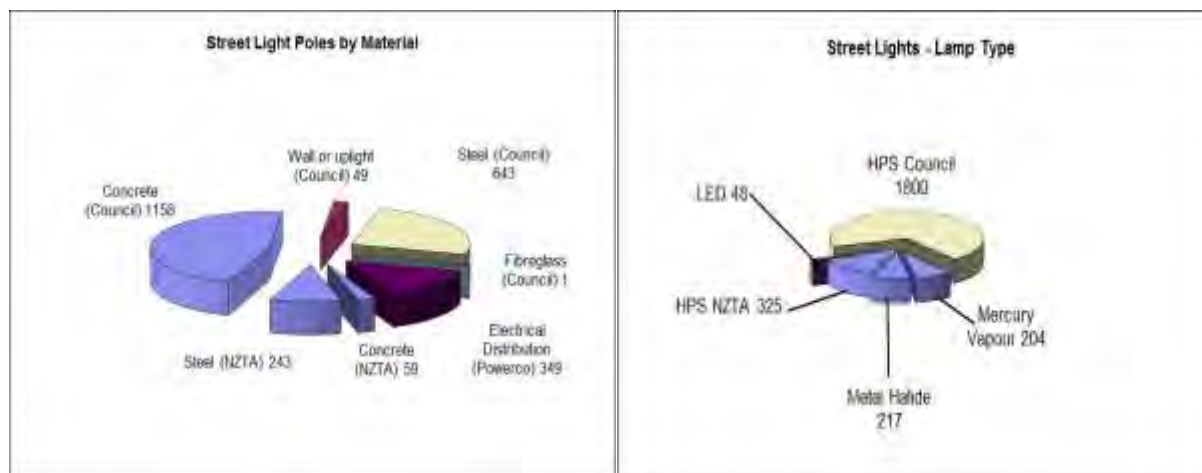
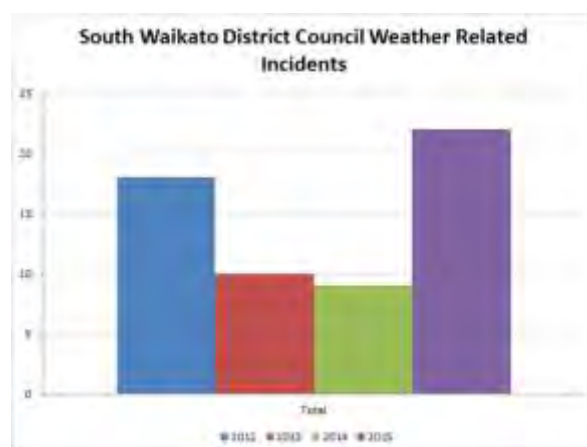


Figure 29: Pole and Lamp Types

Footpaths and Cycleway Asset Group

The total length of footpath managed is 170,6km, with an area of 187 m². Most urban streets have footpaths either one side or both sides of the street. The standard width of concrete path for residential streets is 1.1m. The lengths of footpath along pedestrian accessways are also accounted for. Where local streets converge on shopping precincts, schools, churches etc. footpaths on both sides of the street are required, widening to full width footpaths between kerb and boundary outside commercial premises.



This is the case in the CBD areas where various types of full width footpath are utilised. From 1997 - 2002 there was major upgrading of footpaths in the Tokoroa, Putāruru and Tīrau CBD areas. High quality clay pavers have been used in Tokoroa, concrete pavers in Putāruru and asphaltic concrete in Tīrau. In fringe areas a pattern of pavers and asphaltic concrete has been used. These have replaced either asphaltic concrete or chip seal footpaths and have greatly enhanced the aesthetics of the main shopping centres. Recently, the pavers in Tokoroa have become slippery especially during winter and Council has had them chemically treated, to improve friction and the cleanliness of the pavers. Subsequently, the surface has been treated with a strip of non-slip application in high risk areas. Council will investigate a more permanent way of treating these pavers.

Significant areas of full-width chip seal footpath remain in the commercial fringe areas where pedestrian density is lower but grassed berm areas would be inappropriate.

Figure 24: Roads and Footpath Customer Satisfaction Survey July 2017

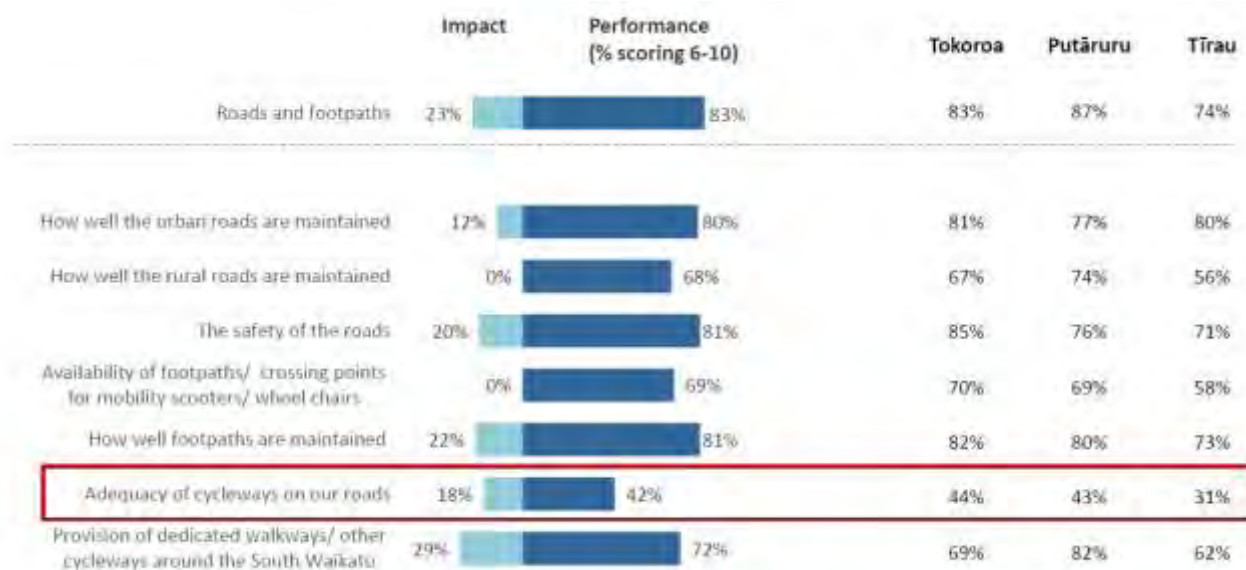


Figure 25: Roads and Footpath Customer Satisfaction Survey July 2017

Purpose

Footpaths are provided to help separate vehicle and pedestrian traffic in urban areas. This may be seen as a safety measure first, but also a public service. In the business districts, footpaths also provide an expected amenity level for shoppers, retailers and businesses. The Council adopted a Footpath Strategy in 1994 which outlined a long term improvement programme. Since then the Council completed a major Central Business District (CBD) upgrade in each of the main centres that has included the replacement of old footpaths with high standard paving and asphaltic concrete designs. While the paving blocks have been aesthetically pleasing, over recent years they have become a risk due to slipperiness during winter specially area that do not receive any sun light. The recent non-slip surface treatment has helped to manage these issues.

The footpath inventory is now retained in the RAMM database in tabular form. It covers the types, lengths and areas of each.

Now that the CBD upgrades have been completed there will be a greater emphasis on sealed paths adjacent to CBD areas and concrete footpath replacement in the residential areas throughout the district.

In the CBD, a more aesthetically pleasing block, paver, asphaltic concrete or combinations are provided, bedded on a 75mm thick layer of compacted aggregate and made stable by sand, and mortar in trafficked areas. Sand filling is applied between the blocks.

Lengths include walkways and paths across reserve.

Council has completed three footpath condition rating surveys over the past 8 years. The figure above indicates an overall very satisfied outcome from the customer satisfaction survey July 2017.

Urgent repairs that are identified as "poor" or "very poor" are attended to in the year of the survey, plus others as priority when budgets allow. Further surveys will be conducted every year to measure medium term changes in condition and also ensure that there is a reduction of the number of the "very poor" footpaths. If this is not the case investments will be revisited.

Traffic Services Asset Group

Traffic services assets include traffic signs, marker posts, road markings, guardrails, sight rails, amenity signs owned by Council, some railway crossing advance warning devices, and other road furniture. Marker posts and amenity signs are not treated as capitalised assets in the Council's asset register at this time. Valuations for these and other capitalised road furniture items will be added as the information becomes available but are not expected to be financially material. Road markings are renewed on Arterial and Collector routes twice yearly; with balance once a year, and therefore are not a capital asset.

Raised Reflective Pavement Markers, (RRPM's) are located on collector road centre lines only and inspected twice yearly. They are not a capital asset as around 40% are replaced annually either through wear and tear or when sections of road are resealed or reconstructed. Blue RRPM's indicate urban fire hydrants.

Road signs are recorded in the RAMM database. There are currently 3,030 signs of various types. The installation dates are now being recorded and after five to ten years, when the entire stock has been replaced, there should be an improved indication of life expectancy for these assets.

Purpose

The purpose of traffic services assets is to provide advisory and regulatory information and/or physical guidance to road users, improving safety in the road environment. For speed, parking and other regulations to be enforceable, the signs must comply with the prescribed standard. Signs are therefore a key component in the road safety and enforcement partnership with the Police and Crown Agencies.

Materials

All road signs are installed to comply with the Manual of Traffic Signs and Markings. They are generally mounted on white-painted timber and metal posts. The sign substrate panel may be aluminium or tough plastic sheet. Sign legends are usually a special proprietary composite plastic sheet material with encapsulated reflective elements. These have an adhesive backing, and are fixed to the panel using a vacuum-and-heat bonding process in factory conditions to ensure durability. Most signs have retro reflective properties.

Unformed ("Paper") Roads

Unformed roads in the District are generally fenced into one or other of the adjacent properties with no formal lease or rental payable to Council. The need for provision of paper roads to encourage orderly development has now largely disappeared in recent years. Subdivisions will provide any road extension in the future at the developer's expense although existing paper roads could be utilised. There are some 147.3 km of unformed road in the District.

There are some lengths of legal road that are 'unformed' as far as Council is concerned, but are being used for vehicular access to properties that have frontage to them. (e.g. the far end of Jack Henry, and Puriri Roads). In such cases the Council assumes no responsibility for maintenance, but accepts their use as a 'private' road in terms of maintenance and responsibility. As a legal road the public has right of access over any unformed road whether in private use or not. Unformed roads in common use should be signposted at the boundary "end of public road" to clarify responsibilities, and liabilities on Council. Over the years Council has proposed and sold off a number of these unformed roads.

5.2 Maintenance, Operations and Renewal Plan

It is the intent of Council to operate, maintain, and renew the transport network assets indefinitely so that they continue to provide the desired service, including any nationally or regionally-generated changes in service level where these affect Council's ability to receive subsidies.

Network Operations Activities

Land Transport Network Operations activities are summarised in the chart below. The total annual cost for 2017-2018 is \$552,840. The chart includes the costs of Council's engineering, asset management and support staff, whose effort and expertise is spread over all network infrastructure including Roads, Water Supply, Drainage, etc.

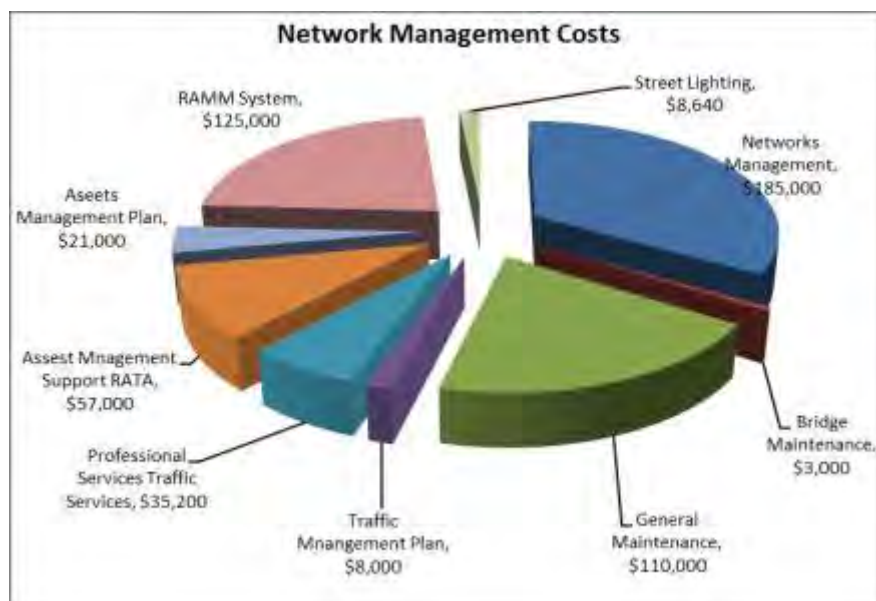


Figure 26: Roading Operations Costs, \$000

Reporting, Inspections and Surveys

Roads are inspected to ensure they are in acceptable condition; to provide advance warning of potential damage to surfaces, pavement layers and edges; and to measure and monitor road roughness, signs, markings and safety.

Rural roads are inspected by Contractors at specified intervals. This includes surveying road roughness on an annual basis. Since staff are often in the urban areas; the main road is a NZ Transport Agency-administered state highway; local residential streets are speed-restricted and carry low volumes of heavy commercial traffic, and urban residents contribute by notifying problems, there is no specific budget for their regular inspection apart from the maintenance Contractor's reporting.

Traffic Services assets are also inspected by the Contractor at specified intervals. This helps to ensure that damaged and deteriorated signs are replaced.

The data accumulated from these inspections is collated and input to the Road Assessment and Maintenance Management (RAMM) information system.

The maintenance contractor is required to report on activities and defects detected and repaired, and to operate a Quality Assurance system under the Contract. This provides the most frequent information on asset condition and issues.

Road reserves are not subject to rate revenue, but urban car parks attract this charge which is a minor part of the operations budget.

In-house professional services are provided by the "Southtech Business Unit, and payments made for qualifying land transport activities are authorised by Sec 26(c) of Land transport Management Act 2003. "Local authorities that provided in-house professional services, in accordance with the Transit New Zealand Act 1989 (renamed the Government Roading Powers Act 1989 from 1 July 2008) prior to the enactment of the LTMA (12 November 2003), have approval to provide in-house professional services under the LTMA provisions" (Reference section E3 of NZTA "Planning, and Investment Manual").

In 2014 the Waikato Mayoral Forum resolved to establish a Waikato Centre of Excellence (to be known as the Road Asset Technical Accord - RATA) in road asset management to deliver more advanced asset management than could be achieved independently, thus assisting better council decision making and reducing whole of life costs for roading assets. In 2015 it was agreed that RATA should be a permanent business unit reporting to LASS.

RATA is focused on three strategic objectives:

- To provide a high and consistent level of asset management (AM) services and resource for the Waikato TLA roading managers
- To propagate the use of "best practice"
- To enable smarter investment decisions

RATA is continuing to support better asset management in roading in the Waikato and will provide the following assistance to SWDC:

- Regional Pavement Deterioration Modelling (dTIMS)
- Data Collection
- Bridge and Structures Inspections
- Road User Satisfaction Survey
- Regional Valuation
- Regional Infrastructure Technical Specification- Support
- Assessing The Right Treatments, At the Right Time - Forward works programme tour.

Road Safety Management

Council's road safety strategy is fully integrated with national and regional strategies. The regional goal is to reduce the incidence and severity of crashes in the Waikato Region. This is not the sole responsibility of South Waikato District Council. The components of Council's Safety Management System (SMS), which is a separate document, are shown in the following diagram.



Figure 27: Components of Councils Road Safety Management System

Council's goals rely on contributions to safety via engineering, education and enforcement, including those from NZTA, the Waikato Regional Council, and the Police. They are:

- To reduce the incidence and severity of crashes in the South Waikato area.
- To achieve the targets set for road crash reduction and road user behaviour.
- To foster good road safety attitudes, skills, and behaviour among all road users – drivers, passengers, motorcyclists, cyclists and pedestrians.
- To promote and develop a safer roading environment through the "Safer Journeys" approach.
- To work with key road safety partners and management systems.

Crash investigations serve to identify the major problems requiring improvement in the district, and the SMS is geared to correct these issues.

Safety management policies impacting on Council's assets and operations are tabulated below. In terms of asset management, the engineering column is most relevant.



Table 23: Council's Assets and Operations

PROBLEM	ACTIONS		
	Engineering	Education	Enforcement
Poor Observation	Adequate sight distances; consistent intersection controls; adequate, well maintained signs; a network that contains no surprises for drivers; crash reduction studies, speed limits, remedial works	Encourage drivers to stop being complacent and looking without seeing Raise awareness of driving conditions	Support Police in addressing this issue
Speed	Environment encourages driver decision-making based on road conditions Improve roads so drivers can travel safely at the environmental speed Crash reduction studies, speed limits, remedial works	Programmes and media strategies (Speed Management)	Support targeted enforcement by Police in areas with speed related crash problems
Drink-Driving	Ensure road environment is as "forgiving" as practicable Crash reduction studies, speed limits, remedial works	Programmes and media strategies	Support Police and other agencies in addressing this issue
Restraints and Helmets		Programmes and media strategies	Support targeted enforcement by Police

Design and operational activity sheets detailing relevant standards, guidelines, policies, procedures and training, together with a review and continuous improvement process, are employed as part of the SMS.

Majority of the death and serious injury crashes in the District has occurred on State Highways and projects are developed in partnership with other agencies to address this. It must be noted that relatively low DSI's on the local network and random nature of crashes means that Road Safety education and enforcement are effective ways to manage safety on the South Waikato network. With these positive outcomes Council continues to support an annual road safety programme delivered by a part-time Road Safety Coordinator.

Corridor Management

An important part of Southtech's administration of the network is responding to daily enquiries concerning the road/street corridor by public and private agencies: contractors wishing to work in the road to install utility services, retailers wishing to occupy footpaths, people wanting to remove trees adjacent to the street, farmers wanting to move cattle across country roads, farmers wanting to renew fences on the roadside of their property boundaries, NZ Police wanting assistance with plans, signs for emergency events, administration of "Temporary Management Plans" for signs and devices on the roads, complaints about stock manure on rural roads etc. To have a consistent approach Council has

adopted the use of the National Code of Practice for Utility. The day to day management of the request are undertaken through "beforeUdig" an external provider. All application to use the corridor are done through this service. The corridor management also includes the overweight, HMPV and 50MAX permit applications. Council's continues to manage the permit process to ensure better understanding of the route selection, restrictions and on-going impact on the network.

Street Lighting

The Council has engaged the services of Odyssey Energy Ltd (OEL) to provide consultancy advice and contract management for the streetlight assets which includes the State Highways lighting. OEL maintain the database, assess the network, recommend upgrading, investigation, design and maintenance work through annual and long term plans, and provide valuation and depreciation assessments.

The annual cost of this service is covered from maintenance budget.

Maintenance of street-lighting assets is carried out by McKay.

Network and Asset Management

Network and asset management provides for the general management and control of the network and management of road assets.

Professional services, which include maintaining and developing asset inventories, standard specifications and drawings, project design, supervision and management, are generally provided by agreement with Southtech, the Council's consultancy business unit.

Council's professional staff is favoured for works design because of their experience and local knowledge, enabling them to produce cost effective solutions. In order to provide a critical mass of work to attract and retain staff and provide a full work programme, it is necessary to provide land transport professional services in-house. As a small local authority, engineering staff are required to specialise in a number of disciplines. Land transport engineering is an integral part of this work.

When necessary, specialist assistance with Asset Planning, RAMM data capture, database hosting etc. is provided by quotation from external consultants. These decisions have been made in accordance with NZ Transport Agency rules.

Link to Strategic Case

- Delivery of the right infrastructure and services to the right level at the best cost- **Value for Money**
- Value for money and whole of life cost will be optimised in the delivery of affordable customer levels of service- **Effectiveness**
- Our infrastructure is financially and operationally sustainable; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future - **Well managed infrastructure**.

Problem Statement

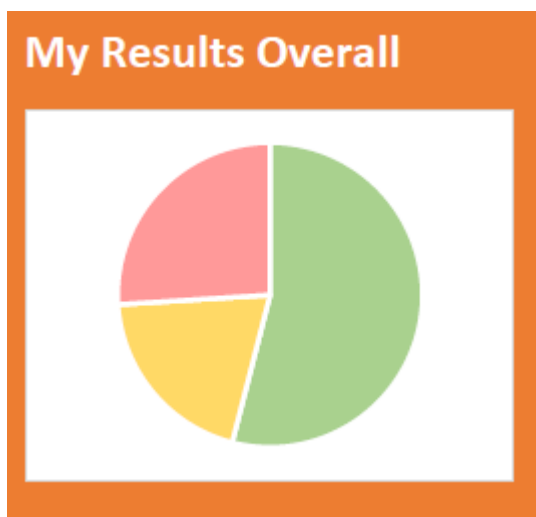
Provide sound total asset management planning.

Benefits

- Evidence based investments
- Improved return on investment
- Better understanding of network behaviour
- Consistency and benchmarking.

Evidence

Current health check of the data based has highlighted deficiencies with completeness, accuracy and timeless.



Grade	Definition
Grade 1	Data quality to expected standard
Grade 2	Minor data quality issues present
Grade 3	Major data quality issues present

Figure 28 Overall Data Quality

Other gaps identified is the inconsistency traffic estimates and surface records with work origin. Council will address this through the RATA contract to ensure completeness and timely counting.

Councils network management cost is at the lower end when compared with its peers and it have been discovered that a number of activities have been omitted from previous funding applications e.g. bridge inspection, corridor access permitting, traffic management plan approval, etc. These will now be included in the 2018-2021 investment bid and hence the increase in the work category from previous years.

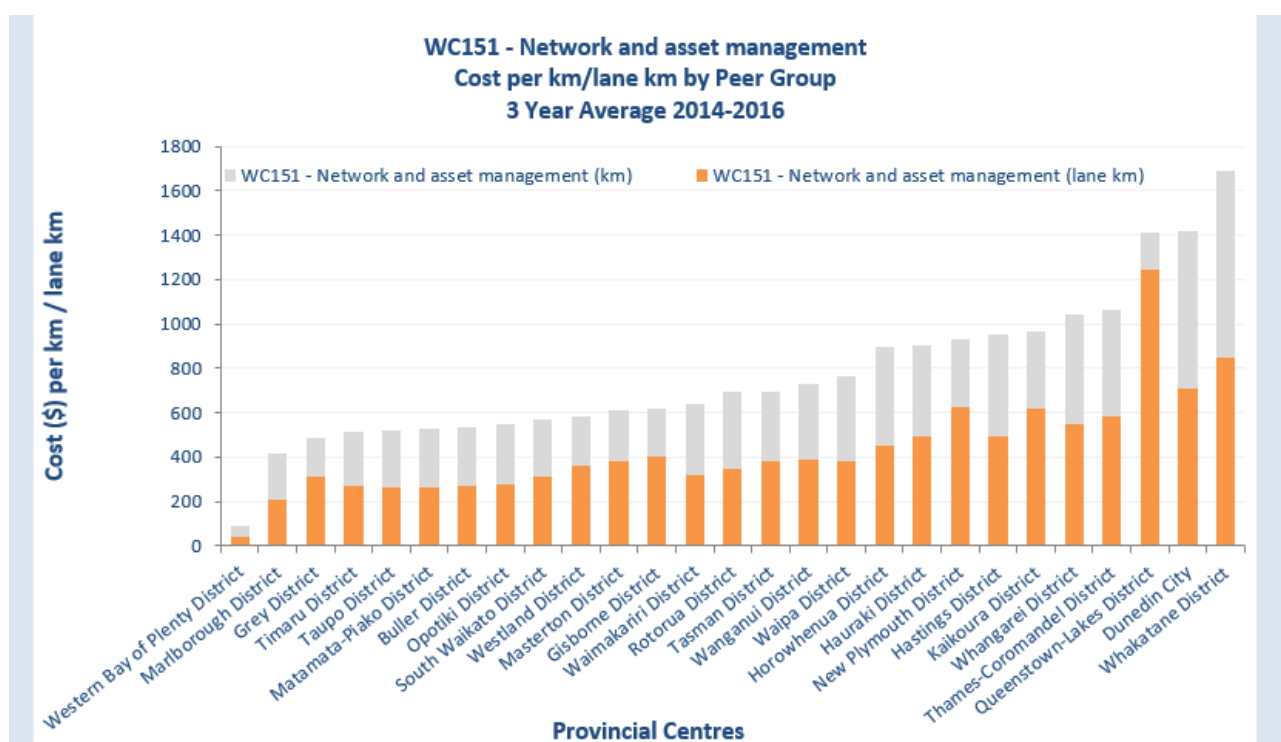


Figure 29 Network and asset management cost by Peer Group

Consequences

- Lack of funding results in inadequate network and asset management
- Poor investment decisions
- Opportunities lost for benchmarking
- Less understanding of network behaviour

Options

- Total management in-house
- External management
- Preferred- In-house with support through RATA and specialised Consultants

Improvements

- Enhanced data collection
- Dims deterioration modelling
- Waikato data collection strategy
- Collaboration through RATA

Maintenance and Renewal Activities

The majority of the Transport Network maintenance and renewal activities are currently carried out by Downer. (“the maintenance Contractor”) under a three-year contract for service with the ability to roll over for a future two plus two years if performance targets are being achieved. The contract is tendered, awarded and administered in compliance with NZ Transport Agency Competitive Pricing Procedures (Price Quality Method) in order to qualify for national subsidies. The contract document, “Roading Maintenance Contract 640/427” is available for inspection. Costs are distributed as shown in the figure below and total about \$1,826,100 per year excluding unsubsidised funding. The other contracts includes signage, street lighting, resurfacing and road marking with a total value of \$1,742,640 annually.

The newly revised “Levels of Service” will have an impact on the timely response to events by maintenance contractors, and appropriate completion/ sign off procedures. The current Contract has a valuable “performance appraisal” section to focus on customer needs, and areas for improvement over the duration of the works. The new performance measures associated with the ONRC will be introduced during the 2018-2028 LTP once the gaps analysis is complete and the maintenance contracts reviewed to include these measures.

The general requirements of the maintenance contract are consistent and include:-

- General Management - inspections, programming, reporting of defects, traffic management
- Pothole Repair
- Repair of Surface Openings and Minor Surface Levelling
- Repair of Surface Defects on sealed roads
- Repair of Edge (of seal) Breaks
- Digouts and Stabilised Patching of sealed pavements
- Maintenance of Unsealed Shoulders - repair and maintenance grading of low shoulders
- Maintenance of Unsealed Roads
- Vegetation Control on Rural Roads - mowing of verges and other grass areas
- Drainage - cleaning of culvert pipes, inlet and outlet structures, and cesspits
- Maintenance of Roadside Channels and Drains
- Kerb and Channel Repair
- Stormwater Structures - bridges, culverts, manholes, sumps, slot drains, bridge deck drainage, headwalls and flumes
- Pavement and Drainage renewals
- Minor Safety Improvements
- Emergency Work - responding to emergency events as appropriate
- Quality Plan and Testing of Materials.

The contract agreement includes operating to a Quality Plan to ensure that the work can be properly carried out. Scheduled monthly meetings and reports are used to advise problems, plan future activities and identify future works for longer term planning. The quantum of work carried out in each of these activities may vary from year to year consistent with maintaining an appropriate levels of service defined during the LTP engagement process.

The maintenance contractor is required to recommend a forward monthly maintenance programme based on his inspections. The contracts engineer will approve the programme, with or without adjustment, and monitor progress.

Most maintenance outputs are carried out at fixed contract rates and are accommodated within the NZTA-assisted programme. The total amount of urban maintenance activity is almost half of Council's total Land Transport budget and is reasonably consistent from one year to the next. Unusual costs can be accommodated within the budget by the flexibility allowed in NZTA's Policy.

Roads Maintained by Forest Companies

About 50 km of road owned by Council but used predominantly by Hancock Forest Management for forestry operations, are maintained by the forestry company.

The reported agreement between Matamata County Council and NZ Forest Products for "off highway" crossings under the Traffic Regulations 1976 is now superseded by changes to the legislation, Council, and forest owning Companies.

Council does not monitor the maintenance and condition of these roads.

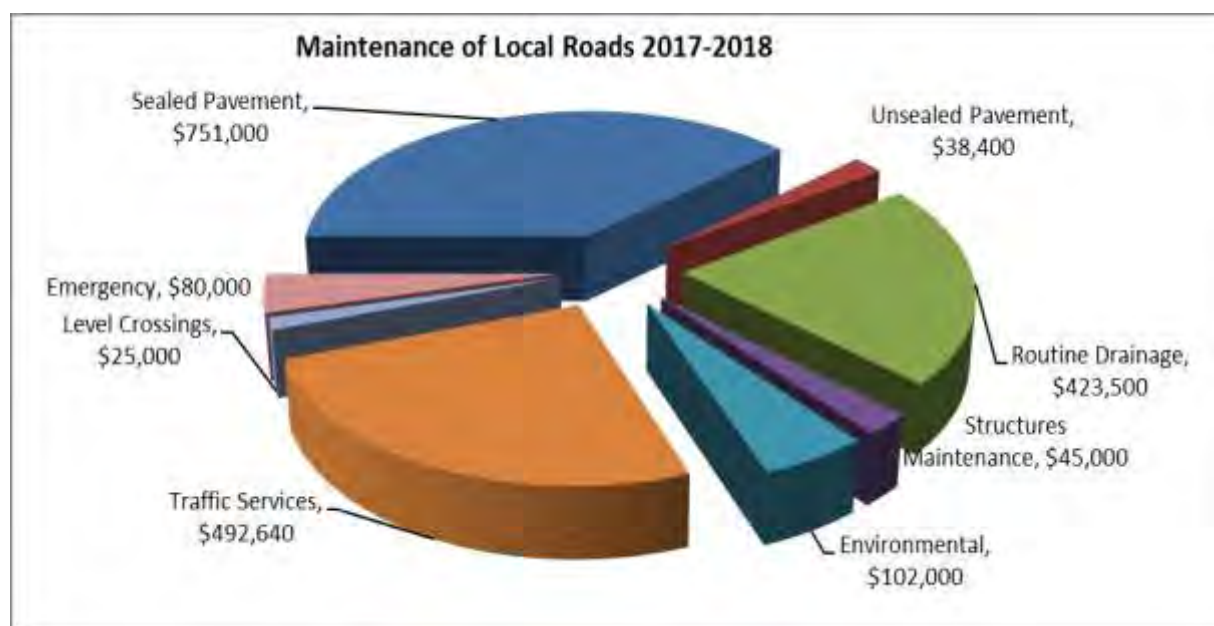


Figure 30: Maintenance of Local Roads 2017/18

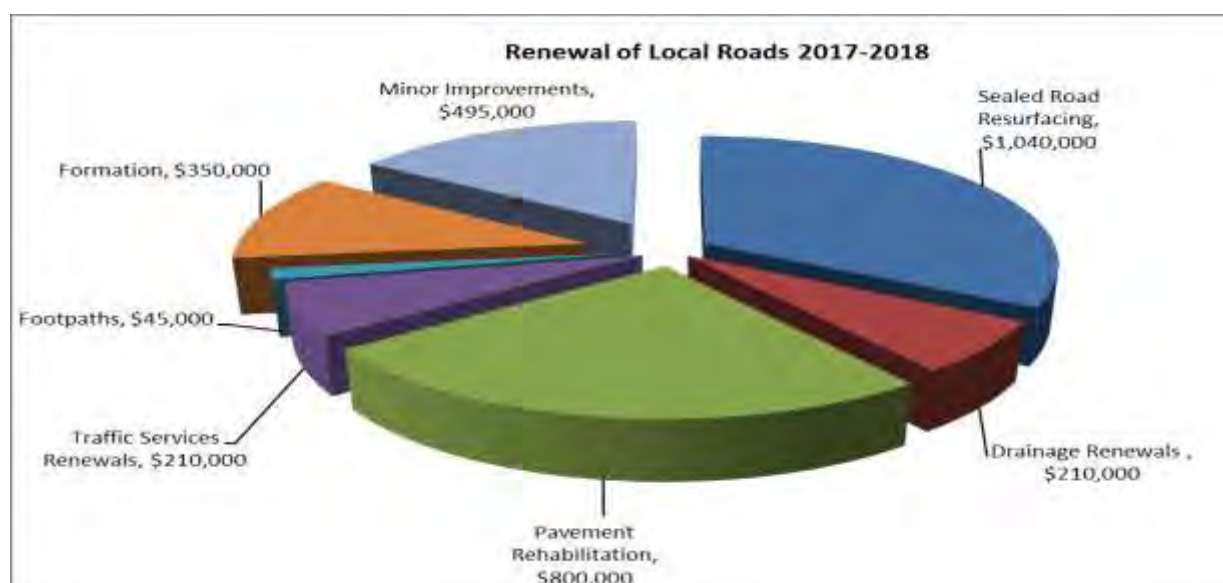


Figure 31: Renewal of Local Roads 2017/18

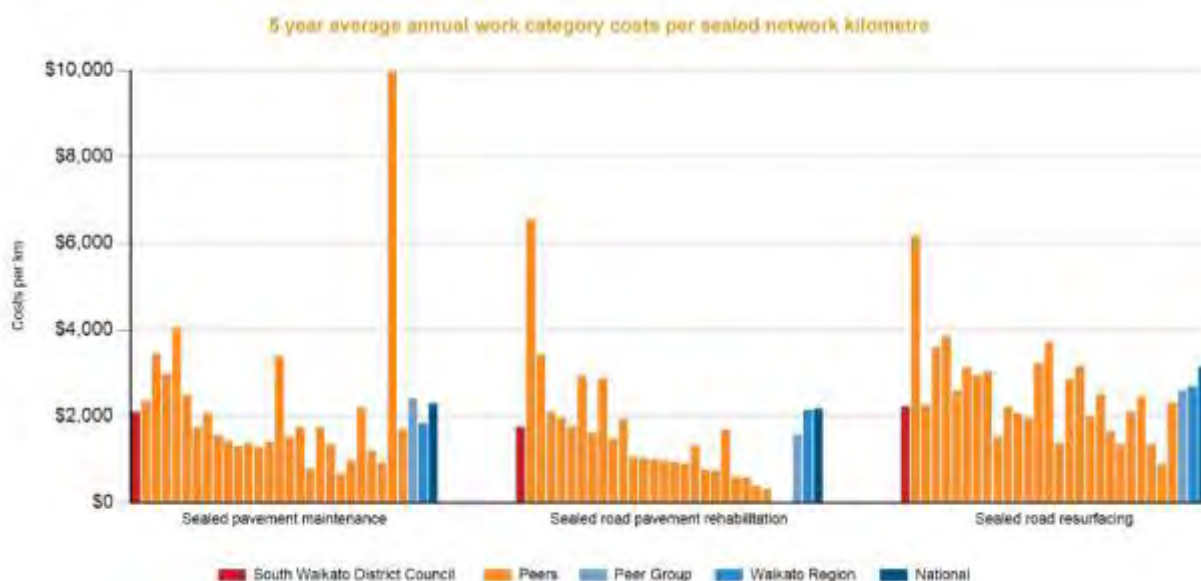


Figure 32 Sealed road maintenance costs per kilometre

The figure above shows that Council continues to maintain its seal network at an average cost that is below both its peer group, the region and national. Council believes that is achieved by good contracts rates and bundling of works, understanding of the network and positive Contractor and Council relationships.

While a theoretical programme of asset renewal required over this AMP planning period would be based on asset installation dates and standard asset lives, this does not mean that assets are automatically replaced when their life should be over. Condition, reliability, maintenance cost and other factors are monitored and used to determine which assets are actually replaced.

Earthworks Asset Group

The strategies applied to maintenance of other assets, particularly drainage assets, are intended to preserve the earthworks and pavement. The ingress of water is the primary mode of failure of both sub-grade and pavement layers. The maintenance described below aims to preserve the load bearing capacity of the sub-grade, since no direct maintenance can be carried out on this layer where it is buried below the pavement.

Maintenance of the earthworks, where they are not buried, takes the form of grass mowing, filling of any tension cracks caused by ground movement, and the removal of slumped material where batters and banks may experience minor erosion.

Council does not budget for maintenance of urban street berms along privately owned frontages. The value of rural vegetation control is \$160,000 per annum both subsidised and non-subsidised.

Pavement Asset Group

Maintenance-The above comments also apply to the pavement. Along with water ingress, heavy loads are a major cause of pavement failure. The impact loads created by heavy or high speed traffic after loss of surface shape are many times the normal design load. Occasionally, pavement is damaged due to defects in the sealed surface, creating potholes. Intervention includes rapid maintenance response to waterproof and smooth the defect, and the routine re-grading and compaction of unsealed shoulder areas. This work is covered by maintenance contract schedule items provided for under the budgets for pre reseal maintenance, dig-outs, and carriageway defects, totalling about \$751,000 per annum.

Renewals-“Pavement rehabilitation provides for the replacement of, or restoration of strength to, pavements where other forms of maintenance and renewal are no longer economic.” Replacement takes one of two forms, reconstruction or pavement treatment. In either case, existing granular layers may be salvaged and re-laid, sometimes employing lime or cement stabilisation of the existing pavement. New base course layers are added and the finished work is first-coat chip-sealed as part of the budget.

An annual programme of 3 to 5km of rehabilitation has been completed over the past decade. The reduction in the backlog of this work has seen an overall improvement in the rural network, but increased roughness on urban streets. It is important that “rough” urban streets with substandard kerbs are rehabilitated with a regular 800 to 1200m programme each year; otherwise the total network will continue its apparent increase in roughness.



Figure 33 Maintenance Operation and Renewals Cost per Km

The figure above illustrates SWDC cost per km compared to peer group with a three yearly average. Council cost is mid-range of the peer group and has had very little change over the last three years. SWDC will work with other Council's within its peer group to identify opportunities to reduce cost.

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.
- Reduction in deaths and serious injuries at reasonable cost- **Safety**.

Problem Statement

Challenging network environment and driver behaviour.

Unlocking the network for HPMV and 50Max.

Benefits

- Improved Safety, reliability and resilience
- Improved return on investment
- Least cost, whole of life consideration

Consequences

- Reduction in safety, reliability and resilience
- Increased reactive maintenance
- On-going deterioration resulting in cost inefficiencies

Evidence

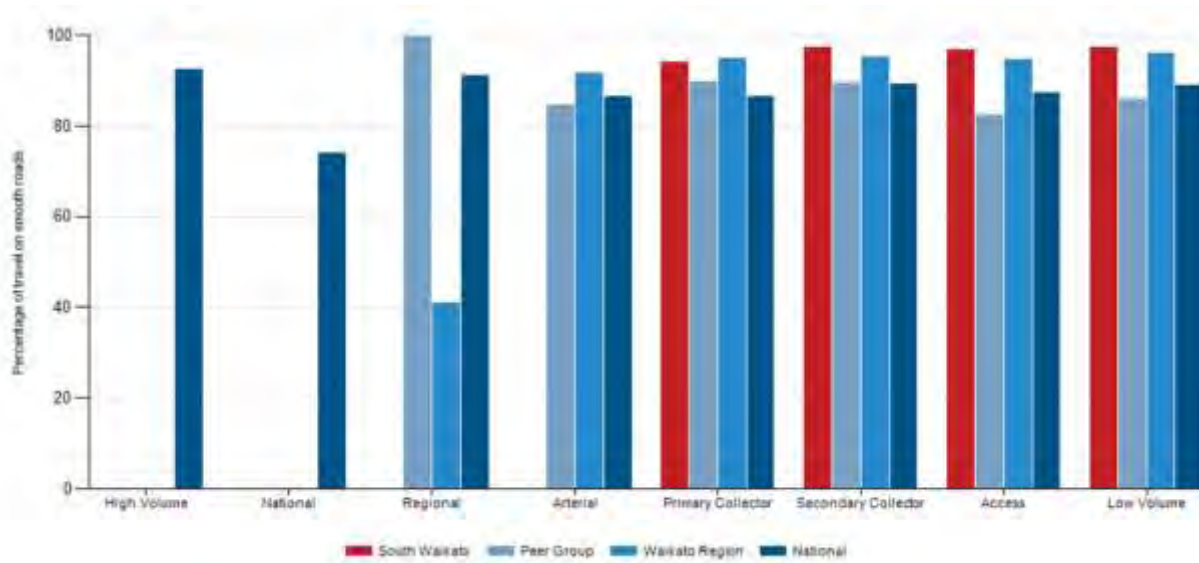


Figure 34 Amenity Customer Outcome 1 - Smooth Travel Exposure (STE)

Figure 38 clearly demonstrate that Council has a much rougher network as compared to its peer group and the region. This is across the ONRC classification. Council is aware of a backlog and will be addressing this through increased funding as reflect in the work category. While this is the case SWDC has made a conscious decision to retain a 15% backlog of overdue seals to order to focus on other network issues. These overdue seal are on low traffic rural roads and can be extended without any major financial implication later on.

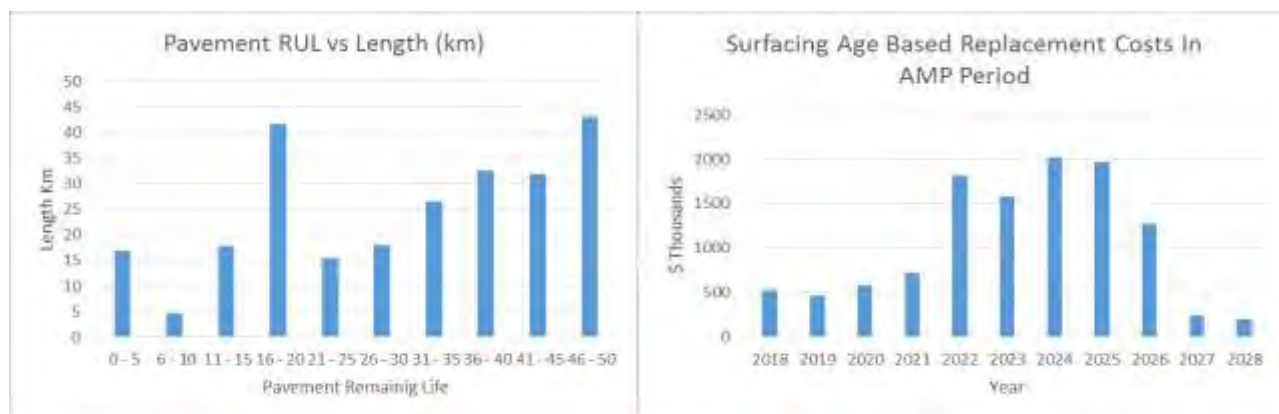


Figure 35: Total Pavement Remaining Useful Life & Surface age Based Replacement Cost

The figures above indicate the tool available in “RAMM” to project asset renewal needs over a long period of time. In these two examples “resurfacing” (sealing) shows an increasing need over the next 10 year planning period. In the second example “pavements” indicates the need to renew on average of 25km for each 5 year period throughout the 45 years. Asset management activities include re-prioritising the predicted requirements to achieve a smooth investment programme, extending the life of some road sections and bringing forward others which may be deteriorating faster than projected.

Extended life is expected from the more recently reconstructed pavements and this has been reflected in the assessment of depreciation of pavements. The following provides the programme over the next 3 years (in 2017 dollar values) including professional services:

- Year ending 30 June 2018 \$850,000
- Year ending 30 June 2019 \$900,000
- Year ending 30 June 2020 \$920,000

Note the change in emphasis from reconstruction to “least cost maintenance” strategies. This change means that the pavement integrity should not be compromised, but geometric improvements are now severely limited.

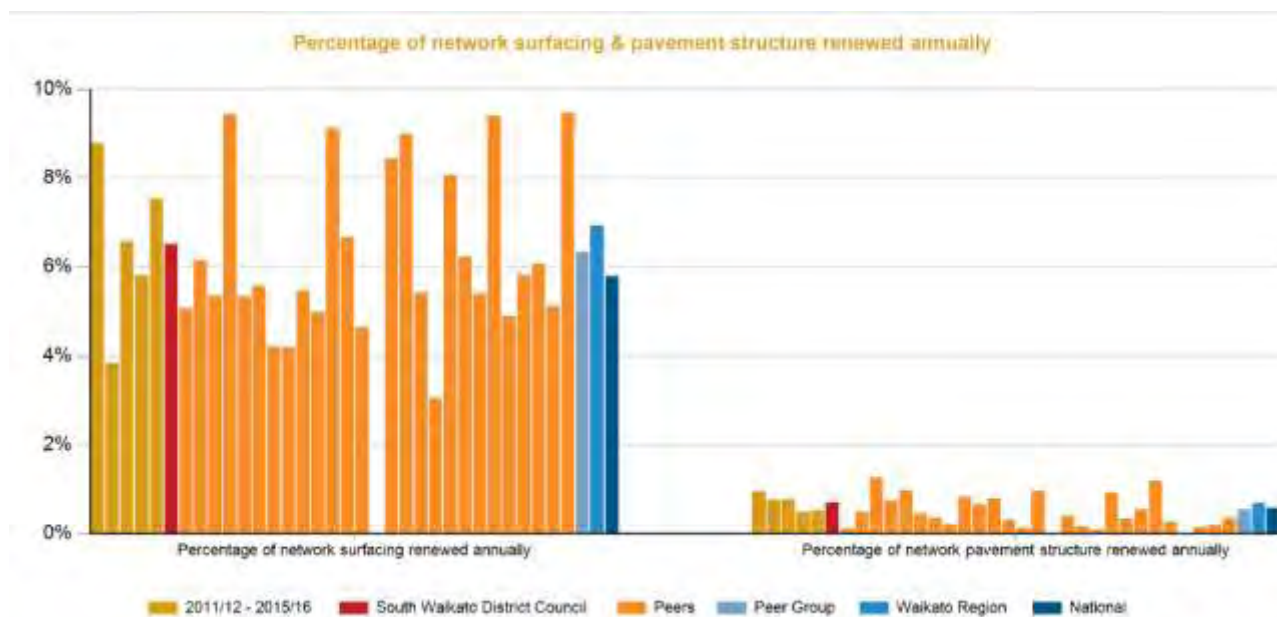


Figure 36 Cost Efficiency - Annual Surfacing & Pavement Renewals Percentage

SWDC timing of both pavement rehabilitation and resurfacing is targeted to minimise whole -of-life cost while delivering the required customer outcomes. Both the pavement and resurfacing is in line with Councils peer group and region. The SWDC network historically achieves good seal lives has compared to its peer group, however Council believes that seal lives can be further improved with an increased investment in pavement maintenance.

Council's current LOS refers to:

- At least 70% of Council's network by length will meet the Agency's target for roughness and not more than 15% of road length shall exceed the NZTA maximum target roughness.
- Council will respond to 100% of all transport service request within ten working days.

Improvement

These LOS currently do not achieve any efficiency and value for money and will be revisited to ensure alignment to the ONRC LOS.

Surfacing Asset Group

Where heavy traffic is using minimum-width roads, or for other reasons frequently pulls off the sealed surface on to an unsealed shoulder, additional wear to the edge of the sealed pavement occurs. Maintenance operations periodically replace the lost sealed edge and repair widened sealed areas. This work is covered by a maintenance contract scheduled item provided for under the budgets for edge breaks, seal patching, and markings with a total value of about \$165,000 per annum. Council is also focusing on seal widening under width roads through a seal widening programme to ensure safe use by HPMV and 50MAX vehicles.

Council's re-surfacing programme is the key to sustaining the road surfacing asset in good condition and optimising the cost of pavement reconstruction.

In the development of the annual reseal programme both the RAMM Treatment Selection programme are used to establish an initial list of pavements showing signs of deterioration and that will require resurfacing.

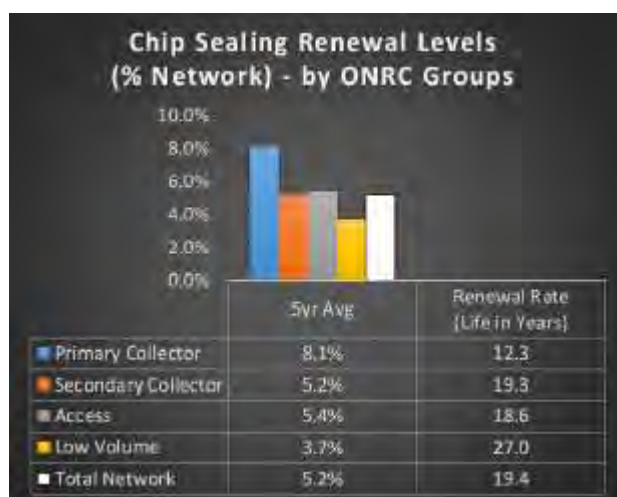


Figure 37 Surfacing by ONRC

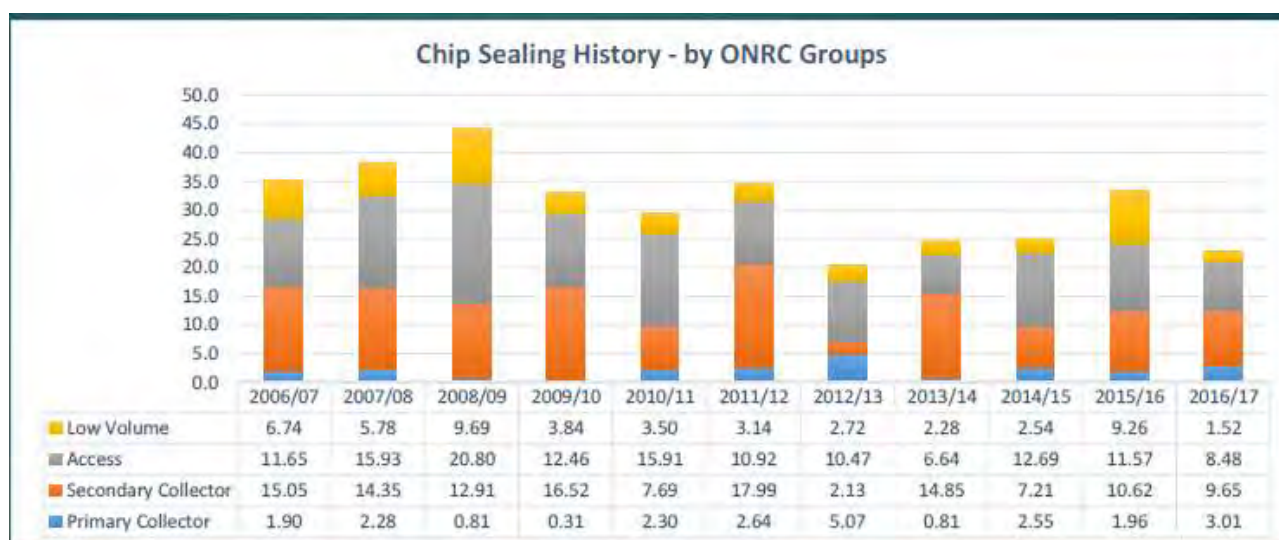


Figure 38 Surfacing History by ONRC

Seal coats on all roads are maintained in good trafficable condition and resealed prior to becoming worn and failing. The seal life expectancies are followed fairly closely and confirmed by a visual inspection prior to setting each year's programme. While the network has 17% of seal that are overdue by age and condition a steady programme, around 6% per annum of resealing and asphalt surfacing is prudent to maintain this valuable roading component. A number of the overdue seal renewals are seals that are performing well with low traffic volumes and cul-de-sacs heads. Figure 42 illustrates surfacing history by ONRC. Council has made a shift to increase the sealing lengths in both the Collectors and Access roads to achieve value for money.

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.
- Reduction in deaths and serious injuries at reasonable cost- **Safety**

Problem Statement

Challenging network environment and driver behaviour

Benefits

- Improved Safety, reliability and resilience
- Value for money

Evidence

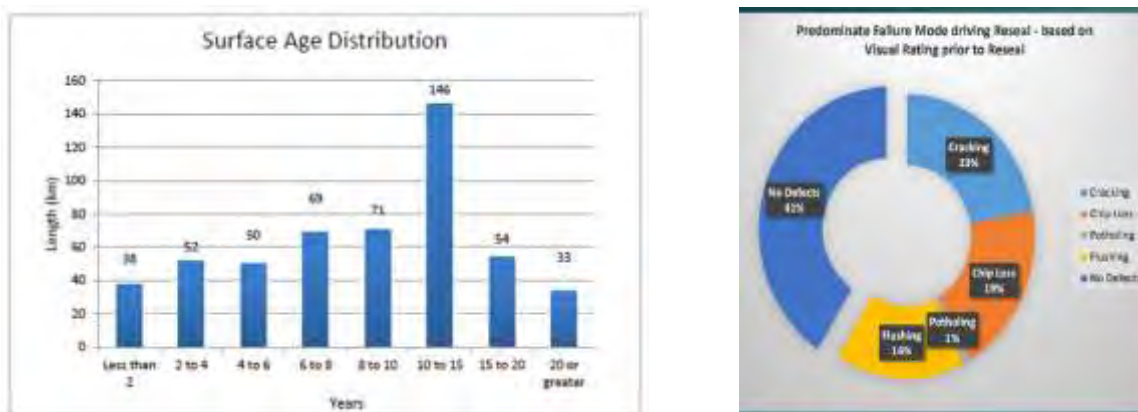


Figure 39 Surface Age Distribution

The figure above highlights the surface age distribution in length against years. The largest km of surfacing sets within the 10 to 15 year bracket. Council seals are performing well and there is no need to change the currently level of service. Resurfacing forecast require the following expenditure in the next three years, showing a minor increases on account of increased lengths of network from the forest conversions and includes second coat seals. Budgets include Professional Services.

- Year ending 30 June 2018 \$1,070,000
- Year ending 30 June 2019 \$1,070,000
- Year ending 30 June 2020 \$1,100,000

The majority of Council's resurfacing budget is spent on TSF (Thin Surface Flexible), surfacing, usually chip seal. Specific areas are treated with alternate surfacing as are allowed for in special areas:

Asphaltic Concrete: appropriate in identified CBD zones; high loading and stress areas i.e. roundabouts and intersections.

Slurry surfacing: currently used infrequently, but appropriate in cul-de-sacs and parking lanes.

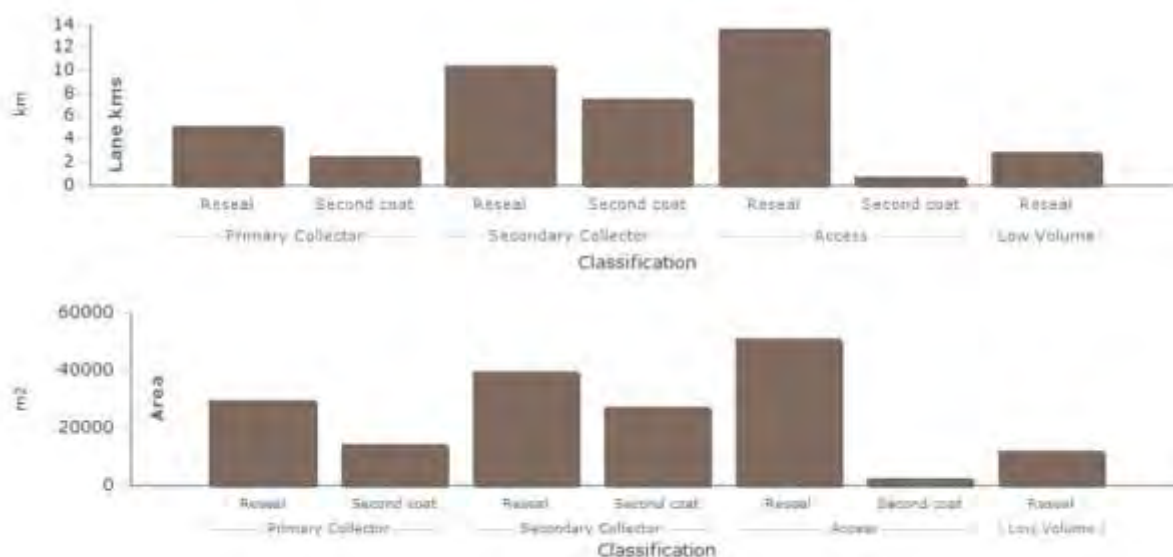


Figure 40 Cost Efficiency 2- Chipseal Resurfacing (Length & Area)

Consequences

- Condition deterioration

- Loss of level of service
- Increased maintenance and renewal cost

Options

- Maintain current level of sealed pavement maintenance with increase in surfacing and pavement renewals
- Increase seal pavement maintenance with an increase in both surfacing and pavement renewals
- Preferred- increase surfacing and pavement renewals short term to deal to backlog with an increased sealed pavement maintenance and reduction in renewals once the backlog is removed.

Improvement

- Councils current LOS refers to 8% by area of the district's sealed network is resurfaced annually. The LOS is currently driving wrong behaviours and will be reviewed to align to the ONRC LOS.
- Compare SWDC results nationally and against peer group to identify opportunities to improve
- Demonstrate a robust programme through good data
- Assessment of the programme against sustainability and value for money.

Drainage Asset Group

Kerb and Channel

Concrete kerbs and channels require occasional repair when damage is caused, for example by heavy vehicles mounting the kerbs. This can occur when long vehicles enter and exit local driveways.

Where no concrete channel and piped system is provided, the surface water runoff is captured by open graded v-shaped drains which lead water away from the road. Cleaning of these assets is financed by an annual budget for channels and drains amounting to some \$38,500.

Kerb and channel renewals are initiated by either the extent of cracking, dislocation, breakage or concrete deterioration; and by adjacent pavement rehabilitation works. They are funded from the "Drainage Renewals" (\$80,000), and "Non Subsidised" (\$50,000).

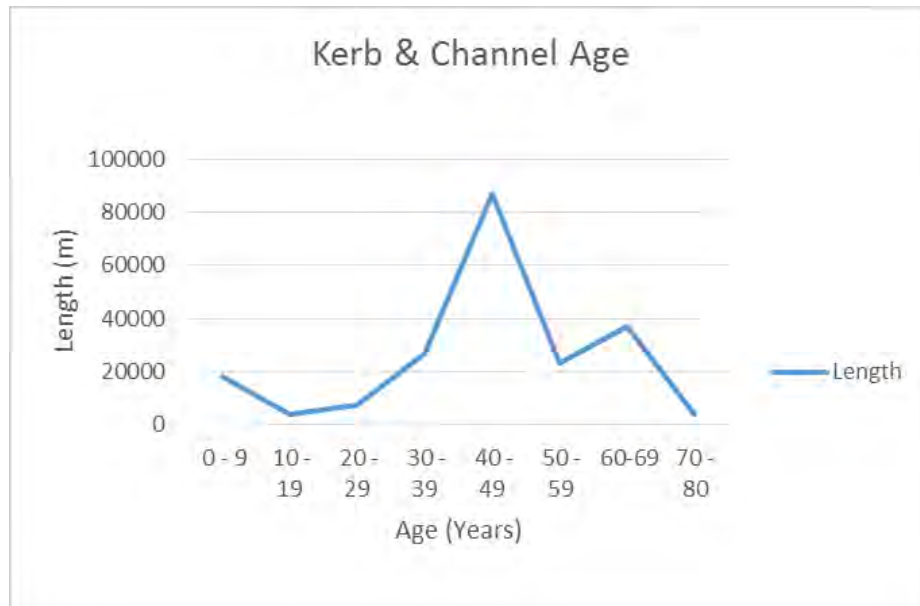


Figure 41 Kerb & Channel by Age

Historic surveys indicate a deteriorating condition so Council needs to accelerate the kerb and channel programme under the Drainage Renewal activity. The figure above highlights length of kerb and channel against age. In recent years this activity has not been done in isolation, but combined with adjacent pavement rehabilitation projects which present a tidy finish to the street on completion. This adds value for money and Council will continue with the current approach.

Drainage

Regular inspection, annual cleaning of catchpit grates and sumps, and periodic street sweeping occurs to remove settled silt and debris. This is governed by the following schedule which gives rise to costs of \$250,000 per year, with only 30% qualifying for financial assistance from NZ Transport Agency.

Level of Service

Table 24: Drainage Asset Group Inspection Program

Location	Inspection Interval
Central Business Districts of Tokoroa, Putāruru and Tirau	3x / week
Primary Streets all areas	Monthly
Secondary Streets, Service Lanes and suburban shop frontages	Two Monthly
Local Roads	Three Monthly
Public Carparks	Two monthly
Other Streets and Service Lanes	Three monthly
Rural kerb lines, Arapuni Dam and Adjacent Carpark	Six monthly

Additional seasonal cleaning is specified to cater for autumn leaf falls.

Street and sump cleaning is contracted by Council on urban state highways by agreement with NZ Transport Agency.

All culverts are inspected and cleaned on a regular basis. Inlets and outlets need regular maintenance to prevent undermining and collapse of the end pipes. Inlet and outlets are cleaned once every two years on rural culverts. Deficiencies are noted and repairs or replacements are carried out as required. Typical faults include displacement of joints and undermining of individual pie sections, rather than asset component deterioration. Big culverts are checked annually. The cost of cyclic culvert maintenance, drains, channels, and removal of high road shoulders is about \$479,960 per annum.

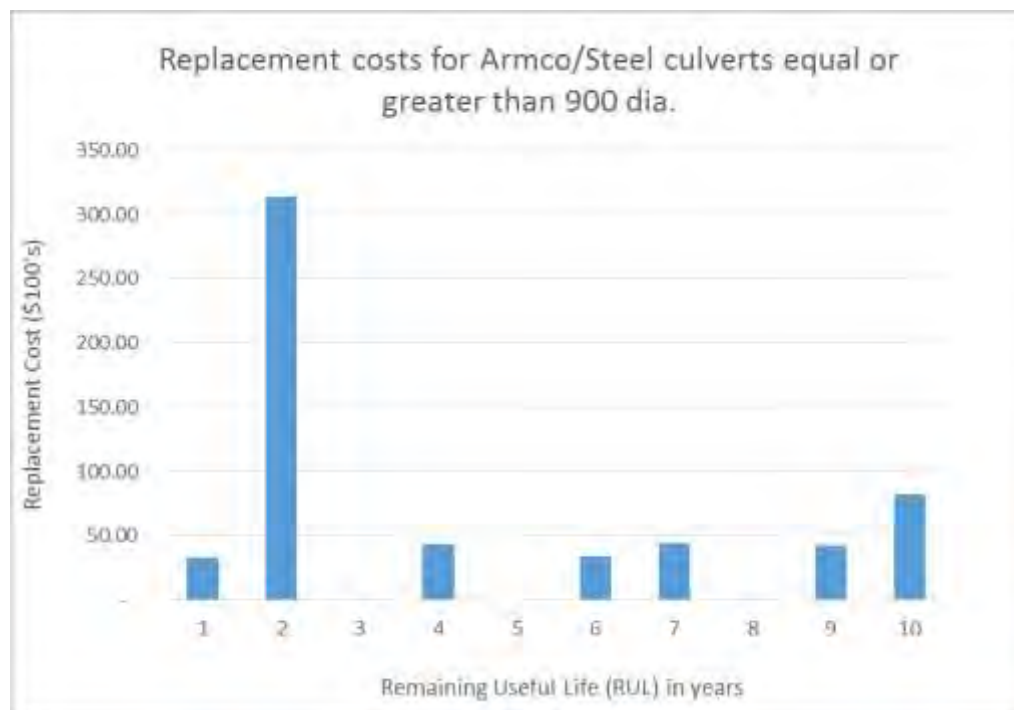


Figure 42: Culverts: Replacement cost

Only minor renewal of drainage assets is expected in the plan period. Most culverts have considerable remaining life, and therefore renewal requirements are decreasing.

Often culverts that have obvious faults can continue to provide adequate service for many years in that condition without risk to road users. Some fairly recently installed corrugated steel 900mm dia culverts are indicating a poor useful life, and

will need to be considered for replacements during the next 10 year planning period. Council will undertake a more robust condition rating of these culverts and a prioritised replacement programme put in place.

Culvert renewals are funded from “Drainage Renewals” (\$85,000) for the 2017/18 year, plus a proportion of \$8,500 for Professional Services.

Any large culvert replacement to ensure adequate capacity will be funded from the Low Cost/ Low Risk work category.

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.
- Our infrastructure is financially and operationally sustainable; it contributes positively to our **district environment**; and it is cost effective for households and businesses, now and in the future.
- Reduction in deaths and serious injuries at reasonable cost- **Safety**

Problem Statement

Climate change impacts on duration, intensity and frequency of storm events

Impact of land use changes (forestry to dairy, industrial expansion) with associated level of service changes on the network. Specific problems related to physical changes in catchments and effects on stormwater.

Benefits

- Improved safety, reliability and resilience
- Improved return on investment
- Planned vs reactive
- Reduction on asset/property damage

Evidence

A lack of capacity in drainage structure, particular forestry to farming conversion is have an impact on the network. The on-going issues has influenced journey times from localised flooding. While council has identified a gap with recording road closures an improvement plan with ensure this is being addressed. A number of Armco pipes needs replacing due to condition and in 2016/17 three large culvert were replaced due failure.

The average rainfall recorded in Tokoroa as illustrated below reflects more than twice the rainfall from 2012 as compared to November 2017. This increase storm events together with land use changes has create a number of challenges for Council including road closures due to localised flooding, culvert blow outs and property damage.

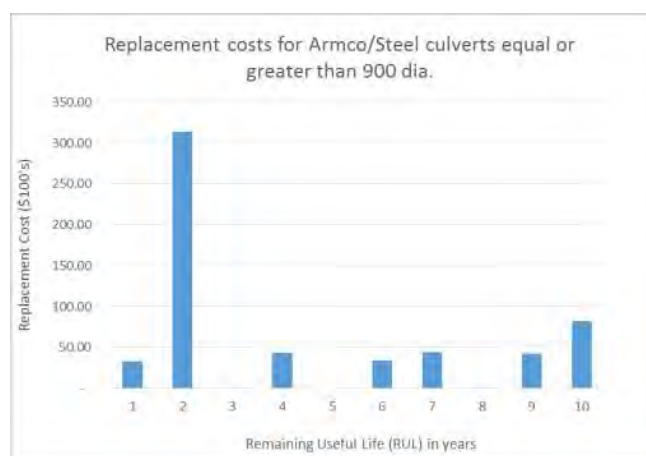


Figure 43 Replacement Cost for Armco/Steel Culverts



Figure 44 Damage culvert on Nicholson Rd



Figure 45 Localised Flooding due to capacity issues

Average Annual Rainfall (Tokoroa)

Consequences

- On-going culvert failure
- Road closure/disruption (Reliability/ Resilience)
- Property and environmental damage
- Increased maintenance and renewal cost through unplanned works

Options

- Status quo
- Increased level of service to increased maintenance activity
- Reactive maintenance
- Preferred - planned renewal programme associated with risk and consequence including proactive maintenance

Improvements

- Improving evidence base data
- Working with farmers to improve detention areas on farms
- Ensure appropriate drainage on vested roads
- Gap analysis of level of service - road closure currently not being collected
- Proactive maintenance to address known hot spots to maintain appropriate level of service

Structures Asset Group

Normal physical maintenance on these very durable assets is minimal. However, they must be in good condition in order to withstand infrequent but potentially destructive storms. Therefore all bridges are fully inspected on a two yearly frequency with waterways and general condition checked six-monthly, under the professional services budgets. A small programme is required each year to attend to superficial deterioration, e.g. painting handrails, waterway clearance costing \$30,000.

Deficiencies identified in the biennial inspections are attended to as necessary. Any major works are identified well in advance by this process. An inspection of Council's roading structures was carried out by Opus during 2016, in accordance with NZ Transport Agency Bridges and other significant highway structure inspection policies. Maintenance works identified during the inspection are being undertaken against available budgets with a \$200,000 structural improvements planned for the Arapuni Rd Bridge over the Waikato River as identified in the report including other bridges. Concerns were raised following the observation of corrosion developing on the load bearing I- beam. It was recommend that a more detail inspection be undertaken to confirm the structural integrity of the bridge.

With the increasing frequency of overweight loads being transported on roads there is a need to monitor the effects on the more frequently used bridges. Bridges on Wiltsdown, Horahora and Arapuni have weight restrictions. These bridges will be assessed and a strengthening programme identified to unlock further parts of the network. Council in the Long Term Plan has also identified the need to strengthen the Oraka Stream Bridge to address the overweight/ over dimensional route used by the Agency. The route is required to overcome the height restriction of the rail overhead bridge south of Tirau. Council plans to seek 100% funding for this improvement.

There is currently only one renewal planned for the bridge assets as they are in generally good order, but there are some very large “woodstave” culverts (that qualify as “bridges”) showing signs of deteriorating condition. All bridges and large culverts are inspected closely every two years with a detailed inspection every six years. Oraka Stream Bridge on Okoroire Road strengthening is planned for 2021/22 at an estimated replacement cost of \$980,000.

In addition there are currently 39 stock underpasses under Council roads. More are being installed each year as the trend to larger farm units leads farmers to own land on both sides of the road. The ownership and maintenance of an underpass remains with the property owner and is not considered a Land Transport asset. Council may offer to subsidise the cost of an underpass in accordance with the NZ Transport Agency policy, and requires the owner to enter into an easement agreement to install the underpass under the road and maintain it. Council will initiate an inspection of these underpasses as part of the bi-annual bridge inspection and will report the condition of the underpasses to the farmer. Any structural repairs will be undertaken by the property owner.

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.

Problem Statement

Providing a transport network that is free of restrictions

Benefits

- Improved safety, reliability, resilience and growth

Evidence

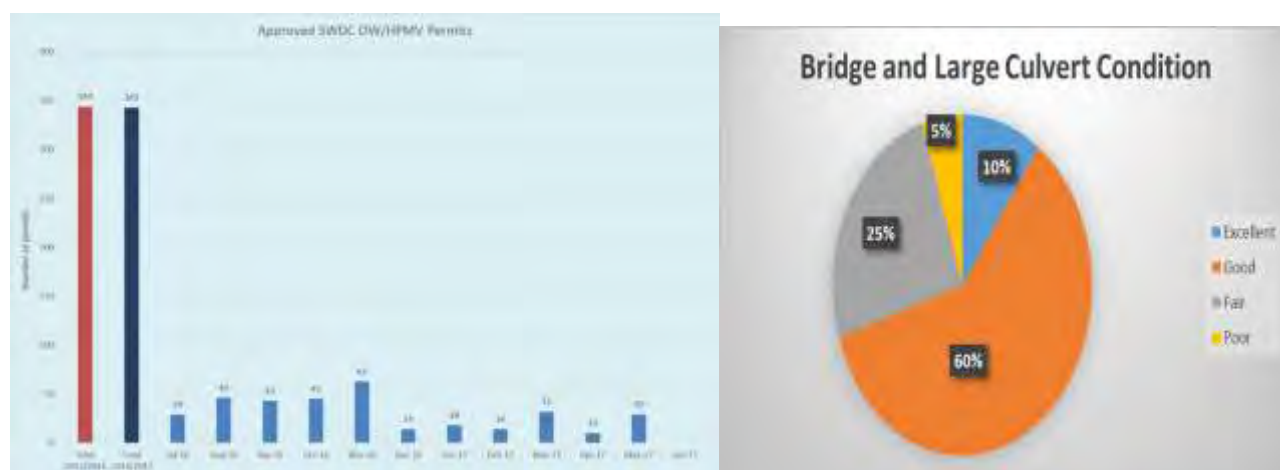


Figure 46 Approved OW/HPMV Permits

The figure above demonstrates the number of application SWDC process annually. During 2016/17 344 permits were issued and as of May 2017 343 permits issued. Council continues to receive daily application and will continue to seek opportunities to unlock the network including strengthening of structures.

Refer to HPMV restriction map (Appendix A2)

Consequences

- Road closure/disruption (Reliability/ Resilience)
- Increased likelihood of incident with extreme consequences
- Increased maintenance and renewal cost through unplanned works

Options

- Status quo
- Increased level of service to increased maintenance activity

- Reactive maintenance
- Preferred - planned renewal programme associated with risk and consequence including proactive maintenance

Improvements

- Move all structures asset data inventory and condition to RAMM
- Improving evidence base data

Street Lighting Asset Group

The contractor inspects all lights on a monthly frequency and attends to lamp replacements, cleaning and other general maintenance as required. All maintenance items are reported monthly to the SLIM's database which generates payment in terms of the contract. The inspection regime works well with over 80% of all faults being attended by the Contractor during the regular monthly inspections.

As recommended in OEL's street lighting strategy, renewals were prioritised over a 10 year period. The strategy is as follows:

- Replacement of wooden poles
- Standardising in urban residential areas on more efficient 70 watt high pressure sodium lights
- Standardising on arterial streets with 150 w HPS lights to obtain a luminance of 0.5 cd/m²
- In CBD areas obtain luminance values of between 3 and 25 lux, averaging 7/10 lux

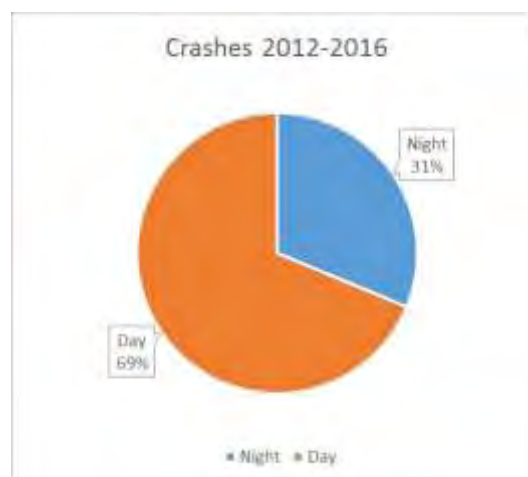
The strategy will be updated in 2017-18, and while the old strategy priorities were set for upgrading streets with seriously substandard lighting the updated strategy introduces LED lighting.

Although Council has been progressively installing around 200 LED street lights over the past three years the Agency's recent adjustment of their Funding Rate to 85% means it is now economically viable and attractive to accelerate the replacement of the remaining street lights.

The business case highlights the remaining 2,450 street lights in Tokoroa, Putāruru, Tīrau and Arapuni to be replaced over the 2017/18 financial year.

The on-going 566 pole replacement programme for improvements will be funded from "traffic services renewals" in the sum of \$120,000 for 2017/18 inclusive professional services. Specific sites, especially rural intersections could be funded from the Low Cost/ Low Risk improvements work category.

General public complaints are directed daily to the contractor via the consultant using the service request system.



Current Level of Service

Street Light Contract	Inspection Frequencies				
	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Total Network (night time inspection)	Monthly				
State Highways (night time inspection)	Monthly				
Activity	Response Times				
	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Facility Maintenance	3 working days			5 working days	
Five or more consecutive lights any location	1 working day for physical work and 1 hour for response on switching faults				
More than 1 light in a street	24 hours including State Highways			12 hours	
Other Lights	48 hours				
Emergency Situations to ensure safety	Immediate				

Link to Strategic Case

- Delivery of the **right** infrastructure and services to the right level at the **best** cost.
- Our infrastructure is **financially and operationally sustainable**; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.
- Improved network **resilience and reliability**.

Problem Statement

Inconsistent road networks and poor driver behaviour creating higher crash risk and lower road safety.

Benefits

- Improved safety
- Reliability and value for money
- Consistency
- Cost saving from maintenance and power cost

Evidence

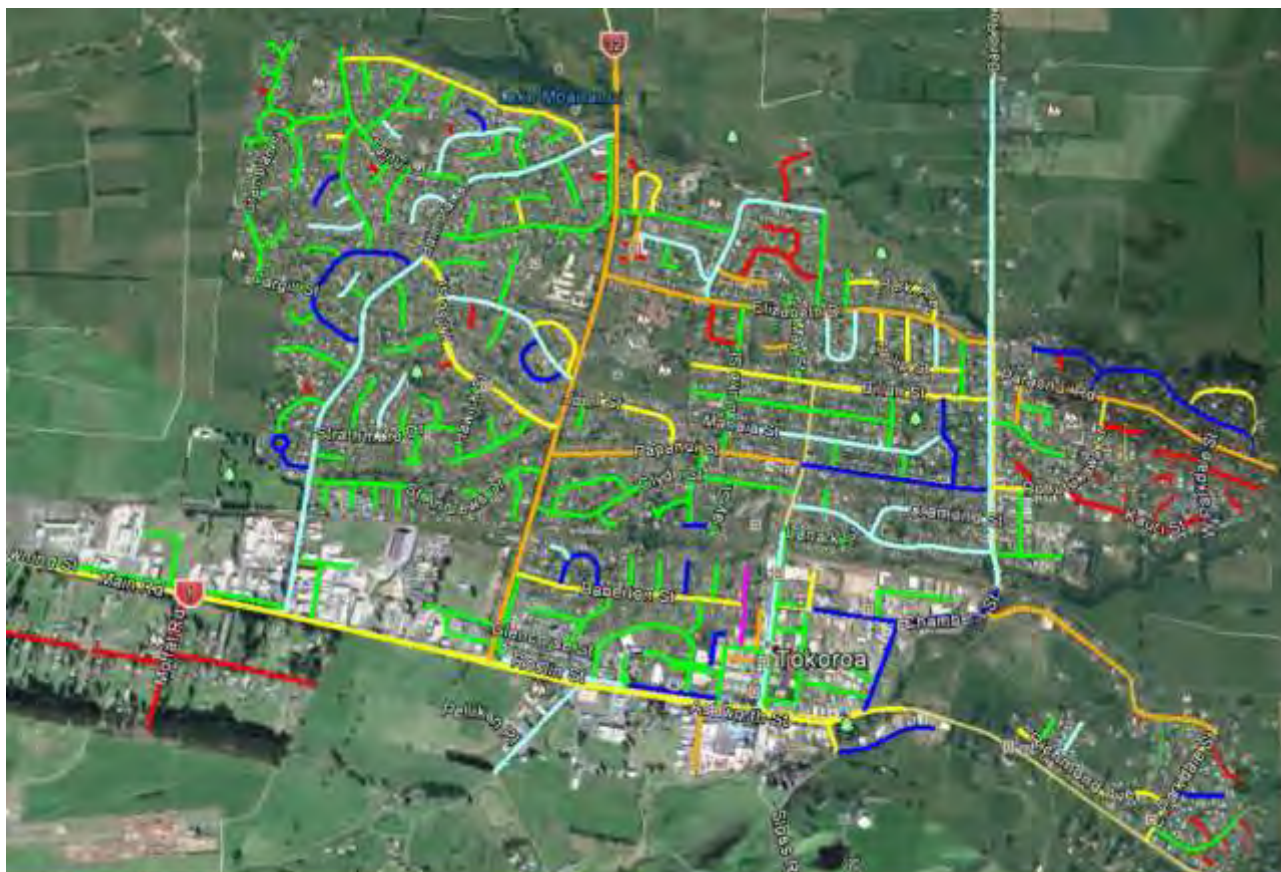


Figure 47 Lux Mapping of Tokoroa

During 2016 Council's engaged OEL to undertake lux mapping of the entire street lighting to better under standard where the deficiencies were. This provided council with evidence to target streets with low lighting levels to ensure lighting standards were being adhered to. The red illustrated streets that have lighting level that needs attention. The LED improvement programme with address these issues across the District.

Consequences

- In-consistency
- Go-going high maintenance and power cost
- Poor lighting levels
- Safety issues

Options

- Status quo
- Full LED conversion with smart controls and related management system
- Staged conversion over the LTP period

- Preferred - Convert existing P category luminaires to LED with inclusion of smart control system ready and fast track infill's and improvements in the first five years of the 2018-28 LTP through maintenance and power savings and traffic services renewal.

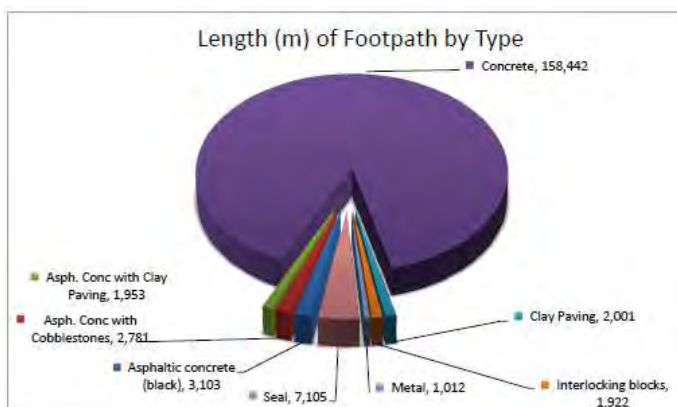
Improvements

- Improving evidence base data
- Improvement of RAMM data
- Reduce night time crashes through improved reliable flag lighting
- Gap analysis of level of service

Footpaths Asset Group

The footpath maintenance budget is between \$120,000 - \$100,000 unsubsidised annually. Footpaths tend to be high-maintenance assets since they are easily damaged by vehicles (including heavy verge mowing equipment) being driven over them, by maintenance work on underground services in the street berms and by street tree roots. Vehicle crossings are part of the footpath asset but are constructed more strongly to sustain these loads and resist accidental damage especially within the CBD zones.

A programme of regular footpath cleaning ensures the high quality paver surfaces are maintained appropriately and appropriate appearance is preserved. The pavers are washed down and gum and other marks are removed on a regular basis as part of the "litter" activity. Efforts are being made to reduce the slipperiness of clay pavers when wet, by chemically treating priority lengths of CBD paths each year.



Footpath repairs are carried out where short lengths of damaged asset can be isolated. Typical footpath repairs include cutting out sections of disjointed concrete path and replacing it, patching of chip seal, smoothing asphaltic concrete surfaces and re-laying loose pavers.

A further issue is the potential for old or very young pedestrians to be injured by tripping on uneven damaged path. These users may represent a significant proportion of footpath traffic, i.e. those who do not drive. Council has initiated removal of these tripping hazards by grinding down raised footpaths. Around \$10,000 is spent annually by a sub-contractor to undertake this work.

In residential areas each property owner is expected to maintain any grassed berm fronting the property. In all other areas the Council accepts the maintenance responsibility.

The five yearly "condition rating survey" indicates the asset as a whole is improving. The extent of cracking, dislocation, and slipperiness and material deterioration determines priority works. Resident surveys and complaints are also used as a subjective measure to monitor public concern.

The current trigger for repairing dislocated footpaths is a 15mm displacement on the concrete path as advised by the Disability Action Group. This amount of dislocation can occur quickly with tree root intrusion and seasonal fluctuations. The tree roots are either removed or bridged with flexible pavement, i.e. concrete pavers.

Now that the CBD upgrades have been completed there will be a greater emphasis on footpath replacement in other areas throughout the district. Chip sealed path on the fringes of commercial areas are generally paved with "hot mix" asphalt to provide an improved finish.

These improvement works are funded from the capital "footpath upgrade" activity currently \$45,000 per annum. Footpath maintenance and renewal budgets are the largest activities that do not receive financial assistance from NZ Transport Agency- with the exception of "safety footpaths" e.g. Tirau Street, Putāruru opposite the Cemetery.

Council is currently reviewing its walking and cycling strategy to identify the need for new footpaths and to address the current footpath widths to accommodate share cycle paths and mobility scooters. Once completed a programme of works will be completed and funding sought from the Agency.

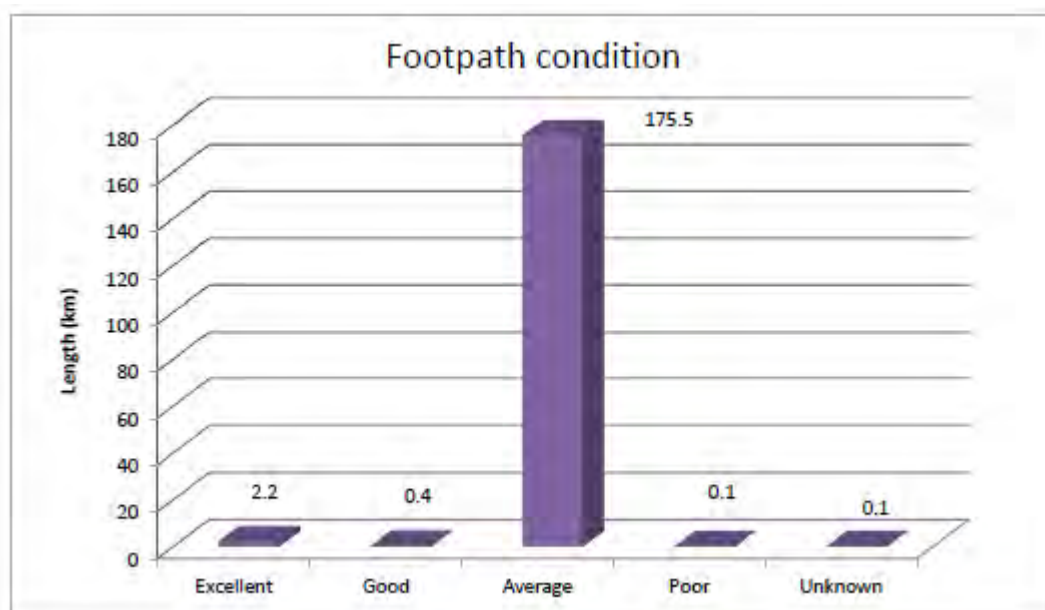


Figure 48 Footpath condition

The figure above shows that almost 98% of Councils footpath is in an average condition and while this is the case Council has increase the footpath maintenance budget to provide a higher level of service.

Link to Strategic Case

- Delivery of the **right** infrastructure and services to the right level at the **best** cost.
- Our infrastructure is **financially and operationally sustainable**; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.
- Improved network **resilience and reliability**.

Problem Statement

Aging population

Benefits

- Improved safety
- Ease of access to goods, services and facilities
- Consistency
- Health community - South Waikato District has one of the highest non- ownership of vehicles in NZ

Evidence

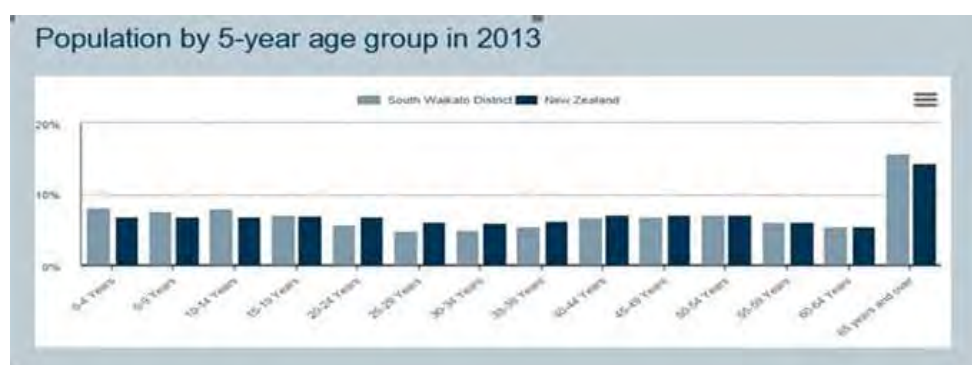


Figure 49 Population by Age Group

In 2013 population stats reflected a large portion of the South Waikato population at the 65 years and over. This continues to be the case with more retired couple moving into the district attracted by the location of the District and house prices.

Consequences

- Unsafe footpath
- Lack of access
- Health issues

Options

- Status quo
- Reduce maintenance and renewals
- Upgrade all footpath to accommodate shared cycle path and mobility scooters
- Preferred - Continue targeted improvements with community engagement include an increased level of service to ensure safe movement supported by public transport.

Improvements

- Improving evidence base data
- Improvement of RAMM data
- Walking and Cycling Strategy
- More user engagement- Disability Groups

Traffic Services Asset Group

A total of \$421,000 per year is spent on signs (\$35,000), road markings (\$130,000) and street lighting (\$320,000).

Road marking repainting is twice yearly on Arterials and some busy Collector routes, with annual remarking on the balance. Remarking in recent years has embraced new technology with “beaded water borne” products which show improved performance.

The condition of signs is monitored by the maintenance contractor and scheduled for replacement as required. The signs asset is therefore maintained to a high standard, as is appropriate for road safety. There are no established criteria in use for determining condition, such as reflectivity, and this is therefore left to the experienced judgement of the contractor and asset management staff. Replacements have been installed as identified in a comprehensive condition report by Harris Consulting.

Railway crossing warning devices within the rail corridor are inspected by other agencies. Kiwi rail has to date spent \$200,000 on improvements to railway crossing warning devices. Council will maintain all signage and road marking while Kiwi rail will maintain the hardware and on charge Council. This activity was previously subsidised at 100% by NZTA but is now at 55%. Approximately 490 signs were replaced annually giving an average life of 7 years/sign. Sign posts tend to last an average of 9.3 years. An average life of 7 years is used for depreciation purposes.

Signs, marker posts and guardrails are renewed as condition requires. Regulatory signs receive a higher priority than other warning or information type signs.

Routine maintenance and renewals are funded by two “Traffic Services” activities with \$220,000 allocated for 2017/18.

Traffic Services renewals relate to street signs (regulatory, warning, and information styles) for an annual cost of \$90,000, and street lighting (renewal of obsolete laminated timber/ concrete columns, lamps, control gear, and cabling to the Network fuses) at an annual cost of \$120,000 (17/18).

Current Level of Service

Traffic Services and Signs Contract	Inspection Frequencies			
	Road Classification			
	Primary Collector	Secondary Collector	Access	Low Volume
Night Inspections			Six Monthly	
Cyclic Inspections	Monthly	Monthly	Three monthly	Three monthly
	Response Times			
	Road Classification			
Activity	Primary Collector	Secondary Collector	Access	Low Volume
Regulatory Signs			48 hours	
Information Signs and Warning Signs			Seven Days	

Link to Strategic Case

- Delivery of the **right** infrastructure and services to the right level at the **best** cost.
- Our infrastructure is **financially and operationally sustainable**; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.
- Improved network **resilience and reliability**.
- Reduction in deaths and serious injuries at reasonable cost.

Problem Statement

Inconsistent road networks and poor driver behaviour creating higher crash risk and lower road safety.

Benefits

- Safety
- Consistent network
- Appropriate level of service

Consequences

- In-consistent network
- Increase renewal expenditure
- Lower level of service
- Safety issues

Options

- Reduce level of service by reducing maintenance and renewals
- Increase maintenance and renewals
- Preferred - Status quo maintain current level of service

Improvements

- Improvement of RAMM data
- Review level of service

Low Cost/Low Risk Improvements

Minor Improvements planned for the next ten years are estimated at \$4.5 million, and the activity is designed for “low cost/low risk” improvements to the network with individual projects limited to a maximum value of \$1 million. These are mostly rural road seal widening projects, intersection improvements, visibility improvements, minor safety improvements etc. The increase in dairy farming in the District will generate increased milk tanker traffic, including use of roads which were not constructed with sufficient width to allow other vehicles to pass oncoming tankers without one or both pulling partially off the sealed road pavement.

Various components are commonly required, and these often consist of traffic safety assets such as signs and sight boards, guardrail, road marking, pedestrian refuges or islands.

The intent of the programme business case is to support the continued need for investment in road safety for the District. Council point of entry discussions identified that a combination of challenging roads and roadside environments coupled with driver behaviours and mistakes result in fatal and serious injury crashes.

Council's current level of service refers to no fatal and serious injury crashes contributing to road conditions. The existing LOS will be reviewed against the ONRC requirements and activity's need to work towards achieving local, regional and national objectives

The activity will also include LED street lighting improvements, other site improvements, seal widening, isolated road geometry improvements which can be associated with renewal works, and construction of additional roads, bridges or culverts. The latter are have been discussed, where known, in the preceding sections.

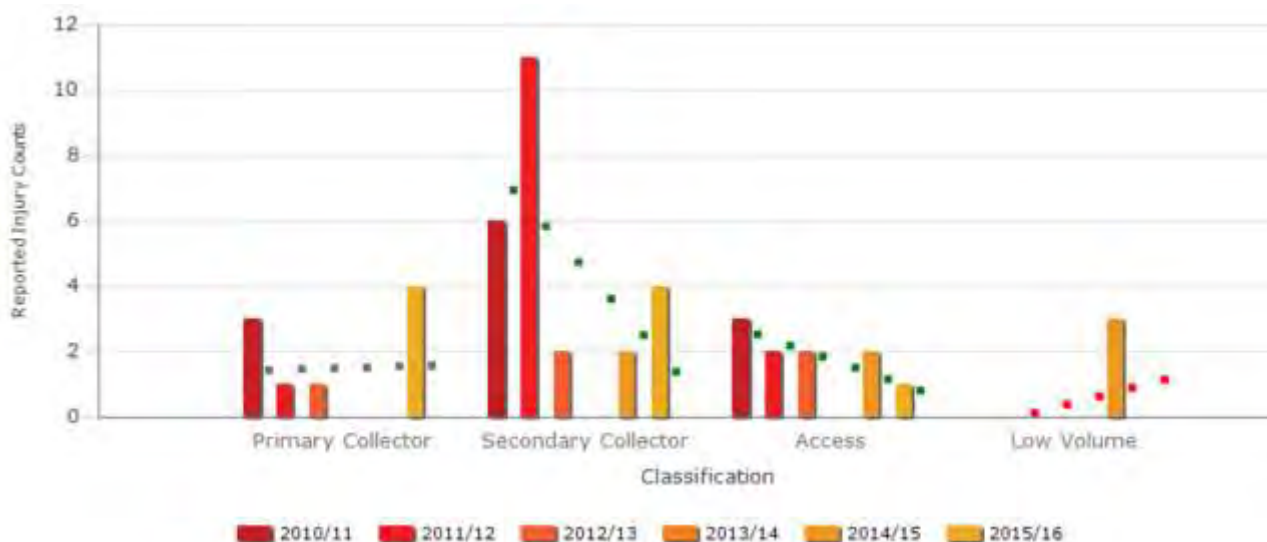


Figure 50 Customer Outcome 1: Serious Injuries and Fatalities

The number of FSI's has fluctuated over the years, however the trends across the network are decreasing as a result of continued focused education, enforcement and improvements to the network.

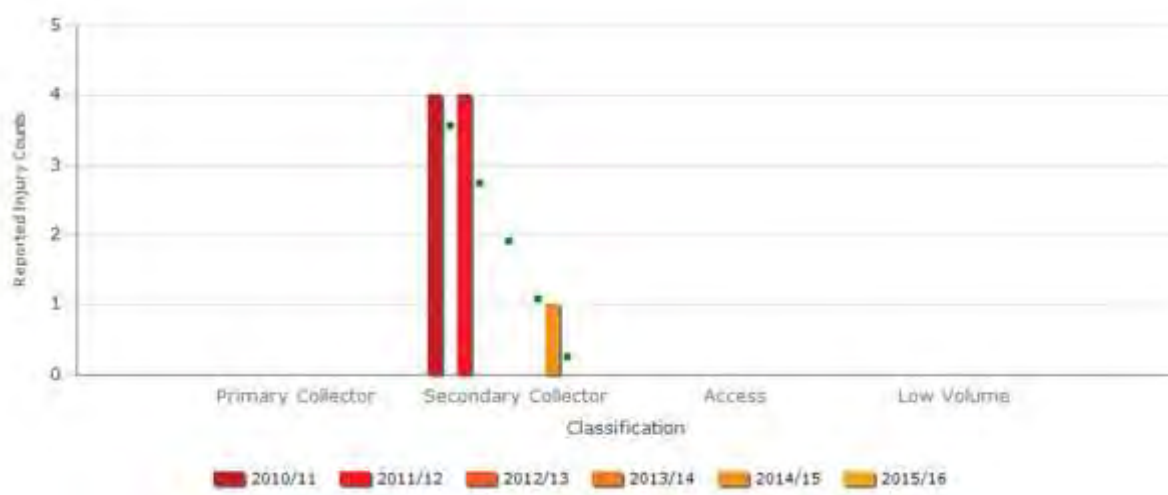


Figure 51 Technical Output 4 - Loss of Control on Wet Roads

The loss of control on wet roads is trending down as a result of on-going maintenance. These are random and Council will continue to focus on improvements

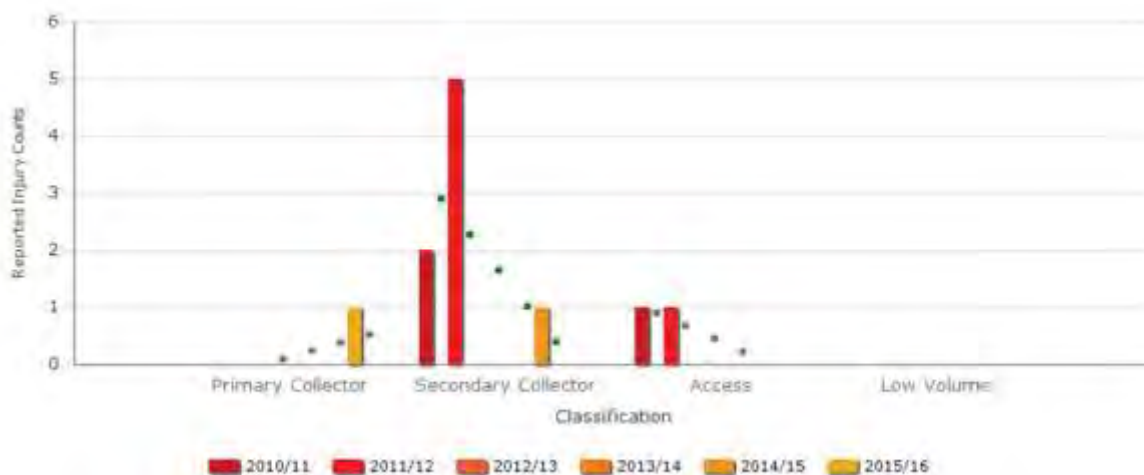


Figure 52 Technical Output 5 - Loss of Driver Control at Night

The number of loss of control for at night has decreased over the network as a result of continued focused education and improvements to the network. Council have a flag lighting programme in place and will target intersection with lighting issues.

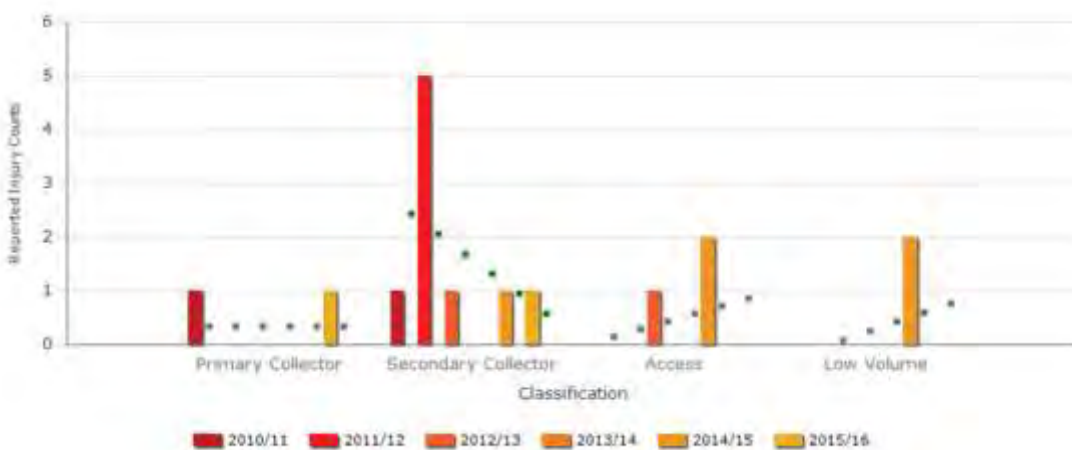


Figure 53 Technical Output 6- Intersection Crashes

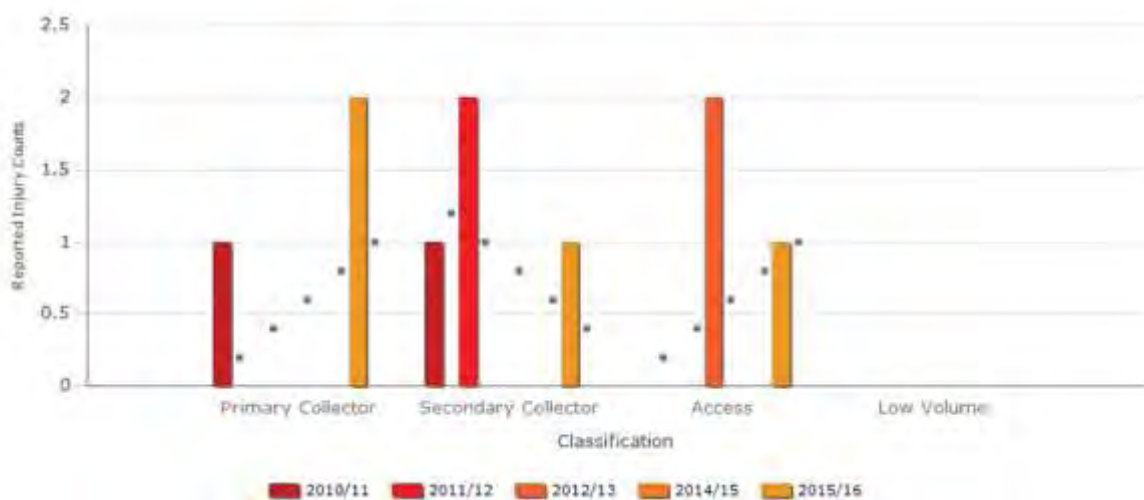


Figure 54 Technical Output 9- Vulnerable Users

Currently Council is looking at improving alignment and intersections to address the intersection and vulnerable user crashes. The following projects have been identified for the 2018- 2021 period:

- Domain Rd geometric improvements and sight benching improvements
- Old Taupo / Waotu RD Intersection realignment
- Mossop Rd Guardrail
- Old Taupo Rd 10 curve improvements
- Old Taupo Rd 13k curve improvements
- Old Taupo Rd 14k alignment improvements
- Urban lighting upgrade to LED
- Bridge Street and SH1 intersections improvements
- Swanston Street and SH1 intersection improvement

SWDC intends to make the most of the previous and current investment to utilise current best practice and thinking to provide a focus on reducing those life changing fatal and serious crashes which result in significant personal and economic costs.

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.
- Our infrastructure is financially and operationally sustainable; it contributes positively to our **district environment**; and it is cost effective for households and businesses, now and in the future.
- Reduction in deaths and serious injuries at reasonable cost- **Safety**

Problem Statement

Inconsistent road networks and poor driver behaviour creating higher crash risk and lower road safety.

Benefits

- Improved Safety, reliability and resilience
- Improved return on investment
- Reduction in fatal and serious crashes
- Consistent network
- Appropriate level of service

Consequences

- In-consistent network
- Increase in fatal and serious crashes
- Lower level of service

Options

- Reduce level of service by reducing maintenance and renewals
- Increase maintenance and renewals
- Preferred - Identified projects through CAS database/ deficiency data base that provides best outcomes

Improvements

- Improvement on collection of crash data not report
- Review level of service

Deferred Maintenance Statement

Currently there is no known deferred maintenance in any Land Transport assets and the full service potential of the assets are being maintained.

The policy is to avoid any deferred maintenance and, if it does occur, to document same in the assets database and account for it accordingly.

Land Transport assets, with the exception of bridges, structures and stormwater culverts, have shorter useful lives than many of Council's buried water and drainage assets. Many of them are also more visible and simple to inspect. Having completed at least one lifecycle, the management of these assets is far better understood. The National NZ Transport Agency subsidy structure, complete with investment criteria, standard specifications and many detailed guidelines, is also of considerable assistance in managing the maintenance, renewal and construction of new road infrastructure.

Condition, in particular road roughness, maintenance cost and other factors are monitored and used to monitor our network against comparable road controlling authorities.

Renewal and construction works are competitively tendered in the same way as described for maintenance services.

5.3 New Works

- New works will provide additional assets which increase the level of service, or introduce a new service. Ability to fund improvements to existing levels of service is limited. However, this will be necessary in some cases. Factors which drive new works investment include:
- While future regional or district transport strategies may require additional public transport assets to support new service levels, the main projected investments in new works are road assets (2.1 Activity Goals & Objectives),
- Public Demand, for extension of chip seal to currently un-sealed sections of roads or for improvement of road edge treatment from un-sealed shoulders and water tables, to kerb, channel, catchpits and culverts (Resident Population Demand for Changes)
- Potential requirement for roads currently maintained by Forest Owners to become public roads
- Public-use assets such as forestry blocks are broken up into dairy farm units. This trend is likely to decrease as farm conversions become more restricted due to the Healthy Rivers Plan Change.
- The introduction of the One Network Road Classification and level of service attached to the new hierarchy.

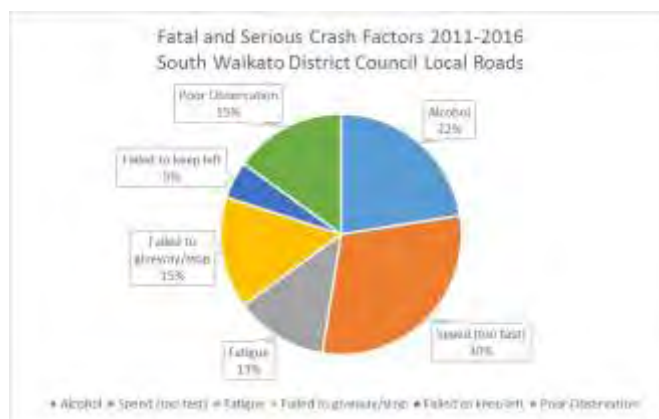
Speed Management

Council is committed to improving road safety and delivering the safety outcomes outlined in the national Safer Journeys strategy. Managing speed on the road network to safe levels is crucial to reducing deaths and serious injuries because the result of all crashes is strongly influenced by impact speed. Impact speed is a contributing factor in every road trauma, and approximately 25% of all serious crashes are caused as a direct result of inappropriate speed (either speeds over the limit or speeds that are too fast for the road conditions at the time).

The speed environment across much of the network is currently inconsistent and does not provide road users with sufficient information to be able to identify where they are at most risk. Safety protection on some parts of the network is still minimal, whilst in other areas safety provision is to a very high standard, yet there is often no difference in the speed limit or other visual indications to the person using the road.

New Zealand relies heavily on speed enforcement in locations of particular crash risk, but due to a lack of clear understanding of where the risk is this does not always make sense to the travelling public. To date public messaging about speed has not always helped to articulate this. For all of these reasons it is recognised that an improved and joined up approach to speed management is essential if we want to build public understanding and make a difference to the road toll.

The Waikato Regional Road Safety Strategy outlines a comprehensive cross-sector programme of work to address the region's priority safety issues and advance towards the regional safety vision of "working together towards zero deaths and serious injuries on the region's roads".



The RTC recognises, however, that in order to maintain progress, more attention must be paid to particular system weaknesses which lead to serious deaths and injuries. One area that requires priority attention is speed management, and more specifically, a consistent approach to speed management by all of the agencies responsible for road infrastructure, enforcement, education, compliance and other aspects of road safety.

Council will use the speed management guide to ensure:

- A network-wide approach to managing speed, tied in with ONRC, so that travel speeds are appropriate for road function, design, safety and use.
- Offer guidance for targeting to risk and prioritising investment
- Provide Council with guidance for setting speed limits
- Develop an evaluation framework to track effectiveness and measure performance

Speed management assessment will be guided by the following principles to help with the prioritisation:

- Plan, invest and manage using a one network approach
- The transport system should move people and goods efficiently and safely
- Investment in the network should be based on a sound business case and offer good value for money
- User of the transport system should expect levels of service appropriate for the function of the road
- The impact of land use on the transport system needs to be managed.

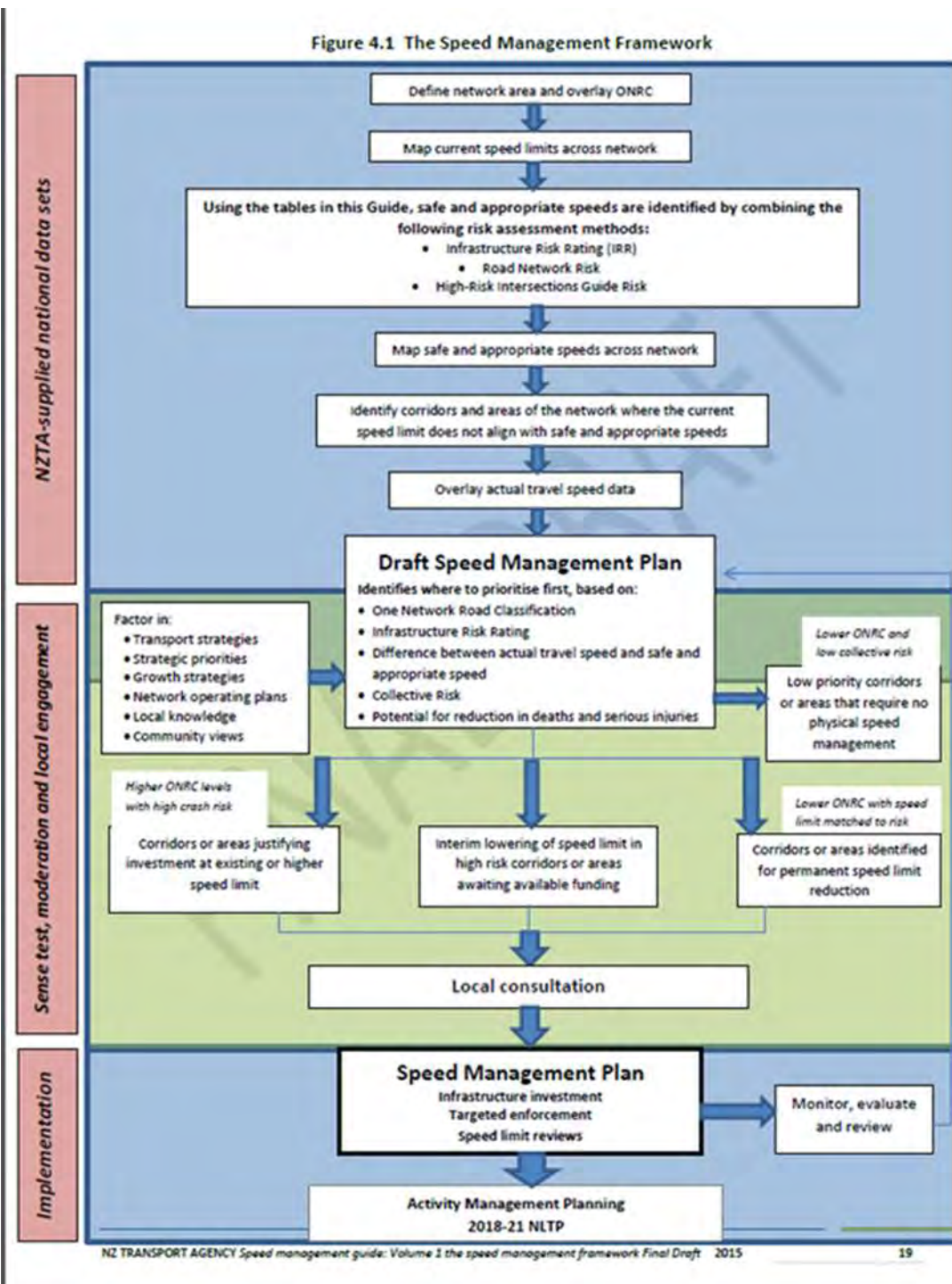


Figure 55 The Speed Management Framework



<p>Description:</p> <ul style="list-style-type: none"> - South Waikato District Council - Domain Road west of the railway is zoned industrial and the remainder is zoned rural 	<p>Key Facts:</p> <ul style="list-style-type: none"> - 1007(W) 450 (E) veh/day - 15%(W) 30% (E) HCV - 2.7km total length
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<p>The Problem</p>
<ul style="list-style-type: none"> - 100km/h speed limit through the industrial zone where there are a number of vehicle accesses, with relatively high proportions of heavy vehicles - In the rural environment there are a number of rural residential properties
<p>This site has been identified because:</p> <ul style="list-style-type: none"> - Current travel speeds are significantly lower than the posted speed limit, however there does not appear to be significant variation along the entire route; and
<p>Objective(s)</p> <p>We will deliver a travel environment where 85% of drivers chose to travel at or below the safe and appropriate speed (to be reviewed for consistency with wider messaging and Business Case)</p>



Initial Safe and Appropriate Speed Assessment		
Location	West of railway line	East of railway line
One Network Road Classification:	Primary Collector	Secondary Collector
Current Speed Limit:	100 km/h	100 km/h
Personal Risk:	N/A as 'rural town'	
Infrastructure Risk Rating:	Medium	Medium High
Safe and Appropriate Speed:	50 km/h ('rural town')	<80 km/h ('rural residential')
Actual travel speed (85%ile, 95%ile, variance)	50%ile = 62km/h 85%ile = 75km/h	50%ile = 64km/h 85%ile = 75km/h
Preferred Response:	60km/h or 80 km/h	80 km/h
<ul style="list-style-type: none"> • Engineer Up? • Self-explaining? • Enforcement? • Hard conversation? 	Self-explaining – current travel speeds are lower than the posted speed limit. The 50km/hr SAAS is based on land use of 'rural town' from the underlying industrial zoning. However, where there is industrial activity much of the adjacent land use is more rural in nature	

Evaluation of Potential Responses						
Options for Implementation	Roads and Roadside	Road User	Safe Speeds	Safe Vehicles	Evaluation (effectiveness and cost ¹)	Discussion
Permanent speed limit change			✓		\$	Travel speeds are lower than the existing speed limit
Speed advisory signs	✓				\$	Need for speed advisory signs near the railway crossing should be reviewed

References:

Available Responses (Speed Management Guide)	
Engineer up	A corridor that justifies investment to bring the corridor up to standard to maintain the existing speed limit or to support a higher speed limit
Self-explaining	A corridor where the current operating speed matches the calculated Safe and Appropriate Speed both of which are lower than the existing speed limit
Enforcement	A corridor where the calculated Safe and Appropriate Speed is below both the existing speed limit and current operating speed, and where criteria are not satisfied to justify significant investment to 'Engineer Up'
Hard conversation	A corridor where the calculated Safe and Appropriate Speed is below both the existing speed limit and current operating speed, and where criteria are not satisfied to justify significant investment to 'Engineer Up'

Council has actively involved with the demonstrating site to prove and influence the process in the draft guide. (Refer above). SWDC will include in their investment bid funding to assist with a regional speed management review.

Land Transport infrastructure

- Improvement in standards driven by changes in traffic type, volume and/or heavy commercial vehicle loading. These may be driven by the above land use changes or by increased production volume in dairy, bottled water or other industries. Improvements may be essential for safety or quality reasons
- Costs of improvement driven by Safer Systems implementation may also include capital expenditure, either by increasing the cost of constructing road assets, or by investment in additional or improved signs, crash barriers or other systems.

Programmes and projected costs are described in the following sections.

Un-Sealed Roads

On un-sealed roads the surfacing is in the form of a wearing course of metal that is regularly graded and renewed to prevent rutting, potholing, corrugation and other deterioration. While this activity is a very small part of the road network management and the resurfacing is treated as a maintenance item, and not regarded as a capital asset that has an additional 3,4km (Mamaku South Road) of unsealed road invested to council by forestry. The on-going maintenance of these roads has had an impact on budgets and has been identified in the LTP. Budgets have been increased from \$17,680 to \$38,680 annually to address the increased maintenance required to ensure a safer network.

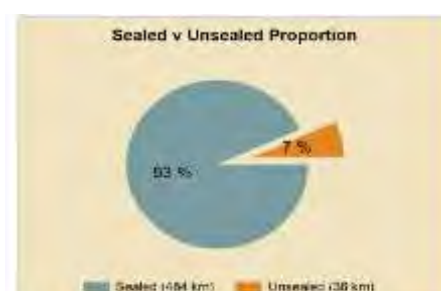


Figure 2: Sealed v Unsealed - Sourced from ONRC performance measures reporting tool

Seal Extension

Seal extensions are a discretionary improvement to the network providing improved amenity values for residents, and a dust free surface more tolerant to weather conditions. None of the current list of potential works has sufficient benefits to receive financial assistance from NZ transport Agency, so they are programmed as “non- subsidised” rates funded projects. There are a limited number of urban streets that are unsealed, which together with rural lengths up to the last residence on the road was to be programmed for seal extensions, targeting 400 – 600m in alternate years. There is no real benefit for Council to seal these sections and the activity has now been removed from the 2018-28 LTP. Council will continue to work on a selection and priority matrix to identify projects in the future including intervention triggers.

Road Name	Start Name	End Name	Start	End	Length	Distance to last house from end of seal	Tanker Access Yes/No	VPD (estimates in italics)
Rural roads servicing residential properties								
BARNETT	WAOTU SOUTH	END OF ROAD	0	1743	1743	160	N	17
HALL	END SEAL	END OF ROAD	1080	1320	240	240	Y	40
JACK HENRY	SEAL END	END OF ROAD	8963	13576	4613	3980	Y	40
MAMAKU SOUTH	END OF SEAL	SOUTH ROAD	2038	5500	3462	3380	Y	46
NGATIRA	END SEAL	END METAL	9740	10982	1242	520	N	10
PEPPERILL	END OF SEAL	END OF ROAD	877	1030	153	153	N	17
POWELL	END OF SEAL	END OF ROAD	446	590	144	144	N	5
SNEDDON	LICHFIELD	FARM ENTRANCE	0	110	110	110	Y	15
TE WHETU	NGATIRA	CHH RESP.	0	5494	5494	1860	N	13
WAIHOTU	S.H.5	END OF ROAD	0	2160	2160	2160	N	5
Totals					19361	12707		
Urban roads servicing business and residential properties (excludes access to suburban shops)								
COMMERCE LANE (B)	MARKET ST	COMMERCE LANE	0	117	117			30
COMMERCE LANE (PUTARURU)	END OF SEAL	START OF SEAL	47	107	60			40
MEADOW ST	END OF SEAL	PIT ST	72	120	48			20
PIT ST(EAST)	MEADOW ST	END OF ROAD	0	37	37			15
TOTARA LANE (A) (PUTARURU)	TOTARA ST (PUTARURU)	ARAPUNI ST	0	110	110			5
Total					372			

Figure 56 Unsealed network

Link to Strategic Case

- Delivery of the **right** infrastructure and services to the right level at the **best** cost.
- Our infrastructure is **financially and operationally sustainable**; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.
- Improved network **resilience and reliability**.
- Reduction in deaths and serious injuries at reasonable cost.

Evidence

Council's average annual unsealed road maintenance cost per kilometre is than less \$500/km with a budget of \$45,000 to maintain 7% of the network. Figure 57 compares SWDC with its peer, peer group, regional and national. Council's expenditure is well below all groups with no real demand on seal extensions. Majority of this unseal sections are in a fairly good condition and are access to only a low number of properties. Council will continue to maintain and do not see real benefit in sealing the short sections of the unseal network.

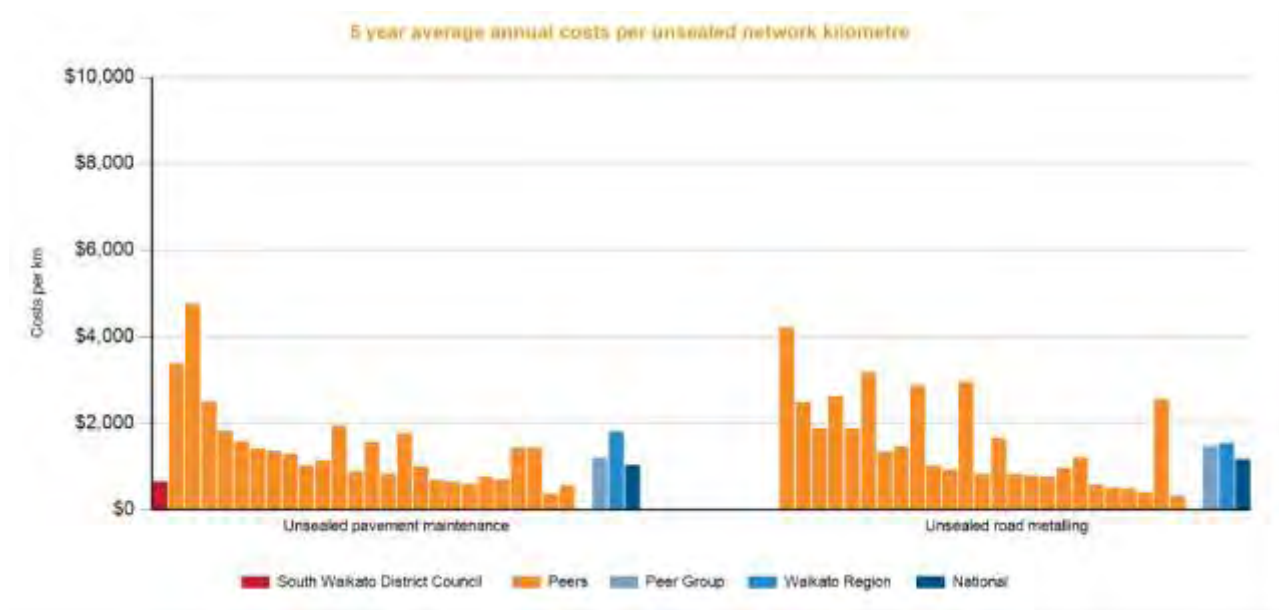


Figure 57 Unsealed road maintenance costs per kilometre

Problem Statement

Inconsistent road networks and poor driver behaviour creating higher crash risk and lower road safety.

Benefits

- Improved Safety, reliability and value for money

Consequences

- In-consistent network
- On-going maintenance
- Increased risk of crashes
- Lower level of service

Options

- Reduce level of service by reducing maintenance and renewals
- Increase level of service by sealing
- Preferred - Has the impact are only on a few properties Council will maintenance status quo and monitor assets condition and user satisfaction. Also investigate opportunities to de-vest sections of the unseal network.

Improvements

- Seal extension strategy
- Opportunities to de-vest
- Review level of service
- Improve data collection on unsealed network
- Identification of real issues e.g. health, safety or riding quality

Under width Roads

Under width roads are a safety issue and the trend for larger heavy vehicles, such as milk tankers and logging truck and trailers, has required an on-going programme of seal widening of around 2-3 km annually for the past 5 years, over and above the rehabilitation programme. A continuation of this activity at the lower end of the 2 to 3km target is recommended but as a result of the LTP process this activity was suspended for the first three years of the previous LTP and will resume in 2018/19 addressing HPMV and 50MAX requirements. Figure 54 refers to current HPMV

approved routes that have deficiencies associated with widths. Council will address this through the Low Cost/ Low Risk activity.

The seal widening activity will focus on completing widening on low volume through roads, used by heavy vehicles on a daily basis, but will primarily focus on improving widths on high volume roads.

Other under width low volume roads will be improved by ensuring that there will be adequate approach sight distances.

Evidence

HPMV permitted routes - seal width deficiencies									
Road Name	Start	Finish	Length	Avg Width	Road Name	Start	Finish	Length	Avg Width
Campbell	1100	2100	1000	6.6	Old Taupo (Nth)	8400	9400	1000	6.3
Domain	1700	2100	400	6.6	Old Taupo (Nth)	10200	11100	900	6.7
Domain	2400	2700	300	6.8	Old Taupo (Nth)	11100	11900	800	6.9
			700		Old Taupo (Nth)	12700	13400	700	6.2
Jack Henry	0	500	500	6.6	Old Taupo (Nth)	13700	14700	1000	6.7
Jack Henry	500	1700	1200	6.7	Old Taupo (Nth)	14800	15700	900	6.3
			1700		Old Taupo (Nth)	15700	17500	1800	6.5
Key	0	1000	1000	6.0	Old Taupo (Nth)	17600	18700	1100	6.6
Key	1000	2000	1000	6.1	Old Taupo (Nth)	19000	19800	800	6.4
Key	2000	3000	1000	6.2	Old Taupo (Nth)	20600	21500	900	6.3
Key	3000	4000	1000	6.0				16300	
Key	4000	5000	1000	5.6	Pine	0	1300	1300	6.0
Key	5000	5400	400	5.5	Pinedale	0	300	300	6.4
			5400		Poaka	0	700	700	5.5
Kokako	0	1100	1100	6.4	Puriri	0	1000	1000	6.3
Kokako	1100	2000	900	6.2	Puriri	1000	1800	800	6.2
Kokako	2000	3000	1000	5.9				1800	
Kokako	3000	4000	1000	5.7	Tamatea	0	100	100	4.8
Kokako	4000	5000	1000	4.5	Totman	1000	2000	1000	6.5
Kokako	5000	5700	700	4.2	Totman	2000	3000	1000	6.7
			5700		Totman	3000	4000	1000	6.5
Leslie	1100	2100	1000	6.6	Totman	4000	5000	1000	6.4
Leslie	2100	2700	600	6.7	Totman	5000	6000	1000	6.3
Leslie	3400	5000	1600	5.0				5000	
			3200		Vospers	100	700	600	6.5
Mamaku South	0	1000	1000	6.5	Vospers	700	1700	1000	5.8
Mamaku South	1000	2000	1000	6.4				1600	
			2000		Waotu	2500	2900	400	6.4
Mossop	0	3200	3200	6.4	Waotu	2900	3900	1000	6.7
Mossop	3200	4100	900	6.3	Waotu	6000	6900	900	6.3
Mossop	4100	4400	300	6.1	Waotu	7000	8000	1000	6.4
Mossop	5800	10700	4900	6.5	Waotu	8600	9000	400	6.7
Mossop	11400	14900	3500	6.0	Waotu	10900	11900	1000	6.5
			12800					4700	
Newell	0	1000	1000	6.2	Waotu South	1800	2900	1100	6.5
Newell	1000	2000	1000	6.3	Waotu South	2900	4000	1100	6.6
Newell	2000	3100	1100	6.2				2200	
			3100		Wawa	0	900	900	6.7
Ngatira	1300	2600	1300	6.5	Wawa	900	1200	300	6.5
Nicholson	0	500	500	4.4				1200	
Okoroire	6700	7600	900	6.8	Wiltsdown	7600	8500	900	6.1
Okoroire	7700	8300	600	6.9	Wiltsdown	11200	11800	600	6.1
			3300		Wiltsdown	11800	12900	1100	6.4
Old Taupo (Nth)	0	900	900	6.4	Wiltsdown	12900	13600	700	6.8
Old Taupo (Nth)	1100	2000	900	6.3	Wiltsdown	13600	14600	1000	6.3
Old Taupo (Nth)	2900	3900	1000	6.4	Wiltsdown	14600	15600	1000	6.4
Old Taupo (Nth)	4000	4300	300	6.0	Wiltsdown	15600	16600	1000	6.8
Old Taupo (Nth)	5000	6300	1300	6.2				6300	
Old Taupo (Nth)	6300	7300	1000	6.4					
Old Taupo (Nth)	7300	8300	1000	6.5					

Figure 58 Seal widening requirements on HPMV Routes

Link to Strategic Case

- Support **economic growth** and productivity through provision of better access to markets, employment and business areas.
- Improved network **resilience and reliability** at the most critical points.
- Reduction in deaths and serious injuries at reasonable cost- **Safety**

Problem Statement

Providing a transport network that is free of restrictions

Benefits

- Improved Safety, reliability, resilience and growth

Consequences

- In-consistent and unreliable network
- On-going maintenance- edge breaks
- Increased risk of crashes
- Lower level of service

Options

- Reduce level of service by reducing maintenance and renewals
- Status quo
- Increase level of service by seal widening all roads
- Preferred - Targeted programme to address under width roads on HMPV routes

Improvements

- Continued engagement with stakeholders
- Investigate opportunities for private investment to fast track projects
- Review level of service
- Improve data collection

5.4 Disposal Plan

While unformed road reserve within forestry areas could be developed and become public roads in the future, other sections of unformed road reserve may be closed and sold to the adjoining property owner – on request.

- Removed bituminous materials are recycled on site during construction works
- Old poles are sold for reuse (scrap)
- Some street light components may be held as spares for obsolete items
- Culvert pipes are recycled by Contractors
- Concrete paths are crushed and recycled.

5.5 Summary of Key Works

Some of the significant new capital works planned for the first three years of 2018-28 LTP:

Activity Name	Problem/ Opportunity	Road Classification	2018/19	2019/20	2020/21
Domain Rd geometric improvements and sight benching improvements	Road underwidth as route for HPMV	Secondary collector		240000	
Old Taupo / Waotu Rds Intersection realignment	Road alignment confusing for GPS users, change of traffic volumes from Waotu Rd to increasing on Old Taupo Rd, including being main HPMV route	Secondary collector	330000		
Mossop Rd Guardrail	Unrecoverable drop off on downhill approach	Access		40000	
Old Taupo Rd 10K curve improvements	Poor alignment and narrow seal width as a route for HPMV	Secondary collector		50000	100000
Old Taupo Rd 13k curve improvements	Narrow seal width and poor alignment for HPMV	Secondary collector			230000
Old Taupo Rd 14k alignment improvements					
Urban lighting upgrade to LED	Replacement of sodium lighting offers reduced costs	Primary collector	120000	120000	120000
Bridge Street and SH1 intersections improvements	Improving exit/entry off SH1	National	200000		
Swanston Street and SH1 intersection improvement	Improving exit/entry off SH1	National		250000	

Projects within the LTP but beyond the 2018-21 period:

- Out of context corners at as part of the minor safety improvements.
- The strengthening of the Oraka Stream on Okoroire Road and other bridges identified to restrictions to continue unlocking the network for HPMV and 50MAX movements.
- LED street lighting in-fills and pole replacement district wide on-going.
- Speed management review to improve safety and efficiency of our transport network

6 QUANTIFYING AND MANAGING RISK

6.1 Risk Management Strategy

This section introduces risk management processes set up by SWDC for assessing and managing risk. Details of the chapter will be covered in the overarching AMP under the Risk chapter. Risk is used as a strategic decision-making tool assisting with developing and prioritising strategies and work programmes.

South Waikato District Council currently manages their risks as Business Risk, Asset Risk, Emergency Management and Public Health Risks separately by the following risk documents:

- Corporate Risk Management Policy
- Asset Criticality and Risk Process Report
- Waikato Civil Defence Emergency Management Group Plan 2016-2021

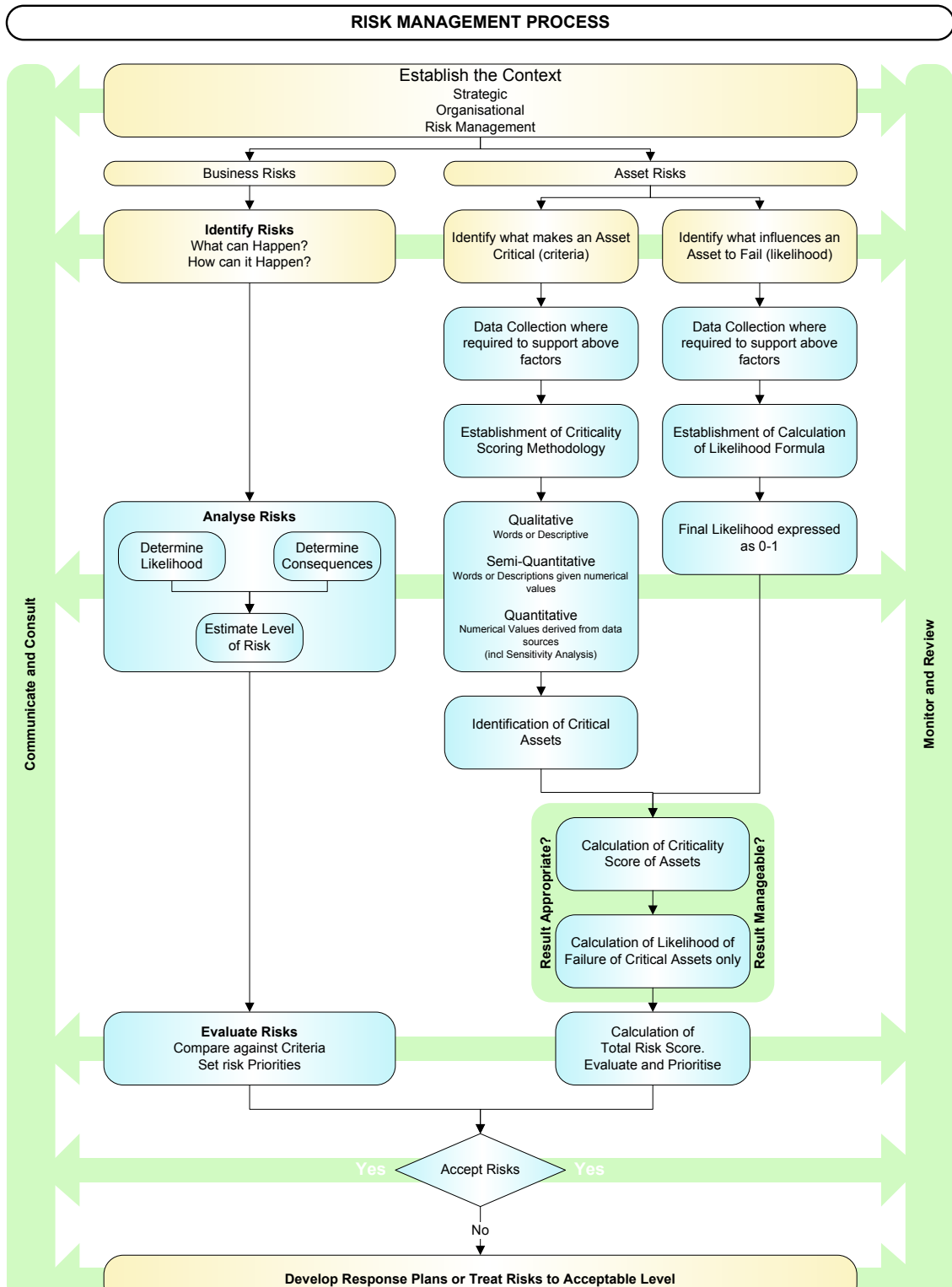


Figure 59 Risk Management Process

The corporate policy categorises risks in terms of the LTP’s vision statements and strategic themes.

Similarly, the Asset Criticality and Risk Process report identifies asset criteria and categorises these criteria in terms of the four well-beings and scored using a weighted attribute method. The Waikato Civil Defence and Emergency Management (CDEM) Group Plan provides a regionally based approach to risk management, using the 4 R’s (Reduction, Readiness, Response and Recovery) and contains references to the Waikato Engineering Lifelines Group, which includes all major utility providers.

In addition to the risks addressed by the above mentioned risk documents, Asset Management is identified as an activity with primary, major or shared responsibility for addressing the following risks:

- Inadequate infrastructure (not able to meet specified service levels)
- Poor emergency management
- Poor governance (stewardship of resources)
- Inadequate financial planning and management
- Poor demand analysis
- Inadequate technology interface
- Poor asset management
- Poor quality (systems)
- Poor project management
- Inappropriate environmental practices
- Poor risk management and compliance
- Poor information management

For the purposes of this AMP, the above risks are grouped and classified, and the principal risks are further described, in the following classes.

Identifying Classes of Risks

Table 25: SWDC Risk Classes

Risk	Discussion	Management of Risk
Physical Risks	<p>Physical risks to the infrastructure are generally:</p> <ul style="list-style-type: none"> – Risks from inevitable natural processes whether gradual or acting over a short period – Risks created by the actions of other parties working in the vicinity of the assets <p>South Waikato District Council has adopted construction and maintenance standards which are formulated to encourage appropriate planning prior to working on infrastructure; selection of durable materials; good workmanship, and appropriate processes</p> <p>These will not always be sufficient to prevent physical damage by external forces or natural events. For example, failure to check before excavating near a water main can result in damage and loss of supply. Earthquakes and erosion due to flood or breaks in large diameter pipes create potentially high losses. Smaller faults may still create problems such as loss of supply to critical consumers (home dialysis patients, emergency services, major industry, etc.)</p>	Critical Assets
Business/Commercial Risks	<p>Business or Commercial risks are those which result in decreased cash flow and/or inability to afford or implement (e.g. not enough resources) the works that are required. They include loss of large consumers (requiring the fixed cost burden to be absorbed by the remaining customers), poor timing of work causing less than optimal life-cycle cost, and failure to take advantage of any available subsidies</p>	Corporate Risk Plan

Health & Safety Risks	<p>These are risks posed to people and property, consequential to the physical actions or omissions of Council staff or contractors, or failure of equipment. For Water Supply, they include failure to supply firefighting water to hydrants, since, where they are installed, the Fire Service has an expectation that sufficient flow will be provided</p> <p>South Waikato District Council believes that it has sufficiently comprehensive health & safety policies in place including the requirement for Business Units and external contractors to have such policies to minimise health & safety risks associated with operating heavy machinery and handling waste materials</p>	<p>Corporate Risk Plan</p> <p>Contractor Health and Safety Quality Plan</p>
Environmental Risks	Risks to the environment, that is consequential to the operation of assets and/or physical actions or omissions of Council staff or contractors	Consenting and Performance Monitoring/ Reporting
Regulatory Risks	<p>Risks of prosecution due to failure to comply with Resource Consents, and Regional/ District Plans</p> <p>Council believes that its regulatory risk exposure if any is minimal due to the design, construction and operation of these classes of assets in accordance with recognised standards. Environment Waikato are advised each year of Councils roading programme, and Consents are normally obtained for large earthwork projects, and culvert renewals in perennial streams</p>	<p>Consenting and Performance Monitoring/ Reporting</p> <p>Environment Waikato</p>

6.2 Corporate Risk Management

Assessing Risk

The following Table summarises asset related risks and the control measures that are in place to mitigate risks. The following Table outlines risks to delivering Levels of Service and management thereof.

Full details of the Risk Register can be found in the South Waikato Risk Register June 2017.xls. Low risks have been left out of this chart for simplicity.

The SWDC Risk Register shown in the Table below summarises asset related risks and the control measures in place to mitigate these risks. The Level of Service associated with each risk and management tactics are included in the Table.

Table 26: SWDC Risk Register

Risk	Risk Level	Control Measures- Existing	Level of Service Associated with Risk	Where Risk is Managed
Asset Risks- Land Transport				
Seismic event	Significant	Earthquake design standards for structures; redundancy in road network except for cul-de sac which are not strategic roads	No LOS	Emergency Management Plan
Road closed and /or property damage by flood, slips or accident	Significant	Design standards, 24/7 call-out and contracted response and emergency response plans	No LOS	Business Continuity Plan
Complete loss of subsidy	Significant	Experienced staff prepare programme and claims, overlap in expertise of existing staff, process documented for new staff	Network Reliability	Corporate Risk Policy
Loss of record or IT services	Significant	Electronic backups, archiving and fire protection of buildings/storage areas, digital captures of paper documents	No LOS	Corporate Risk Policy
Road/footpath flooded due to leaf fall	Moderate	Routine additional maintenance provided in channel cleaning and cesspit grate clearance during autumn	Network Reliability	Contract Management
Partial loss of subsidy	Moderate	Experienced staff prepare programme and claims, overlap in expertise of existing staff, process documented for new staff	Network Reliability	Corporate Risk Policy
Vandalism	Moderate	Inspection regime by contractors and service requests by public	Network Reliability	Contract Management
Failure to comply with resource consents	Moderate	Specific provisions in contracts, contract procedures manual and staff training	No LOS	Contract Management
All of the above in any major event	High	Emergency Management Plan, Emergency Response Plan with alternate emergency transport, extra physical resources, bailey bridges etc.	No LOS	Emergency Management Plan
Pavement damage from HPMV and 50MAX	Moderate	Good engineering practice with regular inspections. Case for increased NZTA funding	Network Reliability	Contract Management
Poor contractor performance	Moderate	CPP selection process for all contracts, regular monitoring and feedback to contractors, ability to quickly suspend/terminate contracts and recover cost. Contractors Quality Procedures. Ongoing monitoring and fair contract pricing. Improvement workshops and audits	Network Reliability	Contract Management

Risk	Risk Level	Control Measures- Existing	Level of Service Associated with Risk	Where Risk is Managed	Risk L
Corporate					
Loss of staff knowledge due to staff resignations	High	Share knowledge, keep staff moral up, encourage growth, reduce work stresses	No LOS	Corporate Risk Policy	
Water damage-roof leak, flooding	High	Regular repair and maintenance, AMP	No LOS	Contract Management	
Environmental Services					
Lack of skills and knowledge	High	Provide relevant training to ensure succession	No LOS	Corporate Risk Policy	
Lack of resources (staff and/or emergency services)	High	Calling on neighbouring Emergency manager and back up services (Taupo) for assistance	No LOS	Corporate Risk Policy	

Risk Profile

The following graph shows how the Land Transport risks (Ref DocSet 178259).

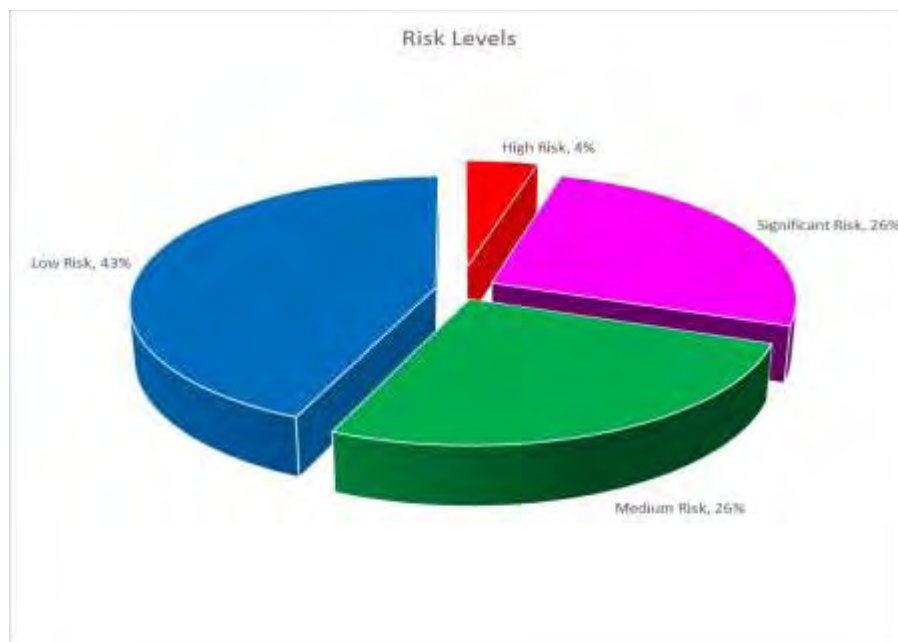


Figure 60 Land Transport Risk Profile

6.3 Network Specific Risk Management

Asset Criticality (consequence of failure)

Asset Risks are traditionally managed in a less formal, practical way, e.g. two pumps installed at a pump station in-case one fails. The 'Asset Criticality and Risk Process Report', Waugh Infrastructure Management, September 2007, aims to assess Asset Risks in a formal approach by prioritising the risks into a matrix.

A desktop analysis of Asset Risk assessed the severity of criticality (consequence of failure) by measuring the failure against Council's outcomes. Due to the effects of the four well-beings having an impact on the final outcome, a weighting has been applied to the four well-beings to give a result and aligned with Council objectives.

Table 27: Criticality Matrix- Roads

Weighting	Criticality Scoring				
	Total Score = Weighting x Level	Highest Individual Weighted Point Score	Criticality Assessed from Total Score	Criticality Assessed from Highest Point	Overall Criticality
Known High Risk roads	275	125	High	High	High
Roading asset supports other Utilities- trunk delivery (gas, communications, power, water etc.)	305	100	High	High	High
Access lost and no alternative route available within 1 hours travel	265	50	High	Medium	High
Roading asset supports other Utilities- network delivery (gas, communications, power, water etc.)	240	75	Medium	Medium	Medium

Weighting	Criticality Scoring				
Regulatory Signs	215	75	Medium	Medium	Medium
Stock truck Effluent disposal	215	50	Medium	Medium	Medium
Pedestrian Access ways (safety and amenity values)	210	75	Medium	Medium	Medium
Arterial or SH alternative Route	195	50	Medium	Medium	Medium
Road Closure due to flooding and slips	210	100	Medium	Medium	Medium
Bridge damage	275	100	Medium	Medium	Medium
High Performance Motor Vehicle (HPMV) routes	215	75	Medium	Medium	Medium

The percentages of critical assets identified fall within industry accepted standard ranges for this type of analysis, and this was used as a check for the validity of the methodology.

The probability of failure is important for allowing calculation of an overall risk score. This has been identified as an improvement item that should be addressed on high and medium critical assets to complete the risk assessment.

Asset Probability of Failure

The next stage of the application network specific risk management programme is the assessment of the probability of failure. This is important for allowing calculation of an overall risk score.

Rather than a complete theoretical desk top exercise, South Waikato District Council has implemented a critical asset inspection programme that measures asset condition, performance and assesses probability of failure.

This programme has commenced but is in its early stages at the writing of this plan. The results of the assessment of failure probability and completed asset risk assessment will be included in the next update of this plan.

6.4 Insurance

South Waikato District Council has public liability insurance in place to the value of \$10M for each and every claim. A copy of this is located in Council's corporate support section.

Council is also a member of the Local Authority Protection Programme Disaster Fund (LAPP) scheme, refer to Section 0.

LAPP

Local Authority Protection Programme Disaster Fund (LAPP) is a cash accumulation mutual pool with Civic Assurance as the Fund's Administration Manager.

The Fund was established in 1993 by Local Authorities to assist in meeting its members' obligation under Central Government's Disaster Recovery Plan. The legislation brought out in 1991 covers local authority owned infrastructural assets which are considered generally uninsurable within the private insurance market. These include:

- Water reticulation, treatment and storage
- Wastewater reticulation and treatment
- Stormwater drainage
- Dams and canals
- Flood protection schemes including stop banks

Roads and bridges are not covered by the Fund as local authorities have access to NZTA subsidies.

The Fund is designed as catastrophe protection only, covering serious disruptive loss or damage caused by sudden events or situations which may or may not involve the declaration of a Civil Defence Emergency. Perils include but are not necessarily limited to earthquake, storms, floods, cyclones, tornados, volcanic eruption, tsunami and other disasters of a catastrophic nature such as a major gas explosion.

In order for Council's to be eligible for a contribution by Central Government of up to 55% of the restoration costs of infrastructural damage from a catastrophe, local authorities have to demonstrate it can meet the remaining 45% through:

- Proper maintenance
- The provision of reserve funds

- Effective insurance

The Trustees require as a condition of fund membership that all member authorities undergo a full risk management assessment programme. As a result, high risk exposures are identified and remedial action taken to help reduce the potential drain on the fund and to minimise the impact on communities.

Civic Assurance

Civic Assurance is New Zealand's specialist provider of insurance, mutual funding and risk financing for local government and public sector organisations. Owned by New Zealand local authorities, Civic Assurance is the one-stop shop for cost-effective protection of community-owned assets and is New Zealand's largest insurer of rate-payer owned assets.

Risk Pool

Risk Pool is a mutual fund created by New Zealand Local Authorities to provide long term, affordable legal and professional liability protection. The Fund was founded on the premise that historically the insurance industry has demonstrated inconsistency with the scope of cover, pricing, claims handling and capacity. Risk Pool commenced in 1997 and currently has 78 local authority members. Membership of Risk Pool is open to all local authorities. Contributions are levied according to each member's actual risk profile, claims experience and management of risk. The Fund is protected by reinsurance to protect its retained liability on a "per claim" and/or annual aggregate basis.

6.5 Civil Defence, Lifelines and Emergency Response Plans

Civil Defence Emergency Management

The Civil Defence Emergency Management (CDEM) Act 2002 requires Local Authorities to coordinate Plans, Programmes and Activities related to CDEM across the areas of Risk Reduction, Readiness, Response and Recovery. It also encourages cooperation and joint action within regional groups.

South Waikato District Council recognises its obligations under the CDEM Act and participates in a Waikato Region-wide Civil Defence Emergency Management Group (EMG). The Waikato EMG is responsible for all matters involving staff training, general Civil Defence public awareness and maintaining contact lists for schools, pre-schools, rest-homes and the like. Each Local Authority maintains its own contacts for local resources.

The District is generally sheltered from most natural disasters, although there is an ever-present risk of flooding.

Wind is another hazard for the District with several isolated cyclones and associated heavy rain possible.

In the event of Mount Ruapehu eruptions volcanic ash-fall is a significant hazard.

The following documents are available for guidance in Civil Defence and Emergency Management:

- SWDC Emergency Response Plan Emergency Operating Procedures Structure & Activation SOP 1 19 April 2015
- Civil Defence Emergency Management Plan Southern Emergency Operations Area of South Waikato and Taupo Districts 2015. This is being reviewed because South Waikato and Taupo Districts have recently become separate EOA's, although there is a memorandum of understanding between the two local authorities.
- Waikato Civil Defence Emergency Management Group Plan 2016-2021

Waikato Lifelines & Vulnerability Assessment

Lifelines are the essential 'utility' services which support the life of a community. These services include Wastewater, Water, Stormwater, Power, Gas, Telecommunications and Transportation networks.

SWDC is a member of the Waikato Engineering Lifelines Group (WELG), which is comprised of representatives from the Waikato region's territorial authorities and major energy, telecommunications, and transportation sector organisations.

The WELG aims to:

- Encourage and support the work of all participants in identifying and mitigating the effects of hazards on lifeline assets and business operations
- Facilitate communication between all participants in order to increase awareness and understanding of each organisations' interdependencies
- Create and maintain awareness of the role and importance of lifelines within the Waikato region

- Promote ongoing research and technology transfer aimed at protecting and preserving lifelines of the Waikato region
- Develop best approaches to mitigation, preparedness and recovery measures for lifelines

Recent lifelines project have followed a criticality assessment approach which identifies lifelines infrastructure within the region as nationally, regionally or locally significant. Nationally significant infrastructure assets are often where there are 'pinchpoints' in the supply chain and sometimes these are single sites which would cause a significant loss of national services. Some examples include:

- Marsden Refinery, refines around 70% of New Zealand's fuel
- The main telecommunication exchange in Auckland, Wellington, Christchurch, Hamilton and Porirua.
- Ports of Auckland and Tauranga
- Auckland Airport.

The new classification provides a useful baseline for criticality assessment for vulnerabilities studies. There were two nationally significant, vulnerable roads identified through the regional vulnerability study report and 2016 NLF workshop;

- SH29 as part of the FMCG and fuel supply chain in and out of Port of Tauranga
- SH1 through Desert Road, with exposure to both volcanic and meteorological hazards.

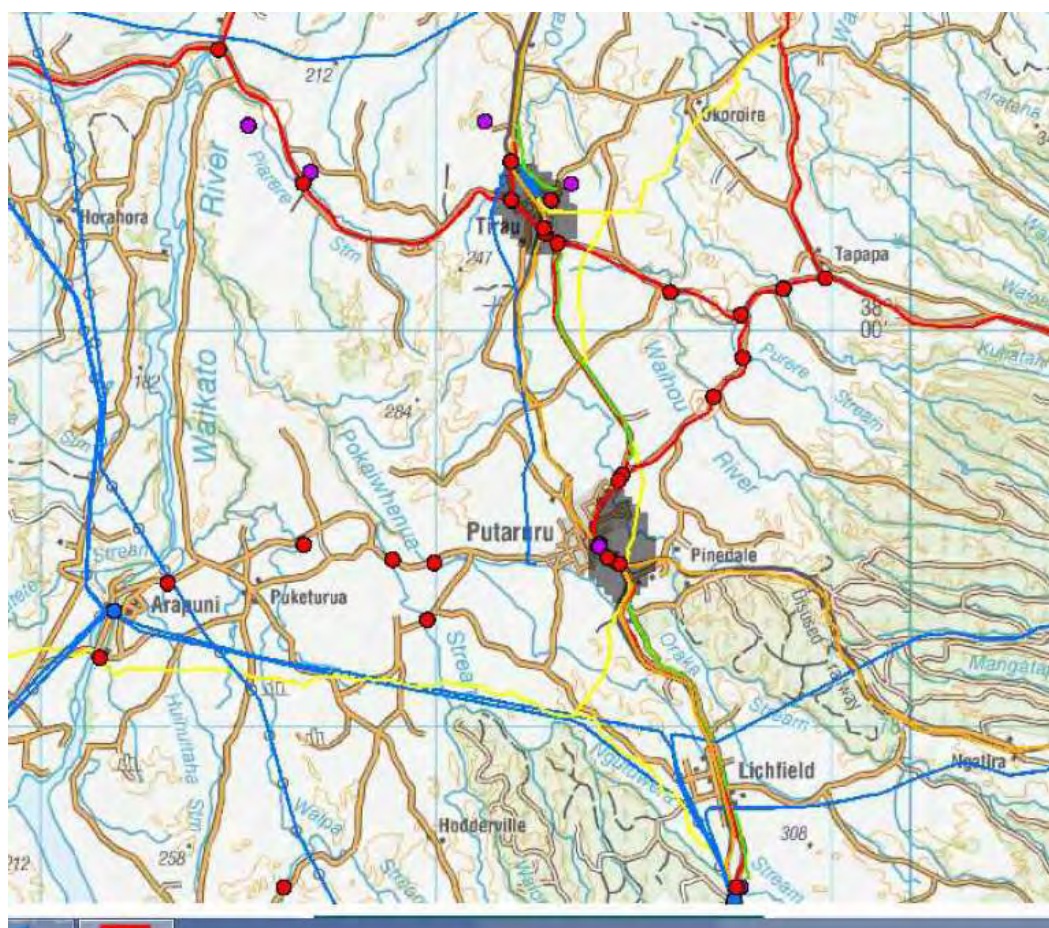


Figure 61 Vulnerable hotspots Maps- Waikato Regional Council

An example of the maps above reflects hotspots identified by the Regional Lifelines Group assessment on regional and local critical lifeline vulnerable hazards. The following roads were identified and further work is being undertaken locally:

- Arapuni Road - Regional collector
- Local roads to reservoirs
- Moffat Rd- Airport
- SH32 - Access to health care

These roads will attract a much higher level of service ensure accessibility.

Utility Vulnerability Assessment and Prioritisation Project

In 2014 the Waikato Engineering Lifelines Group carried out a Utility Vulnerability Assessment and Prioritisation Project for South Waikato District Council.

The goal of the assessment is to identify measures and coordinate efforts to reduce the vulnerability of the Waikato's lifelines to selected hazard events. The hazard scenarios that were selected and tested for the following event areas:

- Thames Valley Emergency Operations Area
- Waikato Valley Emergency Operations Area
- Southern Emergency Operations Area

The scenarios carried out in each event area were:

- Major Island Activity (Declared)
- River/Stream Flooding and Ponding
- Local Tsunami
- Electricity/Services/Infrastructure Failure (Undeclared)
- Storm Surge and Tidal Effect (Declared)
- Earthquake (declared)
- Volcanic Eruption 1/10,000 year event
- River/Lake Control Structure Failure (declared)

The outcomes of these scenarios have been collated into a report with the hazards identified.

6.6 Business Continuity Plan (BPC)

SWDC is currently reviewing the BCP which outlines the steps required to operate South Waikato District Council in the event of an unanticipated interruption of normal operations. This document will articulate the triggers for when alternate business processes need to be deployed, the steps to deploy alternate business processes, the method for verifying that business has been properly restored and ensuring data integrity, and activities for returning to "normal" business processing. The objectives of this Plan are to:

- Serve as a guide for SWDC recovery teams
- Reference and point to the location of critical data
- Provides procedures and resources needed to assist in recovery
- Identifies vendors and customers that must be notified in the event of a disaster
- Assists in avoiding confusion experienced during a crisis by documenting, testing and reviewing recovery procedures
- Identifies alternate sources for supplier, resource and location
- Documents storage, safeguarding and retrieval procedures for vital records.



6.7 Succession Issues

In previous decades the pool of experienced local authority and ex-public service engineers available meant that the negative effects of poor succession planning have not been experienced. However, with a shrinking pool of experienced engineers, and near full employment these effects are now being experienced by more local authorities.

As a consequence, as there is always potential for staff in key positions to move on to further their careers, succession planning is appropriate to mitigate the effects of this.

- Sourcing replacement staff from within the organisation wherever possible
- Comprehensive personal career development plans in place for all relevant staff. This can include identifying weaknesses in training and experience and attempting to address those weaknesses by use of mentoring, relevant projects and continuing professional development programmes etc.

In addition, and to mitigate succession and operational risk, the Land Transport Quality Plan identifies process to make staff movements easier.

6.8 Significant Negative Effects

As mentioned in Section **Error! Reference source not found.**, Land Transport has the potential to create significant negative effects on the well-being of the environment, residents and society in general. For example, there is a risk of environmental damage from road construction activities, air and noise pollution from vehicles, and contaminants washed off roads into receiving waters.

These risks are managed through various processes, including Resource Consent conditions and a range of regulatory and technical design measures, as discussed below.

Environmental Effects

The following unavoidable consequences of the Land Transport Network activity are managed as described below to ensure a sustainable service with minimal damage to the environment. The effects include –

- Stormwater runoff from roads concentrates and flows faster than that from vegetated areas, with potential to overflow the capacity of stormwater infrastructure and damage waterways due to velocity
- Stormwater runoff from roads contains small soil particles to which hydrocarbon and heavy metal by-products of engines and tyres bond. This is concentrated by rainfall and presents a threat to receiving waters
- Spillage of contaminants due to insecure loads or vehicle accidents results in a threat to the environment
- Traffic contributes considerable air discharge pollution and also noise
- The physical road environment is a potential health and safety hazard to those using it due to traffic speed and composition, ambient conditions, their own experience and physical condition
- Maintenance and renewal activities on the road introduce additional temporary hazards and additional pollutants while they are occurring

Management is achieved through Engineering, Enforcement, and Education. These actions are described in the next chapter. Examples of how they can address negative effects are given below:

- Engineering design standards include catchpits with silt settling capacity. Water table drains are shaped to control the flow velocity and shed water on to grassed berms where suspended solids can drop out of the flow. Suspended solids carried into channels, catchpits and water tables are regularly collected in maintenance operations and removed to landfill where contaminants are contained without discharge to receiving waters
- During accident responses the Council and Fire Service work together to contain spilled contaminants as quickly as possible
- In partnership with central government and the regional council, road rules are developed which aim to control traffic noise, emissions, speed, improper use etc. Enforcement is generally provided by the Police
- In partnership with the NZ Transport Agency, Council provides education to help people keep themselves and others safe when using the roads
- Road safety is repeatedly assessed by qualified engineers. Road improvements are constructed, upgraded, signposted and illuminated if appropriate, to comply with design standards relating to safe alignment, driving environment, sight lines, vehicle design etc.
- Those working on the road are required to comply with additional temporary standards of signposting and safety so that the unavoidable additional risk that may be created by their presence is managed

Table 28: Negative Effects

Effect	Status of Effect		Effect (existing situation)		Impact on Well-being (existing situation)				Existing Approach or Proposed Action to Address	
	Existing	Potential	Negative	Significantly Negative	Social	Economic	Environmental	Cultural		
Discharges from Vehicles (Air)	↑	↑		✓	Mod	Mod	Mod	Mod	<p>Pollution of air from vehicles is a national issue and requires National Standards. Currently health of vehicles is assessed as part of annual warrant of fitness</p> <p>Government has identified through the GPS measures to reduce the number of vehicle movements and more efficient use of public transport</p>	
Discharges from Vehicles (Land/Water)		↑	↑		✓	Mod	Mod	Mod	<p>Regional Councils are closely monitoring health of waterways and land to identify the accumulative effects from vehicle discharges (rubber, brake linings, oils)</p> <p>There is currently no immediate solution for managing this, excepting increased channel and sump cleansing, and future central government initiatives.</p> <p>Government has identified through the GPS measures to reduce the number of vehicle movements and more efficient use of public transport (in cities)</p>	
Road Safety (Vehicles)	↔		↓	✓		High	Mod	Nil	High	<p>Council is considering a road safety strategy to reduce road accidents. It will be linked to a National Strategy which includes,</p>

Effect	Status of Effect		Effect (existing situation)		Impact on Well-being (existing situation)				Existing Approach or Proposed Action to Address
	Existing	Potential	Negative	Significantly Negative	Social	Economic	Environmental	Cultural	
									Policing, Policy, Road Design and Public Education
Road Safety (Pedestrian)	↔	↓	✓		High	Low	Nil	High	Road design now incorporates significantly more pedestrian friendly features and is proving effective
Road Safety (Cycling)	↔	↓	✓		High	Low	Nil	High	Council has a basic Cycling and Walkway strategy to encourage community health and safety
Noise	↔	↔	✓		Low	Nil	Low	Low	Road design incorporates surface texturing to reduce vehicle noise levels on urban State Highways, and some CBD streets Information signs are used to manage noise from vehicles such as engine breaking

↑ Increasing ↔ Remaining the same ↓ Decreasing

Assessing Risks

The Land Transport staff will, from time to time, identify areas of risk and assess those risks in terms of probability (frequency) and consequence (severity). The assessments enable the managers to:

- Identify failure modes
- Evaluate levels of acceptable risk
- Identify critical assets
- Identify consequences of failure
- Avoid or reduce risks

The results of these assessments will be incorporated into the Council’s Risk Management Strategy.

Refer to the tables in **Error! Reference source not found.**D for description of the risk thresholds that were assessed.

The “significant” risks are as follows:

- Earthquake or eruption damage
- Injury to workers or public during our operations
- Unsafe road due to failure of assets
- Injury due to incorrect signage (particularly during road works)

7 FINANCIAL FORECASTS

7.1 Funding Policies

- The Council's programme of works will attempt to balance the needs of the community while maximising the level of subsidy available under NZTA rules
- Any Land Transport network extension or upgrading, required as a consequence of subdivision development, will be funded by the subdivider
- Where a development necessitates upgrading of intersections or existing roads, the subdivider may be required to make a contribution to that upgrading
- A formal development contributions policy under LGA 2002 has not yet been determined

Further detailed information is contained in Councils Revenue and Financing Policy.

7.2 Valuation Policies

Basis of Valuation

The table below shows the method by which the assets have been valued and additions and deletions processed.

Table 29: Basis of Valuation

Roading Asset Component	Revaluation Method	Additions & Deletions	Physical Data
Surfacing	RAMM Asset Valuation Module – Treatment Length Table	Excel Spread Sheet	RAMM
Pavement	RAMM Asset Valuation Module – Treatment Length Table	Excel Spread Sheet	RAMM
Formation	RAMM Asset Valuation Module – Treatment Length Table	Excel Spread Sheet	RAMM
Drainage	RAMM Asset Valuation Module - Drainage Table	Excel Spread Sheet	RAMM
Kerb & Channel	RAMM Asset Valuation Module - Surface Water Channel Table	Excel Spread Sheet	RAMM
Road signs	RAMM Asset Valuation Module - Signs Table	Excel Spread Sheet	RAMM
Bridges	RAMM Asset Valuation Module - Bridge Table	Excel Spread Sheet	RAMM
Footpaths	RAMM Asset Valuation Module - Footpath Table	Excel Spread Sheet	RAMM
Roading Land	Reid and Reynolds Registered Valuation	N/A	MapInfo - GIS
Street Lights	Odyssey Energy RAMM Asset Valuation Module – SLIMS Database	Excel Spread Sheet	SLIMS/RAMM
Cycle ways	RAMM Asset Valuation Module	Excel Spread Sheet	RAMM

Depreciated Replacement Cost is taken as today's cost of replacing the asset with the same or a similar asset and depreciated over the life of the asset.

The optimised replacement cost of these assets has been assessed based on current standards, technology, costs and materials by suitably qualified and experienced professional practitioners and revaluations have been peer reviewed. The last full revaluation was completed at 30 June 2017. The valuations in this document are the latest available (June 2017).

The assessed replacement cost assumes that regulations, social values etc. as exist currently will continue and appropriate costs for professional services are included.

Land and formation are not depreciated. The following Land Transport Asset Groups are capitalised and depreciated:

- Pavement
- Surfacing
- Kerb and Channel
- Road Signs
- Culverts and Drainage
- Footpaths and Cycle ways
- Bridges and large Culverts
- Streetlights including poles, brackets and lanterns
- Railings
- Carparks

Expense Items

Maintenance is work done that is of an operational nature that neither increases the value nor extends the remaining life of any asset. The cost of maintenance is expensed in the year it is incurred. Small repairs will be expensed, because they would be abandoned along with the old assets in a future replacement. They therefore do not extend the overall life expectancy of the original asset.

Capitalisation Threshold

Renewal is improvement work done, (including plant, labour, materials and professional services used) on an existing asset that increases its depreciated replacement value and extends its remaining life. The cost of renewal is a capital expenditure that must be recognised by an appropriate adjustment in the Asset Register. The renewed value in the Asset Register cannot exceed the optimised replacement value of the asset.

The following threshold limits have been adopted for Maintenance vs. Capital Improvements and Renewals for roading activities. The additional cost of upgrading an asset during its renewal is separately assessed, and if the threshold value is exceeded, the upgrade cost component is separately accounted for.

Table 30: Capitalisation Threshold

Activity	Value Threshold	Physical Threshold
Sealing	\$1,000	Not less than 600 m ²
Pavement Rehabilitation, AWPT, Seal Widening	\$5,000	Not less than 600 m ²
Culvert Replacement	\$1,000	Full length replacement
Bridge Renewal/Replacement	\$5,000	Full length replacement
Footpath Replacement	\$1,000	Not less than 20 m length
Street light Replacement	\$1,000	(Not defined)

An addition to the Asset Register is required when a new asset is created with a value (including plant, labour, materials and professional services used) that exceeds the above figures. A new asset must be uniquely identified, and the record in the Asset Register requires an assessment of the asset's remaining life expectancy or straight-line depreciation rate.

If the asset replaced is discarded or sold it must be removed from the Asset Register and any residual value must be formally written off.

Additions since last valuation have been processed using the excel spreadsheets referred to above. In the 2002-2003 year these were processed as a lump sum for the whole financial year. From the 2003-2004 financial year onward, additions and deletions were processed on a monthly basis.

The detail for the physical data is loaded into RAMM at the time of construction. At the time of invoicing payments to capital GL accounts, the person authorising the payment also completes the asset management additions and deletions form. This form documents the additions and deletions to the register. The capital expenditure for each capital roading project is matched to the General Ledger accounts and split according to the project into the correct register.

Depreciation

Straight-line depreciation has been adopted for all Land Transport Network assets and optimised depreciated replacement costs (ODRC) have been calculated. The remaining life over which assets are depreciated are shown for each asset in the asset register and have been assessed by taking account of the various factors that have affected the particular asset's base life expectancy.

The costs associated with renewing assets and providing new or improved asset infrastructure are capitalised and depreciated in accordance with the assessed economic life of each asset. This applies also where a developer provides infrastructure to be taken over as public assets by Council.

Further detail of Council's accounting and depreciation standards can be found in the LTP Revenue and Funding Policies.

Land Assets

The areas of land under existing roads and land owned by Council as 'paper roads', have been included. The June 2014 valuation also includes roads maintained by Forestry. State Highway land has not been valued. The next valuation is due June 2017 and will include new roads that were vested to Council and paper roads sold off by Council.

Table 31: Lengths and Areas of Land for Roads Valuation

Lengths and Areas (assuming 20m-road reserve width) of Land for Roads Valuation				
Land Maintained by -	Rural	Paper Rural	Urban	Paper Urban
South Waikato District Council	397.4 km 1038.2 ha	146.9 km	112.2 km 220.4 ha	0.41 km
(additional areas, road reserve* additional width over 20m wide)	63.1 ha		6.6 ha	
Hancock Forest Management	30.2 km 79.6 ha			
Total Area	1180.9 ha		227 ha	

*Road reserves greater than 20m wide include Old Taupo Road (40m) and Pearson Road (30m).

Urban and Rural Land

Land value rates, effective 1 July 2004, were developed by Reid and Reynolds, Rotorua, ref B3284/14575, and dated 24 February 2005. The last (July 2015) valuation was \$26,389,000. The next valuation is due June 2018.

Table 32: Urban and Rural Land Values

Land	Area	Rate	Valuation
Rural	1,139.9 ha	\$14,400/ ha	\$16,415,000
Urban	237.5 ha	\$42,000/ ha	\$9,974,000
Fair Value			\$26,389,000

Formation Assets

Scope

The formation item includes all earthworks cut or fill, shaping fill, services, fencing, entranceways, widening, any strengthening of the subgrade and the existing value of the subgrade. Formation includes all items not included in surfacing, pavement, culverts or kerb and channel.

Forest Company maintained Council Road and new road that have been vested to Council was included in the June 2014 with any further vested road was included in the 2017 valuation for Formation.

This asset was valued using the RAMM Asset Valuation Module. The details of the asset are recorded in the RAMM database and the revaluation is a snapshot of the asset at that point in time. The asset was valued using the treatment length table with each individual treatment length valued separately.

Sections of formation with differing strength and response characteristics are to be allocated Structural Numbers (SNP) that will be used in the dTIMS modelling for the prediction of asset deterioration profiles.

Useful Life and Condition

The standard total useful life of a formation asset has been set to 999 years, the longest life span in the version of RAMM currently being used.

Replacement Cost

Standard replacement costs were established for formation using average current construction rates and include the professional services cost. This rate was converted into a linear metre rate.

Table 33: Formation Asset Standard Replacement Cost

Formation Cost	Value/m ²	Historic Value/m ²	Total Value/m ²
Urban	\$24.88	\$4.64	\$29.52
Rural	\$24.88	\$9.29	\$34.17
Unsealed	\$24.88	\$6.96	\$31.84

Table 32: Formation Values as at 30/06/17

Formation Value as at 30/06/17				
	ORC (\$)	ODRC (\$)	Monthly Dep	Annual Dep
Value at 30 June 2017	\$168,374,000	\$168,374,000	Nil	Nil

Assumptions

- The construction date for a road formation has been taken as the date of the earliest recorded first-coat seal. If that is unknown it has been taken as 1 January 1960
- No condition data was calculated with all elements being rated “average” Formation is assumed not to depreciate with time. Base “life” is 999 years
- When work is done to a formation asset it is assumed to add value and thus the existing asset value is not deleted
- When a pavement asset is overlaid or reconstructed it no longer has value as a pavement asset and is deleted. The old pavement is now assumed to form the sub grade and therefore to be part of the Formation asset. The existing subgrade value after reconstruction is therefore calculated to include the depreciated historic value retained in the subgrade and old pavement layers. This has been estimated at a nominal 150mm depth of gravel equivalent

Pavement Assets

Scope

The pavement is the value of the top layer of the road structure typically the base course layer. The Forestry maintained Council Roads and new road vested to Council following the 2014 valuation have been included in the valuation for pavement.

This asset was valued using the RAMM asset valuation module. The details of the asset are recorded in the RAMM database and the revaluation is a snapshot of the asset at that point in time. The asset was valued using the treatment length table with each individual treatment length valued separately.

Useful Life and Condition

The total useful life of a pavement asset has been set as per the following table.

Table 34: Pavement Total Useful Life

Pavement Total Useful Life (years)					
Surfacing AADT	Use 1 <100	Use 2 100-500	Use 3 500-2000	Use 4 2000-4000	Use 5 4000-10000
Urban	120	110	95	70	40
Rural	70	70	60	50	40

Condition data has been established in RAMM that affects the remaining useful life (RUL) of the surface asset as per the table below. This condition data is for valuation purposes only and more appropriate methods such as treatment selection and dTIM's are used to model actual pavement deterioration for work programming.

Pavement Condition Rating

Table 35: Pavement Condition Rating

Condition	Rating Item	Parameters	Effect on Remaining Life
Excellent	NAASRA Average	<= 70	+10 years
Good	NAASRA Average	>70 & <=90	+5 years
Average	NAASRA Average	>90 & <=110	0 years
Poor	NAASRA Average	>110 & <=130	-5 years
Very Poor	NAASRA Average	> 130	-20 years

Replacement Cost

Standard replacement costs were established for base course in 100mm and 70mm thick layers. These are the most common depths of base course applied in road constructions and area wide pavement treatments. Base course in the 2017 valuation includes first coat seals.

The rates have been established by using the current construction rates. Note that no residual value has been set for pavement assets, as the sub-base has been valued in the Formation component, which does not depreciate.

Table 35: Pavement Standard Replacement Costs

Base course Depth	Cost Applied to (Pavement Use Type)	Cost (\$/m ²)	Professional Services (% added)	Cost (\$/m ²)
70mm	Urban Use 1-3; Rural Use 1 & 2	\$16.68	8.5%	\$18.10
100mm	Urban Use 4 & 5 Rural Use 3-5	\$17.98	8.5%	\$19.51

Table 36: Pavement Value and Depreciation as at 30/06/17

Pavement Value and Depreciation as at 30/06/17				
	ORC (\$)	ODRC (\$)	Monthly Dep	Annual Dep
Value at 30/06/17	\$68,175,000	\$40,754,000	\$70,583	\$847,000

Assumptions

- The Construction date for pavement was set to the latest first coat seal date. If no dates were recorded the date was set to 1 January 1981
- For roads constructed after 1 Jan 1980, a 600mm shoulder width has been used for area calculations
- Because the pavement depth is not well documented in RAMM for many sites, the standard replacement cost has been assumed using the Urban / Rural codes and pavement use categories. These would typically reflect the depth of base course applied in most situations. Actual pavement depth is now been added to RAMM as construction works are being completed
- If no rating information was available the condition was set to average
- Council Roads maintained by Forestry Companies have not been inspected, and their condition has been set to average

Surfacing Assets

Scope

The surface asset is the top surface layer on the road pavement; generally chip seal, asphalt, or metal.

Note that Forestry maintained Council Roads have NOT been included, as are they supposed to maintain the top surface. New roads however that have been vested to Council following the 2014 valuation are included the June 2017 valuation for surfacing.

Useful Life and Condition

The total surface life of a surface asset has been set using the following table based on current common practice and RAMM treatment selection.

Table 37: Surface Total Useful Life (Years)

Surface Total Useful Life (Years)					
Surfacing AADT	Use 1 <100	Use 2 100-500	Use 3 500-2000	Use 4 2000-4000	Use 5 4000- 10000
Asphaltic concrete	15	13	12	11	10
Stone Mastic Asphalt	12	11	9	9	8
Bicouche / Sandwich	14	12	10	9	8
First coat seal	5	3	2	1	1
Second coat seal	14	13	12	11	10
Locking coat seal	8	7	6	5	4
Reseal - Rural	15	13	12	11	10
Reseal - Urban	13	12	11	10	9
Slurry seal	8	7	6	5	4
Texturising seal	7	7	7	6	5
Two coat seal as 1st	5	5	4	2	2
Two coat seal as 2nd	14	14	12	12	10
Two coat as reseal	13	13	11	11	9
Void fill seal - Rural	13	11	9	3	2
Void fill seal - Urban	12	10	4	3	2
Single coat seal as reseal	15	13	12	11	9

Surface assets have been rated according to condition and this has had an effect on the RUL of the asset, as follows.

Table 38: Surface Condition Rating – Average and Poor

Surface Condition Rating			
Condition	Rating Item	Parameters (% Area)	Effect on Remaining Life
Average Surface	Alligator	<2%	Alter age by 0 years
	Flushing	<2%	
	Scabbing	<2%	
Poor Surface	Alligator	>=2% & <=5%	Set RUL to 5 years
	Flushing	>=2% & <=5%	
	Scabbing	>=2% & <=5%	

Table 39: Surface Condition Rating – Bad Surface

Surface Condition Rating			
Condition	Rating Item	Parameters (% Area)	Effect on Remaining Life
Bad Surface	Alligator	>5%	Set RUL to 2 years
	Flushing	>5%	
	Scabbing	>5%	

A check of surface condition for the June 2017 rating survey demonstrated that 97% of the network has a condition of average, while the remaining 3% does not meet NZTA's target for smooth travel exposure.

Reseal replacement costs have been applied in accordance with the June 30 2017 revaluation. Bitumen influences reseal prices significantly but has not fluctuated widely over the period 2014-2017. The rates upon which the valuation has been based are thought to be a reasonable average. The lengths and widths of pavement are as recorded in RAMM.

Table 40: Surfacing Replacement Cost

Surface Material	Professional Services (% added)	Value (\$/m ²)
Locking coat seal	8.5	\$3.75
Texturising seal	8.5	\$3.75
Void fill seal - rural	8.5	\$3.75
Void fill seal - urban	8.5	\$3.75
Reseal - rural	8.5	\$3.75
Reseal - urban	8.5	\$3.80
Second coat seal	8.5	\$6.59
Two coat seal as 2 nd coat	8.5	\$5.18
Two coat seal as reseal	8.5	\$5.18
Bicouche/Sandwich	8.5	\$8.61
Slurry seal	8.5	\$11.48
Asphaltic Concrete	8.5	\$25.13
Stone Mastic Asphalt	8.5	\$36.48

Table 41: Surfacing Value and Depreciation

Surfacing Value and Depreciation as at 30/06/2017				
	ORC (\$)	ODRC (\$)	Monthly Dep (\$)	Annual Dep (\$)
Value at 30/06/14	\$14,818,000	\$7,499,000	\$77,667	\$932,000

Additions and deletions have been processed in the same way as Road Formation above.

Assumptions

- Construction date for surface has been set to the latest significant seal date. If dates are not known then the surface date has been set to 01 January 1999
- If no rating information is available then condition is set to Average
- The highest scoring rating item was used to establish the condition
- Minimum RUL for surface items has been set to 2 years at the time of the revaluation
- First coats have been included in the valuation of the basecourse
- The Professional Services component has remained the same at 8.5% as per the 2014 valuation

- No residual value remains in a surface asset. When a road is resealed the existing section is deleted and the new surface added

Kerb and Channel Assets

Scope

This asset is the actual concrete kerb and channel typically located in urban areas and on some localised rural roads.

This asset was valued using the RAMM asset valuation module. The details of the asset are recorded in the RAMM database and the revaluation is a snapshot of the asset at that point in time. The asset was valued using the surface water channel table with only actual kerb and channel being valued.

Useful Life and Condition

The standard useful life for all kerb and channel has been set to 80 years.

Replacement Cost

The rate for kerb and channel replacement is plus 8.5% PS, total per lineal metre. This has been derived from contract rates for this work over the 2016/17 period.

Table 42: Kerb and Channel Value and Depreciation as at 30/06/2017

Kerb and Channel Value and Depreciation as at 30/06/17				
	ORC (\$)	ODRC (\$)	Monthly Dep (\$)	Annual Dep (\$)
Value at 30/06/17	\$24,592,000	\$11,578,000	\$25,583	\$307,000

Additions and deletions have been processed in the same way as 3.4.4 Road Formation above.

Assumptions

- Standard surface water channels have not been valued and the item is assumed to be included in the formation item
- If no rating information is available then condition is set to Average
- The depreciation method used was straight line over the Total Useful Life.

Drainage Assets

Scope

Drainage includes all rural culverts recorded in RAMM. Note that urban stormwater is valued in the stormwater asset group as part of below ground services.

Useful Life and Condition

Conditions have been assessed as average in the absence of field inspections and reporting. Council's maintenance Contractor commenced such investigations and reports in the 2016-2017 financial year.

Replacement Cost

Replacement costs of culverts have been based on current road maintenance contract rates paid for installation of the sizes of concrete pipes up to 600 mm diameter. Larger culverts have been valued at similar rates to stormwater improvements as held in the GIS database and used for stormwater revaluation. The rates include an appropriate provision for professional services (8.5%) and allow for installation of headwalls on larger culverts.

Table 43: Drainage Asset Value and Depreciation

Drainage Assets Value and Depreciation as at 30/06/17				
	RC (\$)	DRC (\$)	Monthly Dep (\$)	Annual Dep (\$)
Value at 30/06/14	\$9,278,000	\$5,852,000	\$11,667	\$140,000

Additions and deletions have been processed in the same way as Road Formation above.

Assumptions

- Only rural roading culverts included in valuation
- Construction date for culverts where not recorded has been set to the very “first” first coat seal date. If dates are not known the culvert date was set to 01 January 1981
- No condition data was calculated with all elements being rated “average”
- Headwalls allowed for in the culvert rate for culverts over 600mm diameter

Structures Assets

Scope

This group includes all bridges and large culverts (over 3.2m² waterway areas). Bridges were in the past revalued by a Consultants based on the updated values that were calculated by staff. This asset will now be valued using the RAMM asset valuation module. The details of the asset are recorded in the RAMM database and the revaluation is a snapshot of the asset at that point in time.

Useful Life and Condition

Most bridges are of standard Ministry of Works and Development design and detailing and as a consequence of the conservative design loadings their lifespan and capacity is generally very good.

Replacement Cost

The Opus derived replacement rates have been adjusted by the NZTA Cost Adjustment Factor for the period 2016-2017).

The replacement value of large culverts has been estimated from current retail prices with appropriate allowances for installation and professional services costs.

Table 44: Structures Asset Values as at 30 June, 2017

SUMMARY VALUATIONS: BRIDGES AND CULVERTS 30 JUNE 2017								
Bridges								
ID	Road	Obstacle	RAMM RP	Inst. Date	RL Yrs	ORC (\$)	ODRC (\$)	Annual Deprn.
1	Arapuni	Huihuitaha S	10,852	1966	58	490,503	284,492	4,905
2	Arapuni	Mangakaretu	2,674	1963	55	159,549	87,752	1,596
3	Arapuni	Pokaiwhenua	3,800	1964	56	370,223	207,325	3,702
4	Arapuni	Waikato R	14,170	1929?	21	1,137,604	238,897	11,376
5	Arapuni	Waipa S	6,970	1965	57	530,065	302,137	5,301
6	Baird	Matarawa S	1,016	1963	55	424,274	233,351	4,243
7	Domain	Oraka S	1,570	1965	57	490,503	279,587	4,905
8	Horahora	Pokaiwhenua	4,280	1944	36	1,204,987	433,795	1,205
9	Jones	Kinleith Rail	40	1950	42	361,276	151,736	3,613
10	Kakahu	Kakahu S	2,226	1958	50	443,669	221,835	4,437
11	Lake	Oraka S	488	1955	47	591,410	277,963	5,914
12	Langlands	Oraka S	1,155	1945	37	677,013	250,495	6,770
13	Ngatira	Oraka S	5,098	1963	55	315,846	173,715	3,158
14	Okoroire	Oraka S	492	1962	54	512,224	276,601	5,122
15	Okoroire	Waihou S	5,558	1961	53	1,077,194	570,913	10,772
16	Old Taupo	Otaneroa S	2,455	1967	59	188,049	110,949	1,881
17	Old Taupo	Parahikatea	19,980	1960	52	114,105	59,335	1,141
18	Old Taupo	Waipa S	2,080	1973	65	268,558	174,563	2,686
19	Paraonui	Mangamingi	6,758	1957	49	304,361	149,137	3,044
20	Paraonui	Whakauru S	5,370	1963	55	190,257	104,641	1,903

21	Pearsons	Waipa S	2,765	1961	53	329,280	174,518	3,293
22	Princes	Kinleith Rail	25	1961	53	520,239	275,727	5,202
23	Scotts	Kinleith Rail	525	2005	95	225,000	209,250	2,250
24	Sloss	Whakauru S	89	1965	57	226,835	129,296	2,268
25	Taumangi	Kinleith Rail	1,542	1969	61	677,319	413,165	6,773
26	Taumangi	Oraka S	805	1961	53	530,065	280,934	5,301
27	Te Rere	Ngutuwera S	778	1964	56	192,753	107,942	1,928
28	Totmans	Mangawhero	1,933	1955	47	179,235	84,240	1,792
29	Totmans	Waipahihi S	4,634	1955	47	134,279	63,111	1,343
30	Waiomou	Waiomou S	952	1958	50	624,442	312,221	6,244
31	Waotu	Mangaorua S	11,355	1966	58	324,679	188,314	3,247
32	Waotu	Pokaiwhenua	2,025	1955	47	551,784	259,338	5,518
35	Wiltstown	Pokaiwhenua	2,020	1938	30	228,208	68,462	2,282
36	Wiltstown	Waioraka S	5287	1960	52	235,948	122,693	2,359
						\$16,786,000	\$7,145,000	\$185,000

Table 45: Large Culverts Asset Values as at 30 June 2017

SUMMARY VALUATIONS: BRIDGES AND CULVERTS 30 JUNE 2017								
Large Culverts								
Road	Obstacle	RAMM RP	Material	Install Date	RUL	ORC (\$)	ODRC (\$)	Annual Deprn.
Darby	Huihuitaha	1,547	Timber	1979	41	71,213	41,710	1,017
Horahora	Piarere	300	Concrete	1946	38	267,346	105,011	2,673
Horahora	Waipa	9,330	Concrete	1946	38	94,951	36,081	950
Lake Arapuni	Huihuitaha	2,110	Timber	1979	41	83,951	49,171	1,199
Manfield	Whakauru	20	Steel	1979	41	232,711	136,302	3,324
Old Taupo	Waioraka	19,290	Timber	1945	7	115,129	11,513	1,645
Parapara		5,110	Masonry	1930	22	296,722	65,279	2,967
Princess Beatrix	Matarawa	75	Steel	1978	40	232,711	132,978	3,324
Waotu	Waipa	9,166	Concrete	1979	71	39,168	27,809	392
Wawa	Kinleith	40	Concrete	1947	39	62,311	24,301	623
Wiltstown	Mangaorua	16,500	Timber	1979	41	72,401	42,406	1,034
						\$1,884,000	\$663,000	\$23,000

Street Lighting Assets

Scope

The valuation of the streetlight assets was previously carried out by the Southtech In-House Business Unit. The 2017 valuation was part of the RAMM asset valuation module. The valuation was based on the optimised replacement cost for the asset and includes installation. Where the particular equipment was no longer available, such as fibreglass poles and fluorescent lights, the value of the component that would be installed today was used. Items such as the older SOX and obsolete poles are now past their useful working life, and are assigned a zero value.

Useful Life and Condition

Council has had a condition rating on the street light asset, and this is reflected in the replacement cost.

Replacement Cost

For streetlights, typical replacement costs were derived from the current Contract for Streetlight Maintenance. The Council has recorded costs for recently installed new lights. These are noted in the summary valuation below:

Table 46: Streetlight Summary Valuation 30 June 2017

STREETLIGHT SUMMARY VALUATION 30 JUNE, 2017						
Component	Qty	Useful Life (yr)	Average Life(years)	Replacement Cost (\$)	Depreciated Value (\$)	Depreciation Per Annum
Brackets	325	40	18.47	33,345	17,953	1,549
Conc. Pole	1,260	70	33.93	1,827,315	941,497	50,660
Fibre. Pole	1	50	50	1,450	Nil	Nil
Wood Pole	8	25	25	11,602	Nil	Nil
Std. Steel	504	60	24.46	730,926	432,976	20,566
Dec. Steel	94	60	26.54	329,000	183,465	9,833
Subtotal Columns	2,192			2,933,638	1,575,892	82,608
HP Sodium	1,656	25	12.55	733,492	365,347	58,915
M. Vapour	270	25	25	119,591	Nil	Nil
IP66 SON	54	25	5	23,918	19,134	1,196
IP66 MH	112	25	5	49,608	39,686	2,480
Dec. CBD SON	40	25	10.13	40,000	23,800	2,690
Dec. CBD MH	27	25	7.41	27,000	19,000	1,535
Pedestrian Crossings	4	25	9.38	8,000	5,000	512
Uplights	21	25	11.67	52,500	28,000	3,938
Dec.Halogen	2	25	15	2,000	800	200
Feature	15	25	0	52,500	52,500	2,100
Subtotal Lamps	2,201			1,108,610	553,267	73,567
Totals				\$4,957,000	\$2,817,000	\$158,000

Footpath Assets

Scope

The footpath asset was valued using RAMM data. The length and width for each footpath type were extracted from RAMM as at June 2017. The asset includes footpaths on urban State Highways.

Useful Life and Condition

Useful life and condition are as reported from RAMM.

Replacement Cost

Replacement costs for concrete asphalt paths and clay paver have been derived from 2016-2017 Contract rates. Significant additions and disposals to the footpath asset are processed in RAMM database.

Table 47: Footpath Values and Depreciation

Footpath Values and Depreciation as at 30 June 2017		
Replacement Value (\$)	Depreciated Value (\$)	Annual Depreciation (\$)
23,029,000	10,195,000	344,000

Assumptions

- Footpaths are assumed to be replaced like with like
- Valuations do not take into account footpath condition
- Paths where construction dates are not known have been assigned
- default construction dates from 01/01/1990 to 01/01/1995 depending on materials type

Traffic Services Assets

To derive a replacement cost for these assets, the value of sign replacements was taken from the maintenance contract payments for the period ending 30 June 2017. The contract rates cover the average cost of sign and installation, including posts where applicable. Based on these assumptions, the replacement value of the signs asset inventory is as follows:

Table 48: Traffic Service Assets Standard Replacement Costs

Item	Professional Services	Replacement Cost	Number of Signs	Replacement Cost
Signs with posts	8.5%	\$184.46	2602	\$482,620
Signs with no posts	8.5%	\$139.63	526	\$73,854
Totals			3128	\$556,474

7.3 Current Valuation

The following table summarises the latest valuation of Land Transport Assets to 30 June 2017

Table 49: Summary Valuation of Land Transport Assets as at 30 June 2017

Component	Replacement Cost (\$,000)	Depreciated Replacement Cost (\$,000)	Annual Depreciation (\$,000)
Land	19,910	19,910	Nil
Formation	168,374	168,374	Nil
Pavement	68,175	40,754	847
Surfacing	19,233	9,629	538
Kerb and Channel	24,592	11,578	307
Footpath	23,029	10,195	344
Railings	1,296	775	34
Street lighting	4,957	2,817	158
Culverts	9,278	5,852	140
Bridges	16,786	7,145	185
Large Culverts	1,884	663	23
Traffic Services	556	278	79
Total	358,070	277,970	2,655

7.4 Key Assumptions

- Assumptions relevant to each asset group have been listed under the separate headings in this chapter
- Considerable cost may be expended in purchasing land for road reserve and creating the road formation, but, once established, formation (i.e. "shaping") is treated as part of the land. The capital cost of formation is recognised in the Asset Register as a non-depreciating asset. Fencing and entrances in the road reserve are owned after construction by the appropriate residents and utilities, therefore council need not account in its records for their presence or loss in service due to ageing
- Non-Council underground utilities in the road formation, (e.g. power and telegraph cables, gas pipelines) are generally not considered Land Transport assets but are a consideration during maintenance and reconstruction

works. The Council now has to value such infrastructure for rating purposes and any rates derived could be used for Land Transport activities

- The unit rates used in this AMP to derive optimised replacement costs are as at June 2017 and were obtained during the full revaluation. These rates have generally been obtained from actual contract rates that were paid for work of a similar nature at the time of the revaluation.

Population

Fortunately, a large proportion (over half) of the Land Transport programme is subsidised by NZ Transport Agency, on a basis that is not linked to population.

Any decline in population may seriously erode the rating base of the District, placing a higher burden on the remaining residents for any infrastructure upgrades, and possibly affecting ability to fund renewal works.

Population trends must therefore be reviewed as frequently as reliable data can be obtained.

7.5 Other Assumptions

- All expenditure is stated in dollar values as at 30 Jun 2017, with allowance made for inflation over the planning period
- All costs and financial projections are GST exclusive
- Operational costs are generally shown to increase in proportion to total demand and anticipated real energy price increases
- Renewal costs are based on the plans outlined in Chapter 5
- New assets requirements have been derived from analysis of service level changes, growth and risk
- The costs of insurance and risk mitigation are included in the forecasts, however the potential costs that could arise through exposure to risk are not
- Climatic and other environmental trends are expected to largely continue as they have in the past
- This Plan assumes no growth in commercial/industrial demand
- Asset values and lives have been taken from the June 30 2017 valuation

Confidence Levels

The degree of reliability of the data used in this plan affects confidence and margin of error in the projected renewal programmes and other financial estimates.

Data confidence for the assets covered by this plan has been expressed below in terms of the NAMS Group approach:

Table 50: Confidence Grades

Confidence Grade	General Meaning
A	Highly Reliable Data based on sound records, procedure, investigations and analysis, documented properly and recognised as the best method of assessment
B	Reliable Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example the data is old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation
C	Uncertain Data based on sound records, procedures investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data is available
D	Very Uncertain Data based on unconfirmed verbal reports and/or cursory inspection and analysis

Table 51: Assessment of Confidence in Key Inputs to Programmes

Assessment of Confidence in Key Inputs to Programmes					
	Attribute	D Very Uncertain	C Uncertain	B Reliable	A Highly Reliable
1	Unit cost for Replacement				
2	Condition/Remaining Life:				
2a	Above-ground Civil, Mechanical & Electrical				
2b	Buried Components				
3	Asset Size				
4	Asset Depth	Not relevant – standard mains depths.			
5	Material				
6	Date of Installation				
7	Asset Type				
8	Location				
9	Length (pipelines)				
10	Quantity (other assets)				
11	Deterioration Rates:				
11a	Above-ground surfacing, signs and streetlights Civil, Mechanical & Electrical				
11b	Buried Components				
12	Asset Performance				
13	Demand Information				

2, 6, 11b: While condition, remaining life, material, installation date and deterioration rates are not as accurate as desired, faults frequency generally demonstrates that within this ten year plan period, buried components are very unlikely to require significant renewal. Depreciation rates have been conservatively set, so that in future plan periods there should be adequate funding to sustain a renewal programme based on better data.

Table 52: Assessment of Confidence in Financial Programmes

Assessment of Confidence in Financial Programmes					
	Forecast Category	D Very Uncertain	C Uncertain	B Reliable	A Highly Reliable
1	Revenue				
1a	User Charges				
1b	General Rates				
2	Opex				
2a	Direct Cost – maintenance, power, contracts				
2b	Support Cost				
2c	Principal Repayment				
2d	Interest				
2e	Depreciation				
3	Capex				
3a	Renewals				
3b	New Works				

Notes:

1. Reliability of revenue cannot be greater due to status of population predictions and potential decline in population.
2. Accuracy of Depreciation cost is low due to uncertainty of asset life, but has been set conservatively to compensate in the medium term.
3. Confidence in renewal costs over the plan period is higher than that in the depreciation figures because of observed reliability performance of buried assets.

Sensitivity Analysis

A sensitivity analysis is being developed for assessing the impact of various assumptions of asset useful lives on the Depreciation account.

8 ASSET MANAGEMENT SYSTEMS AND PROCESSES

This Section has been prepared as generic for all Council AMP's within the common AMP and contains information about all assets. The Section has been kept generic to allow ease of future updating and management of the Assets. SWDC manages its assets in an integrated manner. The Land Transportation AMP only reflects road assessment and maintenance management system (RAMM) and dTIMS pavement deterioration model.

8.1 Responsibilities for Asset Management Outcomes

Responsibility for the asset management function is allocated across two Group Managers as follows:

- The Group Manager, Assets, is responsible for the Land Transport, Landfills, Water Supply, Wastewater and Stormwater networks, Refuse Landfills and Community Property. This responsibility includes:
 - Ensuring constructed, maintained and in compliance with consents
 - Adequate budgeting and long-term forecasting
 - Monitoring Levels of Service for services provided by assets
 - Identifying and managing asset and service related risk
 - Reporting of Level of Service, Key performance indicators and Risks at Corporate level
 - The achievement of Asset Management practices which meet corporate Asset Management development standards and reporting of these in the AMPs

8.2 Asset Systems Review

South Waikato DC has continues to collect additional asset data and complete asset management analysis in a number of areas as part of the Asset Management Improvement Programme. As a result, additional data sets are being created and more comprehensive catalogues of assets compiled, particularly relating to Community Facilities assets (parks, leisure and swimming pools).

The table below details system requirements from the Office of Auditor General and the current position of South Waikato District Council's systems.

Road Assessment and Maintenance Management System (RAMM)

RAMM was implemented by Council in the 1980's and has since been developed as a database containing an inventory of the roading system and a history of the improvements made to it over the years. From the trends shown by the frequency of the various activities recorded it has been possible to predict future needs. Indications such as the period between reseal and rehabilitation work has been used in this AMP to estimate life expectancies and future levels of activities in roading outputs.

Use of the RAMM system is a prerequisite for NZ Transport Agency's funding assistance programme approval. Access to RAMM is restricted to approved staff. The system is "hosted" for Council by C.JN Technologies in Auckland under a maintenance contract and data is accessed via the internet, (<http://www.cjntech.co.nz>). NZTA has access to the RAMM database for monitoring purposes, but it remains the intellectual property of Council.

The two main measures used to grade the roading network are the "road rating" and "road roughness". The two provide a standardised measure of the status of discrete sections of pavement and the RAMM treatment selection programme uses this information to give a first order prioritisation and appropriate treatment for deficient sections. The information provides a very useful "first cut" for priority works when the forward Land Transport programme is being prepared. The "road roughness" is a reproducible measure of the riding quality of the road and is measured annually.

Since 1998-99 road rating on rural roads has been over 40 metres in every 200 m (i.e. 20% sample) because the 10% sampling was not giving a representative result. Urban rating provides at least 10% sampling. All roads in the District are rated at two out of every three years.

The condition indicators include seal cracking, potholing, edge break, rutting, shoving, scabbing, flushing, drainage and shoulder condition. In recent years this work has been contracted out. High speed data collection vehicles are available to do 100% rating of a roading network, but they are not able to record some important indicators, such as cracking, drainage and shoulder conditions, and are cost prohibitive at this time.

An Asset Valuation module in RAMM was used for the first time for the 1 July 2001 revaluation of Land Transport assets. The valuation model where in the past was run by a consultant and now be undertaken in-house. Council will in future run the model annually to gage the depreciation requirement need for the coming year.

Council has for a while been supporting RAMM with RAMM Contractors. This will be introduced to all contracts and used to deliver a more efficient outcome in terms of forward works planning, auditing and monthly contract claiming.

In 1999-2000 a pavement deterioration model was attached to RAMM, known as dTIM's, to provide improved predictive capability.

Modelling – dTIM's

dTIM's is a NZ customised version of the World Bank's HDM software. In 2010/11 Council opted to engage Opus Consultants to run the pavement deterioration model analysis outcome for Council's seal pavements in order to vary the forwards programme model developed in-house. The results confirmed Council's forward works programme with minor variation and as a result of this Council has decided there is no great benefit compared to the cost to run the model.

The dTIM's software will provide a more advanced tool for guiding the Asset Manager in forecasting road maintenance and improvement needs. It is not expected to be in usable condition until the software is calibrated to provide adequate forecasting for comparatively low volume roads.

Council does not operate a traffic model and given the simple street arrangements, no traffic signals, and low volumes, and while the model was used in 2010-11 a traffic model is not required in the foreseeable future. The output of the model was used to support aspects of Council's Land Transport Programme and formed basis of Forward Works Programme (FWP) development and review.

9 MONITORING AND IMPROVING ASSET MANAGEMENT PLAN

9.1 AM Improvement Process

South Waikato District Council has been actively committed to effective asset management since the mid 1990's.

This commitment has included in-house production of asset management plans since 1998, implementation of asset management systems and associated data collection, and the resourcing of a Manager Asset Strategy position.

During the period 2004-2006 Council's AMP's were updated to meet requirements of the Local Government Act 2002 and progress with asset management practice was incorporated into the plans. Resulting from the analysis in the 2008 AMP's an asset management improvement programme was implemented.

The AMP's were reviewed and updated again in 2018.

Improvements have been carried out at a consistent rate through regular 6 weekly meetings held with key personnel including:

1. Group Manager Assets, also the Project Sponsor
2. Asset Managers
3. External Consultants, Waugh Infrastructure Management Limited

This approach provided the opportunity to share valuable experience and knowledge with other team members and allowed buy-in to the asset improvement program. Resulting from this structured approach significant progress has been made and staff will continue with these regular meeting into the next round of improvements. Improvements to the Land Transport AMP will also be supported by RATA through Regional Activity Management Plan discussion workshops. Details of the workshops is still being finalised.

9.2 Assessment of Asset Management Practice

South Waikato District Council completed a formal assessment of appropriate asset management practice in 2014.

This report, "South Waikato District Council - Selecting the Appropriate AM Level" was prepared by Waugh Infrastructure Management. The report used a structured process to determine the appropriate level of asset management, using the guidelines provided in Section 2.24 of the International Infrastructure Management Manual.

The report recommended that the "Core Plus" level of asset management was appropriate for all activities and its subsequent adoption provided an asset management policy for the Assets Group.

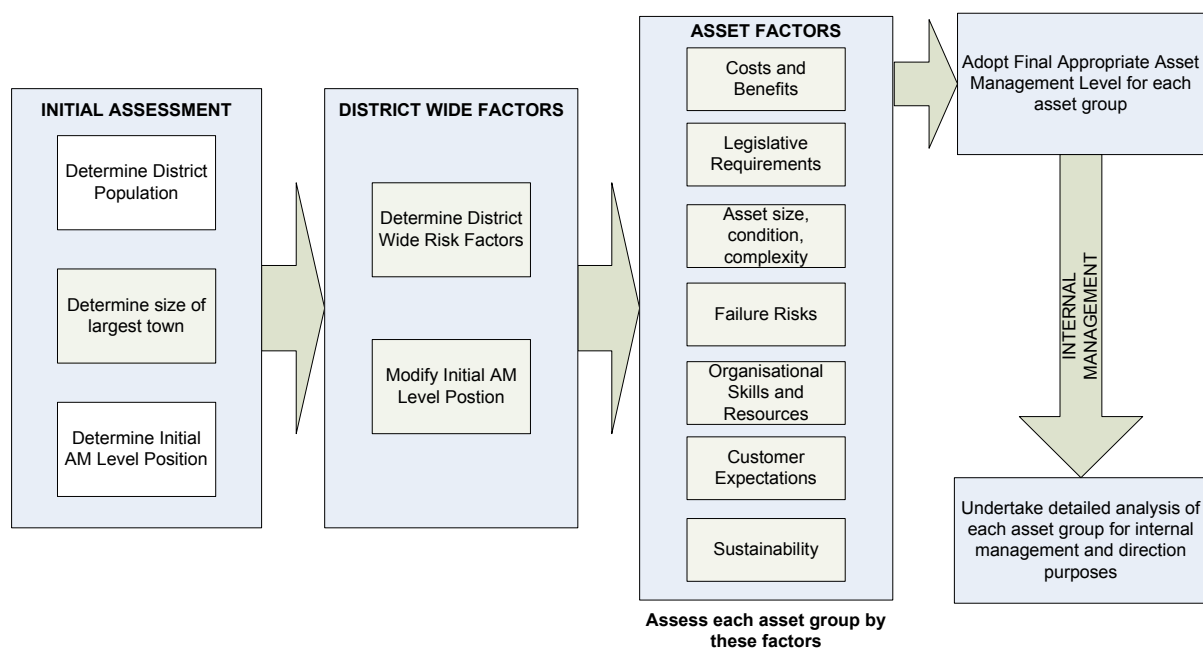


Figure 62 Methodology for determining Appropriate Management Level

Asset management planning, programmes and practice are now embedded into South Waikato District Council Asset Group practice.

The following diagram outlines the integration between Council structures to support the on-going implementation of improvement of Council's asset management practices.

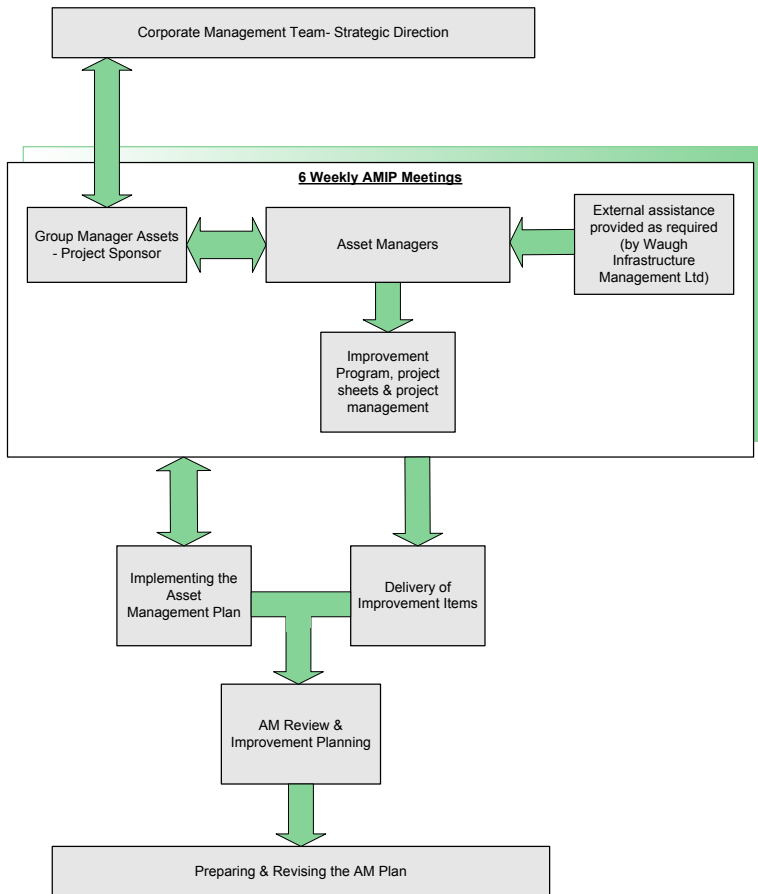
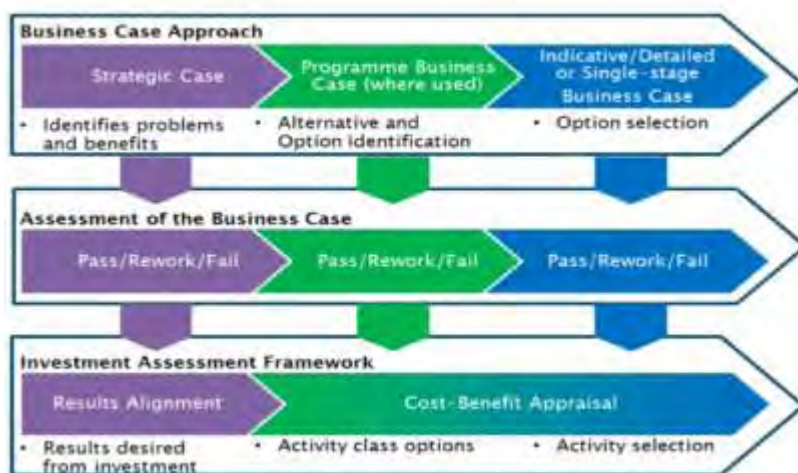


Figure 63 Improvement Programme Process

9.3 NZTA Assessment of the Business Case and Investment Assessment Framework

Application of the Transport Agency's Investment Assessment Framework is linked to the development of the activity through the Business Case Approach. Business cases are assessed to ensure they are fit for purpose and consistent with the principles of the business case approach, before they are assessed against the Investment Assessment Framework as shown below.



An assessment of the SWDC draft AMP was carried out by NZTA during November 2017 (Appendix I) with focus on;

- Strategic Alignment
- Strategic Direction
- Problem Identification
- Objectives
- Core Programme

While the final AMP reflects improvements identified during the initial assessment longer term improvements have been highlighted and are on-going.

Table 53: Performance Indicators for AM Plan

Performance Indicator	Target	Source of Information
High level of customer satisfaction with services provided	Achieve KPI targets	Communitrak Surveys and responses to service requests
Implementation of Improvement Programmes	100% of identified improvements undertaken	Annual Plan reports
Compliance with legislative requirements	Unqualified Audit NZ opinion relating to AM plan outputs	Audit NZ reports
Quality of service delivered	Compliance with Annual Plan targets	Annual Plan reports
Quality of risk management	Management of identified risks within corporate risk management planning approach	Internal management reporting on Risk Management Plan

9.3 Improvement Actions

Council is committed to ongoing improvement in the quality of its asset management practices until the “Core Plus” levels are achieved. The following is a summary of progress in implementing the improvement projects during 2018-28:

IP01 Strengthen links between LOS/Demand/Plan

- Alignment between 2018 AMP and LTP
- On-going Community and targeted Stakeholder engagement
- Realistic growth projections working alongside other Council Departments
- Embedding of the ONRC

IP02 Demonstrate Technical/Community Outcomes

- Ongoing monitoring and reporting confirmed achievements

- High levels of satisfaction recorded in quarterly community surveys
- Align the LOS with the revised Council (was Community) Outcomes in the 2018 LTP
- Alignment with the ONRC LOS

IP03 Review Monitoring and Reporting Procedures

- Summary of procedures prepared for review. Generally effectively carried out. May look at more consistent formatting between different activities.
- An electronic Register of all SWDC Plans, Bylaws, Strategies and Plans has been prepared to update current status and renewal dates.

IP04 Complete Asset Risk Assessment

- Consideration given to extending to include assessment of failure probability in Land Transport to enable completion of risk profile

IP05 Condition Inspection of Critical Assets

- Implemented of Land Transport for Lifelines

IP06 Develop and implement Contingency Plans

- Ongoing support for, and co-ordination with, Civil Defence and Emergency Management
- Participation in vulnerability assessment exercise and other activities of the Waikato Engineering Lifelines Group

IP07 Emergency Response Exercises

- Not implemented, apart from working together with CDEM and Lifelines

IP08 Renewals, maintenance, new work and operations optimisation

- Business case approach implementation to assist planning and funding for renewals
- Benefit and options needs further development
- Better use of PMRT, particularly for peer group comparisons
- Consequences of not investing in the network identified

IP09 Financial Sensitivity Analysis

- Business case approach used for all investment decisions

IP10 Improve Knowledge of Assets

- dTIMS modelling
- Data collection Strategy
- Better undertaking of Network through continued appropriate evidence based data collection
- Continues support by RATA Assets Management Forum

IP11 Improve demand planning

- Growth Plans
- Better data collection

IP12 Extend asset system to include all significant groups in one database

- Land Transport information will remain in RAMM
- Support of RATA
- Improvement use of RAMM through on-going training

IP13 Review and implement new Standard Operating Procedures and Quality Assurance procedures

- Existing SOP's are kept up to date
- QA procedures need further development
- Renewal and maintenance strategy to be developed

IP14 Asset Management Resource review

- Review of staff resources completed previously
- Budgets for external resource

IP15 dTIMS modelling tool extension

- Implemented for Land Transport (see IP14)

IP16 Transportation strategy updating

- Reviewed and update

IP17 Utilities strategy; assessment and plan updating

- Ongoing liaison with various Utilities providers and work programmes

IP18 Grant application procedures

- Maximise NZTA subsidies through smart procurement and good planning

IP19 Demographic change in demand analysis

- Population projections are addressed on a corporate wide basis to ensure consistency in planning and alignment with the LTP process.

IP20 Revaluation- Land Transport Assets

- Completed - 30 June 2017

IP 21 Asset Plan update

- 2018-28 AMP updated and compliance status review implemented

IP 22 Procurement

- Apply the smart buyer principles assessment tool
- A 'Best for Network' approach with a focus on costs and network ownership by both parties.
- 'Working Smarter' through better joint planning and decision making.
- A 'Whole of life approach' increase the percentage of planned to reactive works on the network and identifying causes rather than simply 'patching the pothole'.
- A 'one stop shop' to simplify interactions with clients/users and reduce unnecessary duplication.
- Providing avenues for innovative solutions and technological advances in industry to be applied, increased the depth of knowledge and skills for both parties, including greater understanding of the political context of decision-making.
- Flexibility to deal with future uncertainty.
- Opportunities to extend learnings for both Council and Contractors, particularly with cadets.
- Potential opportunity to bundle contracts with other road authorities (District Councils and NZTA).
- More engagement with the industry

IP 23 Communication

- Review and update communication plan
- Maintain relationships with stakeholders

9.4 Monitoring & Review Procedures**Monitoring Approach**

South Waikato District Council has developed the AMP's based on an integrated asset management planning approach that includes:

- 1 Customer, Stakeholder and NZTA consultation and subsequent development of service levels including ONRC
- 2 Alignment to National, Regional and local drivers
- 3 The configuration of networks to meet customer requirements now and in the future
- 4 Current asset information and evidence based information

5 Well-developed strategies National, Regional and Local to achieve customer requirements

6 A business Case Approach

Further development of Council's asset management approach, including supporting processes, systems and data, will be needed to meet the appropriate level of asset management practice as set out in Council's Asset Management Policy. This Policy will be reviewed periodically to take into account legislative and other national practice changes.

Timetable for Audit and Review

The programme for future AM reviews of this plan is shown in the table below.

Table 54: Timetable for Audit and Review

Activity	Target Date
Asset Management Improvement Program 6 weekly meetings with Asset Managers	6 Weekly
Monthly reporting to Group Manager of Assets	Monthly
Improvement Plan reviewed annually by all staff directly involved and focusing on key business issues	30 June each year
Report on Improvement Plan	30 June each year
AMP updates involving members of staff involved in preparing specific aspects of the AMP	30 June each year
Compliance Status review prior to start of LTP process (to identify and budget for new improvements)	30 August every 3 years
Identify new LOS based on preliminary consultation on LTP	Early in LTP process
Adoption of AMP by Council (linked to adoption of LTP)	30 June every 3 years
External benchmarking by internal staff	Annually
Audit NZ external audit	As required by Audit NZ
External Peer review of AMP	3 Yearly

Procedures for Performance Reporting

The following Performance Indicators will be monitored to measure the effectiveness of the AMP's.

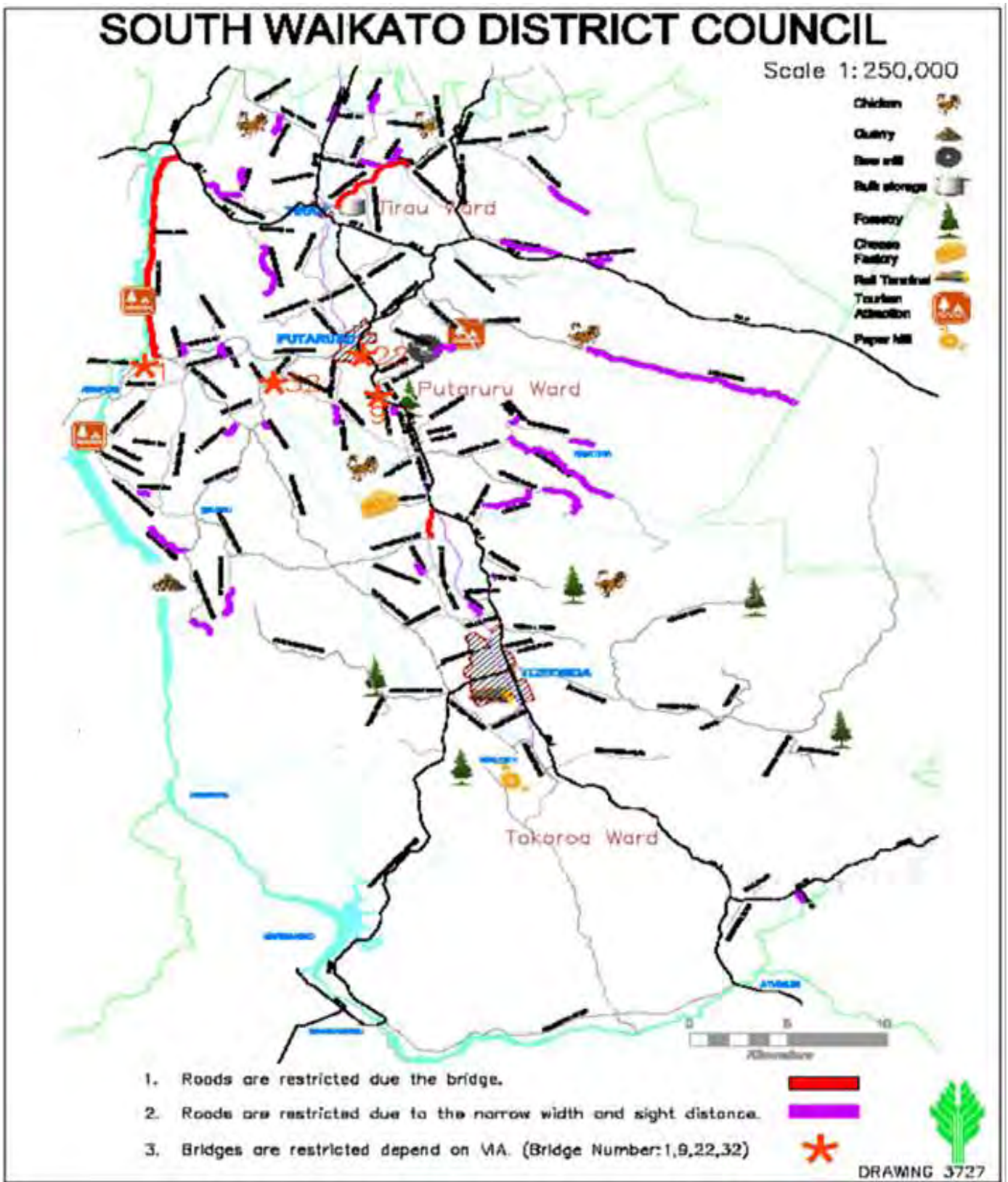
APPENDIX A - ASSET DESCRIPTION & SYSTEM OVERVIEW

A1 District Map

The South Waikato District lies at the heart of the North Island of New Zealand. State Highway 1 runs through three of our main towns - Tokoroa, Putāruru and Tirau. Other State Highways includes 5, 27, 28(Whites Rd), 30 and 32. Forestry and dairy industries dominate the district.



A2 HPMV Routes AND Restrictions



A3 Roothing Statistics

Table 55: Roothing Statistics in the South Waikato District Council

Rural	Putāruru	Tirau	Tokoroa	Arapuni	Total	
Maintained by SWDC						
Sealed	197.2	92.3	92.4	0.0	381.9	
Unsealed	9.5	2.3	3.7	0.0	15.5	
Sub-total	206.7	94.6	96.1	0.0	397.4	<u>397.4</u>
Maintained by Hancock						
Sealed	0.0	0.0	0.0	0.0	0.0	
Unsealed	12.8	0.0	17.4	0.0	30.2	
Sub-total	12.8	0.0	17.4	0.0	30.2	<u>30.2</u>
Total Rural	219.5	94.6	113.5	0.0	427.6	<u>427.6</u>
URBAN						
Sealed	25.8	6.0	76.3	3.5	111.6	
Unsealed	0.4	0.0	0.20	0.0	0.6	<u>112.2</u>
Urban and Rural Sealed (SWDC maintained)					<u>493.5</u>	
Urban and Rural Unsealed (SWDC maintained)					<u>16.1</u>	
Urban and Rural Total (SWDC maintained)					<u>509.6</u>	
Rural Total (Hancock maintained)					<u>30.2</u>	
Urban and Rural Total					<u>539.8</u>	km

APPENDIX B – DETAILED LEVELS OF SERVICE

B1 FOCUS GROUP CONSULTATION

Land Transport

Discussed at 3 meetings. 29 feedback sheets.

Most important: 'safer roads' at 75% of responses, followed by crossings for high speed roads, and road width for passing trucks.

Next most important: safety education, parking, markings and uneven roads – all rated as highly important by around 50% of respondents.

Those 'prepared to pay more' (67% of responses) had clearly identified the three top concerns. Despite roading having by far the highest rates charges per property, no responses indicated a desire to pay less.

Six of the seven rural responses were very clear about the importance of roads to them and one expressed concern about lack of footpaths on rural roads.

Additional service aspects identified included restricting heavy trucks in residential areas, enforcement of parking on verges, and a comment about the safety of Tokoroa Memorial Sports Ground entrance.

Recommendation:

Council is aware of the safety and width issues. The costs of widening additional roads without subsidy would clearly be very high and would benefit only a few of those who would be paying. Safety aids such as signs, markings and lighting are maintained as often as the national subsidy permits. Road improvements must also be subsidised to be affordable and funding is applied for annually.

In 2008 a Corridor study, periodic Road Safety investigation and Roading Strategy will be produced. These will support the continuing safety and standard of the District's roads. The Memorial Sports Ground, school facilities, and potentially the new events centre all sited on the opposite side of SH1 to the general population appears to be an obvious incentive to improve safety, including for pedestrians and cyclists. Council can look at the cost to provide a pedestrian/cycle underpass of SH1 (eg. opposite Tokoroa East School). This is obviously expensive but 67% of respondents are prepared to pay more.

Busy vehicle and pedestrian routes near the most-used sports grounds could be worth reviewing – include Strathmore Park.

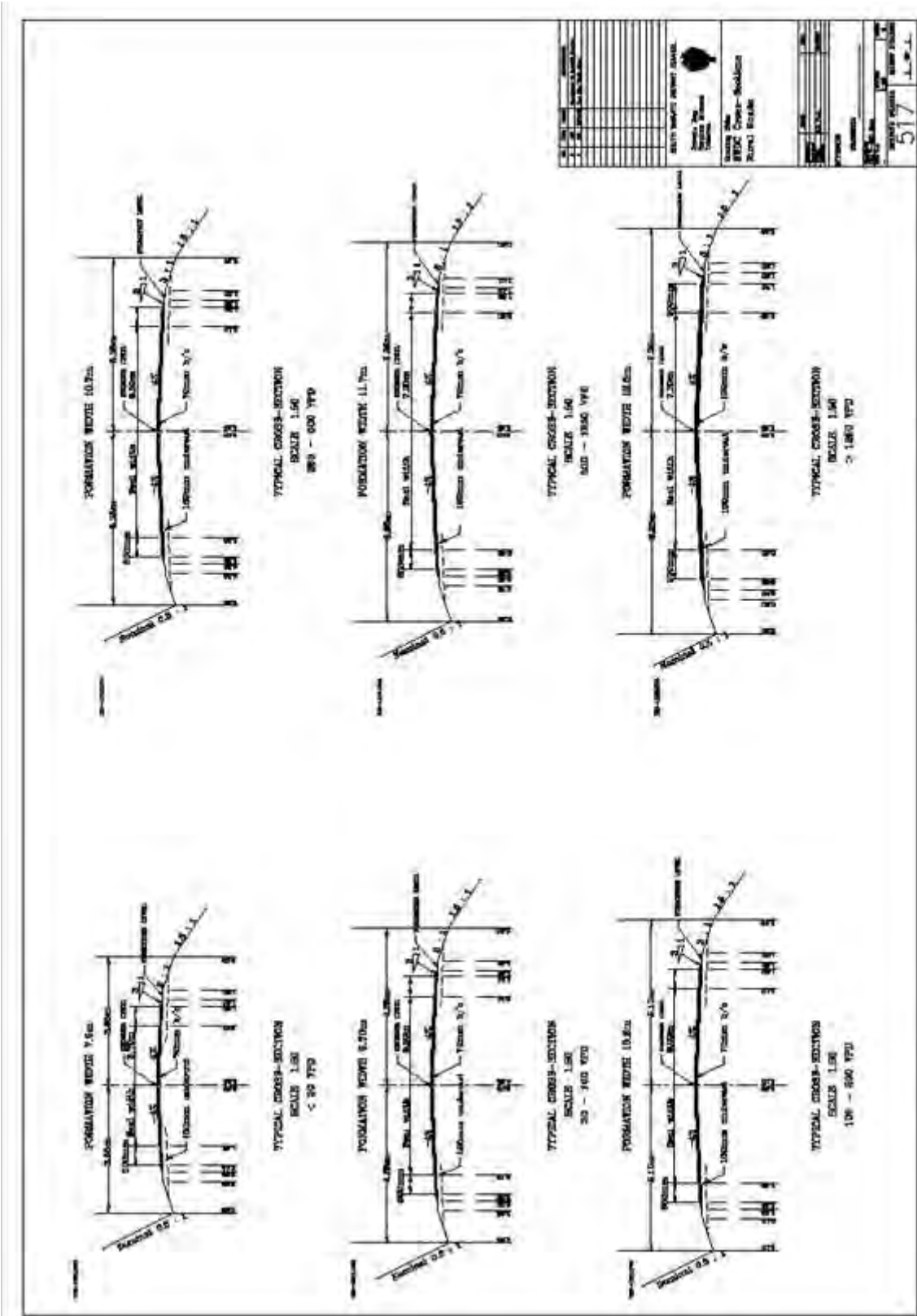
What do you think?

Action Costs What do you think?

Studies to support safety improvements 0.12% or \$1 per year	Yes	No
SH1 pedestrian underpass 0.37% or \$3.70 per year	Yes	No

Table 56: Land Transport Study Results

Land Transport			
Action	Yes	No	Meeting/Group
Studies to Support Safety Improvements	12 7	4 -	Tokoroa Pakeke Lions Federated Farmers
SH1 pedestrian underpass	9 3	7*14 4*15	Tokoroa Pakeke Lions Federated Farmers



B2 2015-25 LTP CONSULTATION - OUTCOMES AND STRATEGIES **Update**

Refer to 2015-25 LTP for further information

The Council outcomes are the goals that Council is working towards over the next 10 years to achieve the vision. Each Council outcome links to one or more strategies. These strategies describe the broad actions that Council will undertake to achieve the outcomes.

Council Outcomes	Council Strategies
<p>Grow our economy: Existing businesses thrive and new businesses start up in the district.</p>	<p>Economic development strategies: Stimulate economic development by assisting existing and attracting new businesses while encouraging diversity. Encourage education and training to improve the employment opportunities of district's residents.</p>
<p>Improved external image: People outside our district are encouraged to live, work and develop businesses here.</p>	<p>District promotion strategy: Use a full range of marketing tools in conjunction with other organisations, to encourage external people to visit and live and develop businesses in our district.</p>
<p>Well managed infrastructure: Our infrastructure is financially and operationally sustainable; it contributes positively to our district environment; and it is cost effective for households and businesses, now and in the future.</p>	<p>Efficient and effective operations strategy: Provide sound total asset management planning.</p>
<p>A quality regulatory service: Deliver a local regulatory service that keeps our community safe and is cost effective to households and businesses, now and in the future.</p>	<p>Regulatory services strategy: Provide regulatory services that meet legislative requirements while supporting our customers.</p>
<p>Quality services and facilities: Council provides quality local public services and facilities which are cost effective to households and businesses, now and in the future.</p>	<p>Services and facilities strategy: Enhance access to and use of Council's services and facilities.</p>
<p>Community pride: Council provides services that make residents proud of our district, celebrating the artistic, sporting and cultural achievements of our people and the diversity of our cultures.</p>	<p>Community Pride Strategies: Through improved communication, community activities, an enhanced physical environment focus on making our community proud and engaged. Maintain and support our community's art and culture and support cultural displays and events.</p>
<p>Sustainable Council operations: We have regard to sustainability while operating in a cost effective manner.</p>	<p>Efficient and effective operations strategy: Sustainability is embedded in all of Council's operations.</p>
<p>Cultural leadership: We support and encourage cultural leadership and capacity building.</p>	<p>Cultural leadership strategies: Build and maintain a strong strategic and operational relationship with Raukawa. Build and maintain a strong working relationship with Māori at all levels of Council. Build and maintain a strong working relationship with all cultures present in our district.</p>

APPENDIX C 2016/17 LAND TRANSPORT ASSET VALUATION

Refer to:

- “South Waikato District Council 2016/17 Transport Asset Valuation July 2017” by South Waikato District Council ECM Doc Set [315605](#)

Table 57: Summary Valuation of Land Transport Assets as at 30 June 2017

Component	Replacement Cost (\$,000)	Depreciated Replacement Cost (\$,000)	Annual Depreciation (\$,000)
Land	19,910	19,910	Nil
Formation	168,374	168,374	Nil
Pavement	68,175	40,754	847
Surfacing	19,233	9,629	538
Kerb and Channel	24,592	11,578	307
Footpath	23,029	10,195	344
Railings	1,296	775	34
Street lighting	4,957	2,817	158
Culverts	9,278	5,852	140
Bridges	16,786	7,145	185
Large Culverts	1,884	663	23
Traffic Services	556	278	79
Total	358,070	277,970	2,655

APPENDIX D - RISK ASSESSMENT

D1 Lifelines Vulnerability and Hazard Assessment

Refer to the overarching Asset Management Plan for more details.

Road Risk Register

Risk Levels	
H	High Risk
S	Significant Risk
M	Medium Risk
L	Low Risk

Section+B1:J	Group	Risk	Likelihood	Consequence	Risk level	Control Measures
Road Network	Assets	Major emergency event	Likely	Major	High	Emergency Management Plan, Emergency Response Plan with alternate emergency transport and routes, extra physical resources, Bailey bridges etc.
Road Network	Assets	Complaints about road noise/vibration	Moderate	Insignificant	Low	Engineering & maintenance of surface, enforcement via police/environmental health and noise bylaw
Road Network	Assets	Complete loss of subsidy	Rare	Major	Significant	Experienced staff prepare programme and claims, overlap in expertise of existing staff, process documented for new staff. Being regularly updated with changes to funding policy and continually training. Good partnerships with NZTA support staff. Review roading priorities. Increase non-sub funding to maintain existing assets
Road Network	Assets	Damage by others	Rare	Insignificant	Low	24/7 fault call-out system and contracted response with performance criteria, road opening permit system in place
Road Network	Assets	Failure to comply with resource consents	Rare	Moderate	Moderate	Communication procedure in place. Specific provisions in contracts, contract procedures manual and staff/contractor training. Regular updating and monitoring. Regional Council partnership meetings.
Road Network	Assets	Injury to persons or property due to our incorrect signage or operations	Unlikely	Moderate	Moderate	Health& safety policy, safety requirements for contractors, Southtech H&S policy, signs and markings, working on the road and design specifications, road safety management system. Regular audits on Traffic Management and HSS. Selection of experienced Contractors and provision of HSS policy by contractors.
Road Network	Assets	Injury to road or footpath users partly due to our negligence	Rare	Minor	Low	Education, engineering initiatives, enforcement of agreements with police, frequent inspection, knowledge of assets and prioritising systems. On going maintenance.
Road Network	Assets	Loss of record or IT services	Likely	Moderate	Significant	Electronic backups, archiving and fire protection of buildings/storage areas, digital captures of paper documents
Road Network	Assets	Low consumer confidence resulting in protest and /or payment withholdings	Rare	Insignificant	Low	Road network quality monitoring and service level improvements to close the gap between expectation and delivery
Road Network	Assets	Partial loss of subsidy through new road classification	Likely	Moderate	Moderate	Good partnerships with NZTA support staff. Southtech identifying funding impact. Council to increase non-sub funding to retain LOS.
Road Network	Assets	Poor contract management (standards, cost, time blowouts)	Unlikely	Minor	Low	Remedies provided in standard general conditions of contract, contract procedure manual, staff training. Roading quality plan. Regular meeting and good partnering. Improvement workshops and audits
Road Network	Assets	Poor contractor performance	Rare	Minor	Low	CPP selection process for all contracts, regular monitoring and feedback to contractors, ability to quickly suspend/terminate contracts and recover cost. Contractors Quality Procedures. Ongoing monitoring and fair contract pricing. Improvement workshops and audits
Road Network	Assets	Protest due to failure to consult/ damage to Taonga during construction	Rare	Moderate	Moderate	Research during design. Identification of stakeholders, consultation plan and process, chick list and written feedback
Road Network	Assets	Regional prioritisation of Capital projects cancel or defer a Council project	Rare	Moderate	Low	Good representation on both Regional and RAG Committee. Make provision for any deferred projects through temporary work.
Road Network	Assets	Road closed and /or property damage by flood, slips or accident	Likely	Minor	Significant	Design standards, 24/7 call-out and contracted response and emergency response plans. Procedures and alternative routes identified. Ongoing maintenance
Road Network	Assets	Road/footpath flooded, leaf fall and ice	Likely	Insignificant	Moderate	Routine additional maintenance provided in channel cleaning and cesspit grate clearance during autumn. Additional inspection of footpath and mitigation interventions in place.
Road Network	Assets	Seismic event	Rare	Major	Significant	Earthquake design standards for structures; redundancy in road network except for cul-de sac which are not strategic roads. Recovery plans in place
Road Network	Assets	Slip / drop-out during construction	Unlikely	Insignificant	Low	Soils investigation prior to earthworks, water/erosion control during work. Good engineering practice. Knowledge of Area. Health and safety training
Road Network	Assets	Unsafe roads (failures due to deterioration of assets)	Unlikely	Insignificant	Low	24/7 fault call-out system and contracted response, asset performance monitoring renewal programme, sampling, testing, improving knowledge of assets and information system. Public to be notified through signage.
Road Network	Assets	Vandalism	Almost Certain	Minor	Significant	Inspection regime by contractors and service requests by public. Education
Road Network	Assets	Waterway contaminated by construction or spillage run-off	Unlikely	Minor	Low	Good engineering practice with regular monitoring. Environmental procedures. Emergency response process in conjunction with emergency services
Road Network	Assets	Bridge/ Culvert failure	Rare	Major	Significant	Good engineering practice with regular inspections. Depreciation funding in place. Ensure true replacement cost are used for reveal.
Road Network	Assets	Pavement damage from HPMV and 50MAX	Likely	Minor	Moderate	Good engineering practice with regular inspections. Case for increased NZTA funding

APPENDIX E DEMAND INFORMATION

Refer to AMP Improvement Chapter 9.

	Sector Creating the Demand				Basis of the Driver		
	Domestic	Commercial	Community	Industrial	Resident population growth	Per-head demand growth	Unrelated to resident population
Growth in resident population	✓	✓	✓	✓	✓		
Increased economic activity			✓	✓			✓
Asset Condition (leakage – condition based)							✓
Non-revenue other than leakage	✓	✓	✓	✓			

Table 58: Standard Traffic Count Stations 200 to 20089

ROAD	DATE	TOTALS	CARS	H.C.V.
CAMPBELL STREET				
Metro Plus	17/03/2004	49140	47605	1535
Metro Plus	16/05/2005	54610	54290	320
Metro Plus	29/03/2006	55981	54596	1385
Metro Plus	26/09/2007	60581	60118	463
Metro Plus	4/03/2008	48656	46826	1830
Metro Plus	24/03/2009	52038	49956	2082
Metro Plus	29/03/2010	50288	48276	2012
Metro Plus	5/04/2012	50260	48752	1508
Metro Plus	27/03/2013	46536	42813	3723
HORAHORA ROAD				
Metro Reg	1/03/2004	7668	6005	1663
Metro Plus	15/04/2005	7621	6817	804
Metro Plus	29/03/2006	8195	7164	1031
Metro Plus	29/03/2007	6960	6624	336
Metro Plus	4/03/2008	7908	7156	752
Metro Plus	24/03/2009	9828	6192	3636
Metro Plus	29/03/2010	9590	8343	1247
Metro Plus	22/11/2011	9940	8250	1690
Metro Plus	31/10/2012	9016	7754	1262
Metro Plus	11/04/2013	9954	8063	1891
MAY STREET				
Metro Plus	17/03/2004	40006	39453	522

Metro Plus	15/04/2005	39808	39740	68
Metro Plus	29/03/2006	39340	38875	465
Metro Plus	28/06/2007	34470	34390	80
Metro Plus	4/03/2008	34383	33158	1225
Metro Plus	24/03/2009	38808	38420	388
Metro Plus	29/03/2010	34230	33888	342
Metro Plus	14/09/2011	36484	35754	730
Metro Plus	31/10/2012	32410	32086	324
Metro Plus	27/03/2013	31080	30769	311
OKOROIRE ROAD				
Metro Reg	15/04/2005	9239	8458	781
Metro Plus	29/03/2006	9233	8294	939
Metro Plus	27/04/2007	7804	7429	312
Metro Plus	4/03/2008	7818	6943	875
Metro Plus	24/03/2009	10556	8976	1583
Metro Plus	29/03/2010	9828	8747	1081
Metro Plus	14/09/2011	7280	6042	1238
Metro Plus	31/10/2012	8232	6750	1482
Metro Plus	27/03/2013	8750	7525	1225
OLD TAUPO ROAD				
Metro Plus	1/03/2004	10681	9566	1115
Metro Plus	16/05/2005	12405	11770	635
Metro Plus	29/03/2006	12482	10802	1680
Metro Plus	7/05/2007	14198	13038	1160
Metro Plus	4/03/2008	13093	11550	1543
Metro Plus	29/04/2009	13580	11679	1901
Metro Plus	29/03/2010	13496	11742	1754
Metro Plus	20/09/2011	13342	12141	1201
Metro Plus	31/10/2012	10458	7739	2719
Metro Plus	26/11/2013	15764	14345	1419
WAOTU ROAD				
	15/04/2005	6770	6308	462
	29/03/2006	7006	6289	717
GK5000	26/09/2007	7654	7041	613
Metro Plus	4/03/2008	7395	6777	618
Metro Plus	24/03/2009	7280	6115	1165
Metro Plus	29/03/2010	6664	5931	733
Metro Plus	20/09/2011	7686	6841	845
Metro Plus	5/04/2012	7084	6234	850

APPENDIX F CAPITAL AND RENEWAL PROGRAMMES

Table 59: Capital Renewal and Improvement of Local Roads (Subsidised and Non- Sub), 000

Activity	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	TOTAL
Minor Improvements	330	350	350	370	370	380	400	400	420	435	460	3,935
Bridge Replacement	0	0	200	0	980	0	0	0	900	0	0	2,080
Formation Widening - Rehabilitation	350	350	360	360	400	420	551	581	588	609	645	4,864
Asphalt Surfacing/ Resurfacing in CBD areas	120	120	120	120	127	120	124	128	132	137	142	1,270
Associated Improvements (with rehab works)	165	165	174	170	180	186	191	203	204	211	226	1,910
Drainage Renewals (Culverts and Kerbs)	160	150	140	160	165	165	165	165	165	165	165	1,605
Maintenance Chip Seal	920	950	950	980	1,000	1,050	1,080	1,080	1,080	1,080	1,120	10,370
Pavement Rehabilitation	800	850	900	920	956	982	1,010	1,070	1,080	1,120	1,130	10,018
Traffic services renewals: Signs	90	90	95	95	100	100	95	90	90	100	100	955
Traffic services renewals: Streetlighting	120	150	150	160	100	120	100	120	130	130	100	1,260
Christmas/ Feature Lighting	10	50	50	40	20	20	25	25	30	30	30	320
Footpath Renewals	40	40	40	40	35	50	50	50	50	50	50	455
Kerb and Channel Renewals	50	80	80	90	90	100	80	80	90	100	100	890
Reseal Projects	10	0	15	0	60	0	20	0	25	0	30	150
Seal Extensions	0	0	0	120	120	120	0	200	0	200	0	760
Seal Widening.	40	60	80	80	90	95	100	110	110	120	130	975
Traffic Counters	3	0	5	3	6	7	7	7	7	7	8	57
Total	3,208	3,405	3,709	3,708	4,799	3,915	3,998	4,309	5,101	4,494	4,436	41,874

APPENDIX G DISTRICT PLAN

G1 Zoning

Table 60: Designations from District Plan

Map No.	Name of Works	Location	Legal Description	Purpose	Underlying Zone
52	Legal formed and unformed existing public roads			Road	

APPENDIX H - SMART BUYER PRINCIPLES ASSESSMENT TOOL

Assessment statement Our Organisation	Score				
	1	2	3	4	5
1. Fully understands the different contracting models available			✓		
2. Holds meetings that updates the contracting industry on the forward works programme and any changes it is taking in approach and proactively engages with the contracting industry to ensure that gains optimal value out of any changes being implemented		✓			
3. Has sufficient robust data (or is in the process of gathering robust data) on our networks that enables optimal integrated decision-making				✓	
4. Has access to expertise that fully enables best use of the data available				✓	
5. Is open to alternative solutions to those proposed in the contract documents					✓
6. Understands risk and how to allocate and manage it			✓		
7. Has a Council that is prepared to pay more now to achieve a lower whole of life cost					✓
8. Actively pursues value for money & does not always award contracts to the lowest price					✓
9. Is able to manage supplier relationships / contracts to ensure that expenditure is optimal and sustains infrastructural assets at appropriate levels of service				✓	
10. Supports ongoing skill and competency training and development for its staff				✓	
11. Actively participates in gatherings to share and gain knowledge within the sector				✓	
12. Is effective in keeping up with best practice in procurement including best practice RFP / contract documentation				✓	
13. Regularly seeks and receives candid feedback from suppliers on its own performance as a client and consistently looks to improve its performance				✓	
14. Explores opportunities for collaboration by either sharing in-house resources with neighbours, or by procuring together or tendering together. That exploration could be through an LGA s17A evaluation of transport function delivery options.				✓	
Number of ticks in each column	0	1	2	8	3
Multiplying factor	x1	x2	x3	x4	x5
Total Score in Column	0	2	6	32	15
Total Score	55				

APPENDIX J - SOUTH WAIKATO DISTRICT COUNCIL DELIVERY MODEL SELECTION MATRIX

Selection Criteria (Opus 2012)	Traditional	Hybrid	PSMC/PBC	Alliance	SWDC Rating
Scale	<\$15m	<\$15m	>\$15m	>\$15m	\$6.6
Network Size & Shape	<500km	>500km	>500km	>500km	530km
Network Size & Shape	Accessible	Accessible	Accessible	Accessible	Accessible
Network Complexity	Moderate	Moderate	Complex	Complex	Moderate
Network Complexity	Good data available	Good data available	Excellent data available	Good data available	B rating - Good data available
Network Complexity	Rural/Urban	Rural/Urban	Rural/Urban	Rural/Urban	Rural/Urban
Supplier Market Conditions	Very Good	Good	Limited Suppliers	Limited Suppliers	Good (poss. 3)
Level of Client Involvement	Medium	Medium	Low	High	High
Flexibility to Deal with change	High	Medium	Low	High	High
Innovation Potential	Medium	Medium	High	High	Medium
Transfer of Client Risk	Medium	Medium	High	High	Medium
Stakeholder & customer requirements	Medium	Medium	High	High	Low
Focus on non-cost areas	Medium	Medium	Low	High	High

APPENDIX K GLOSSARY OF TERMS

AADT	-	Average Annual Daily Traffic
AASHO	-	American Association of State Highway Officials
AMP	-	Asset Management Plan. A document that details Council's assets and the lifecycle management of those assets
Asphaltic Concrete	-	A form of surfacing being a mix of bitumen and graded aggregate, normally laid hot by a paving machine
Austrroads	-	The Australian Organisation that sets roading standards for use in Australia and New Zealand
AWPT	-	Area Wide Pavement Treatment, repairs to a road surface larger than confined maintenance, but too small for rehabilitation
BizeAsset	-	A computer software asset management system that assembles databases and provides reports on roading and other infrastructural assets
BOP	-	Bay of Plenty
CAAP	-	Community Alcohol Action Programme
CD	-	Candela - a unit for measuring luminous intensity
Condition Rating	-	A standard method adopted nationally for determining the condition of a carriageway
COP	-	Code of Practice
COPTTM	-	Code of Practice for Temporary Traffic Management
Culvert	-	A conduit along or under a road to convey water. Up to 600mm diameter is defined as minor, 600mm diameter to "bridge" size is defined as major
dTIM's	-	Deightons Total Infrastructure Management System, a computer programme to record deterioration using RAMM data and other data. It assists in predictive modelling and forward programming required to optimise lifecycle asset management
du	-	Dwelling units
EW	-	Regional Council for the Waikato region called Environment Waikato
GIS	-	Geographic Information System
Hazardous Risk Profile	-	A system of recording risk exposure over the roading network for comparison over time
HDM	-	Highway Deterioration Model
HPS	-	High Pressure Sodium
NZTA	-	NZ Transport Agency, a new government department formed by the Land Transport Management Amendment Act and merging the functions of Land Transport NZ and Transit NZ. Includes allocating to regions, the road funding derived from road user charges and fuel excise tax
LUX	-	A unit for measuring illumination
Mode	-	Means a form of transport, i.e. road, rail, sea or air
NAASRA	-	National Association of Australian Road Authorities
P.S. or P/S	-	Professional Services; includes the survey, design costing and supervision of projects
RAMM	-	Road Asset Maintenance and Management, a nationally accepted road asset database
Rehabilitation	-	The reshaping of an older or damaged road or footpath to return it to its original state
Reseal	-	The application of bitumen/chip or asphaltic concrete to an already formed surface, generally with at least a first coat seal already in place

Roughness	-	A method of measuring the ride of a road surface or driver comfort
RUL	-	Remaining Useful Life
Seal Smoothing	-	The act of overlaying or levelling depressions in a road to achieve a smooth seal surface
SLIMS	-	Street Light Information Management System; a computer database for street lighting assets
SMS	-	(Road) Safety Management Systems adopted by Council 2005
Street Furniture	-	Items on the road reserve provided for the use of (generally) pedestrians including bus stop shelters, bins, seats, gardens, taxi ranks, pedestrian canopies, etc
Surfacing	-	The top surface of a road or footpath that supports the user. Includes metal (gravel), seal, concrete, cobbles, etc
Traffic Services	-	Items erected on road reserves to assist road users, including signs, markings, guardrails etc
Urban Road	-	Any road with 70 kph or less speed restriction in an urban area
Useful Life	-	The length of time that an asset can be safely used

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