

1.0 STRATEGIC BUSINESS CASE FOR TAUPŌ DISTRICT COUNCIL

1.1 Our Activity Management Plan (AMP) at a glance

Our Transportation activity management plan outlines how it will deliver its services to the ratepayers and road users in order to allow people and goods to move around the Taupo District safely and efficiently by any transport mode including cycling, walking and or passenger transport.

The AMP contains the strategy and a programme of works setting out the districts planned transport and road investment. This case approach assists Council and its co-investor, the New Zealand Transport Agency (NZTA) to determine the right amount of work is being done at the right time and for the right reasons. It is a balancing act between meeting the wants and needs of our communities while keeping the rates affordable and sustainable and roads safe.

1.1.1 OUR DISTRICT

Our district is located in the centre of the North Island of New Zealand and within the Waikato Region. Sitting at the heart of our district is the biggest freshwater lake in New Zealand, together with its close proximity to New Zealand's Central Plateau and associated alpine activities has ensured that it is a premier international and domestic tourist destination. Complementing our natural environment are the vibrant and diverse communities that make up our urban places.

Economically Taupo District has an important place in the national and regional economies with its focus on Tourism and events. While most of the Taupō District falls within the Waikato region it is important to note that the district falls within the jurisdiction of four separate regional councils and is important to each of these regions.

Growth in tourism has continued and this is evidenced in a number of ways with approximately 20% of jobs in Taupō relating to the tourism industry and an increase in visitor and event numbers. Taupō is heralded as the events capital of New Zealand. Due to this central location, Taupō hosts many of the major walking and cycling events such as the International Ironman, Oxfam Trailwalker, and the famous Lake Taupō Cycle Challenge which last year attracted 11,000 participants and is now part of the Golden Bike World Series.



We have a number of State Highways running through our district, with SH1 having the main transport function for carrying freight and tourism. Further work on the resilience of strategic corridors is also underway through other business cases through NZTA.

1.1.2 OUR DISTRICTS GROWTH

The population of Taupō as of 2013 is 32,907 which has grown slowly but steadily over the past twenty-seven years from 29,027 in 1986. There was an increase of 486 people, or 1.5 percent, since the 2006 Census.

A growing district can provide services more cost-effectively than a declining one – without a growing economy there is a risk that our industries will shrink, our businesses will struggle, and our people will move out of the district due to lack of employment opportunities.

From the census information there are 13,398 occupied dwellings and 6,171 unoccupied dwellings in Taupō district.

Projected lots for the areas of Taupō (Acacia Bay, Brentwood area) as well as Huka Heights and Poihipi Road will strengthen the need for an upgrade to Norman Smith Road and Control Gates bridge improvements.

As recorded monthly from PIMs since January 2016

AREA		Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Total
Taupō Urban	Greenfield	9	4	8	8	7	9	9	17	12	13	13	10	119
	Infill	2	0	1	1	1	0	10	4	1	1	1	1	23
Acacia Bay		0	0	0	0	1	0	0	0	0	0	0	0	1
Mapara (rural residential)		2	1	1	4	3	4	0	3	1	3	1	0	23
Kinloch	Town	4	4	6	3	10	11	3	2	9	5	7	2	66
	Rural	0	0	0	1	0	0	0	1	0	1	1	0	4
Kuratau / Omon		0	0	0	0	0	1	1	0	0	0	0	0	2
Whareroa		0	0	0	0	0	0	0	0	0	0	0	1	1
Turangī		0	1	0	0	0	1	2	0	0	0	0	1	5
Motuoapa		0	3	2	1	2	2	1	1	1	1	0	1	15
Other areas		5	8	3	2	4	3	4	1	11	0	1	3	45
Totals		22	21	21	20	28	31	30	29	35	24	24	19	304

A key element for growth in this northern area of Taupō district is the critical mass. As this is where the majority of people are to be located, it is where the most significant investment will be made in the range of infrastructure. To make the infrastructure provision more efficient and affordable it is desirable to try and cluster people together. For this reasons the number of growth areas needs to be limited thereby avoiding development on too many fronts.

1.1.3 OUR NETWORK

Our plan starts with looking at our existing assets on the network which have a replacement value of \$440M as of July 2017. Our transport network provides for the efficient movement of people and goods which is essential for the economic and social wellbeing of the community.

Our road network consists of a total of 780 km of roads, an additional 18km from the last AMP due to the former State Highways 1 and 5 being handed over as part of the East Taupō Arterial agreement. From this there are 74km of unsealed road network, 25 bridges, 43 large culverts, 294km of footpaths, 38km cycle ways, etc.

Our operating and renewal programmes are based on maintaining what we have while delivering the current level of service.

Our district is relatively young and as the Taupō district has free draining soils roads generally last longer than in other parts of the country.

1.1.4 OUR LEVELS OF SERVICE

Our Council has adopted a number of performance measures which contribute to our community both customer and technical levels of service are used.

Our target levels of service are derived from the following principles:

Community outcomes: Provide guidelines for the scope of current and future services offered and manner of service delivery, and define general levels of service which the community wishes to receive.

Community expectations: Information gained from customers on expected quality and price of service.

Statutory requirements: Legislation, regulations, environment standards and Council bylaws that impact on the way assets are managed (ie resource consents, building regulations, health and safety legislation). These requirements set the minimum level of service to be provided.

Strategic and corporate goals: Provide guidelines for the scope of current and future services offered and manner of service delivery, and define specific levels of service which the organisation wishes to achieve.

The One Network Road Classification: This supports a major shift in the way we manage the road network at both national and regional levels. The most important concept behind the ONRC is that it places the customer at the centre of every investment decision.

The associated Customer Levels of Service for each functional category have been developed to reflect the following fit for purpose outcomes.

1. Mobility
 - Reliability: the consistency of travel times that road users can expect.
 - 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.
 - Speed: 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 productivity.
2. Safety
How road users experience the safety of the road.
3. Amenity
The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment.
4. 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.

Our current levels of service focus on the Department of Internal Affairs which will continue for this AMP but the AMP will also include the new Customer Levels of Service for ONRC. Each road has been given a classification based on the function criteria and the road should be maintained to the customer level of service for roads of its type. Refer to Section 6 for more details.

1.1.5 OUR SERVICE DELIVERY

Our Council owns, operates and maintains the road network (excluding the State Highways) on behalf of the community. The transportation activity is delivered by general maintenance & reseal, streetlight, road marking, signs and passenger transport contract. All work is designed and managed in house via the professional business unit.

1.1.6 OUR FINANCES

Our district is relatively young and as the Taupō district has free draining soils roads generally last longer than in other parts of the country, which means many of our infrastructure assets including roads are in good condition and will not need renewing or upgrading for some years. Due to this we have projected large cash reserves which will be needed in the future years to fund the renewal of the assets.

This group of activities is funded through the general rate.

1.1.7 OUR FUTURE CHALLENGES

Our key challenges for Taupō district which we will need to address over the coming years which were identified during point of entry discussions with NZTA and have been identified in our 30 year Infrastructure strategy are;

- With the population demographics seeing an aging population the cost of maintaining the level of service will affect those in the community on a fixed income such as the elderly.
- An increase in HPMV and 50 Max vehicles places an increasing demand on our unsealed roads and particularly on our low cost pavements.
- Bridge network needs some expenditure to maintain and keep the bridges safe and accessible. As the age of the bridges will become an issue in the future regular maintenance is required.
- Population growth is occurring in Taupō and Kinloch urban areas but declining populations in both Turangi and Mangakino.
- Seasonal traffic demands from both tourism and events, particularly in summer months, combined with the influx of growth in residential lots and more people retiring to Taupō it is placing pressure on key intersections coming into Taupō namely Norman Smith St/Wairakei Dr intersection and Tongariro Street/Spa Road.
- Implementation of the Commercial Industrial Structure Plan projects identified.

With the East Taupō Arterial completed and the handover of the former State Highways into Council management and ownership, there is an opportunity to review the road network into and out of the town with the objective of improving vehicle access. The primary change needed and identified in the Commercial Industrial Structure Plan is to re-orient Tongariro Street and Lake Terrace towards a slower speed environment with a more pedestrian focused environment.

The Safe Roads Alliance, for example, have been working on a business case on SH1 that addresses road safety and resilience issues on this route due to the on-going resilience concerns for SH1 south of Taupō through the Desert Rd. Taupo district and the small communities along SH1 corridor are keen to see improvements in terms of safety (such as speed reduction) and resilience.

1.2 Our links to the strategic Context

The AMP links the draft Government Policy Statement (GPS), the One Network Road Classification, and the Waikato Regional Land Transport Plan objectives along with Council's Long Term Plan Community outcome and transport vision.

National context	ONRC context	NZTA	Regional context	Local context
Government Policy Statement	One Network Road Classification Customer Levels of Service	Long Term Strategic View	Regional Land Transport Strategic approach and Objectives	Community Outcome and Transport Vision
<u>Economic growth and productivity</u>	<u>Accessibility</u> 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. <u>Amenity</u> The level of travel comfort experiences by the road users and the aesthetic aspects of the road environment. <u>Mobility</u> a) <u>Resilience</u> The availability and restoration of road function when there is a weather or emergency event (unplanned), whether there is an alternative available and the road user information provided. b) <u>Travel time reliability</u> The consistency of travel times that road users can expect	<u>Resilient system</u> As transport system ages, and with growing impacts of climate change we anticipate an increase in resilience-related issues such as severity and frequency of storm events. <u>An effective urban system</u> Urban population grows particularly in the Auckland and the upper North Island travel time and reliability is impacted. <u>Key inter-regional journeys</u> There are a number of critical journeys between our regions that sustain our economy and link key areas of production. <u>Regional economic development (RED) areas</u> Waikato is in the second tranche of RED.	<u>Strategic corridors and network connectivity</u> An integrated and aligned land use and transport system. An effective and efficient land transport system that enhances economic wellbeing, and supports growth and productivity within the Waikato region and upper North Island. <u>Access and mobility</u> Communities in the Waikato have access to a multi-modal land transport system that functions effectively to meet their social, cultural and economic needs.	<u>Economy:</u> Our communities prosper in a thriving local economy with a diverse range of rewarding employment opportunities. <ul style="list-style-type: none"> • Sufficient capacity to meet the demand of today and of future growth. <u>Engagement:</u> Council is connected with its communities, advocating for their social and cultural well being.
<u>Road Safety</u> As per Safer Journeys	<u>Safety</u> How road users experience the safety of the journey. Optimal speeds to support both safety and economic productivity.	<u>A safer system</u> Road crashes have an economic impact. Continue to keep people safe using the interventions of the Safe	<u>Road Safety</u> To achieve a significant reduction in risk, deaths and injuries across the Waikato region.	<u>Environment:</u> A shared responsibility for places we are proud of.

		System approach.		<ul style="list-style-type: none"> We provide a transport network for the safe movement of people and goods.
<u>Value for Money</u> Better use of existing infrastructure. Better allocation of new investment.	<u>Effectiveness</u> Value for money and whole of life cost will be optimised in the delivery of affordable customer levels of service.		<u>Affordability</u> 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.	<u>Engagement:</u> Community outcomes are taken into account when determining life cycle strategies, level of service etc.
<u>Influences and local priorities</u>		<u>Better connectivity</u> Good physical transport connections remain critically important as our economy relies on good transport links. Primary production centres need efficient connections. Tourists are seeking safe and reliable routes between their arrival points and NZ tourist attractions.	<u>Environmental sustainability and resilience</u> An environmentally sustainable and energy efficient land transport system that is robust and resilient to external influences.	

We will need to optimise our road network to ensure we can afford to deliver the outcomes our communities require to meet their social needs and to support future economic growth and productivity. Council have produced the "Challenges paper" and some relate to the delivery of the Transport activity, they are identified below in the next few sections. The GPS recognises the importance of addressing resilience on our strategic corridors from both an economic and environmental point of view. In a broader sense the resilience of our transport network refers to system resilience, or ensuring the transport system is able to address broad systemic issues like climate change which will exacerbate events on our strategic corridors.

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 therefore sets the over-arching strategic context for territorial authorities (TAs) and road controlling authorities (RCAs) Asset Management Plans (AMPs) in the region. The RLTP policy framework focuses strategic investment on three core areas: strategic transport corridors and associated network connectivity, road safety, and managing demand/providing transport choices. The resilience of our transport network in its narrower sense refers to route resilience, or minimising incidents such as road slips, sea level changes and road crashes.

1.3 Our local strategic issues

Below are our main strategic issues identified for the Taupō District, the evidence we have to support the issues and the consequence of not funding and/or addressing the problem.

	Strategic Issue		Evidence	Consequence of not funding or addressing issue	Council's proposed strategy/opportunities	Future benefits
1	Demographics & ageing population with the majority on a fixed income (Links with the infrastructure strategy)	Increase in those unable to drive More demand on footpaths and other modes of transport Some areas of Taupo district are in decline	Latest census data showing ageing population and declining population in Turangi and Mangakino. Median age in Turangi = 40.7, (36.6 in 2006) Mangakino = 44.2 (38.5 in 2006) Number of streets where no footpath exists = 30km. Changes to who can access/use footpaths (non-shared) eg postal vans, possibly cyclists. Passenger numbers using public transport are steady and increasing for mobility schemes.	Pressure on rates to increase and the inability for ratepayers to fund. Greater demand/complaints received for smooth footpaths, kerb ramps and safer crossing points and footpaths on streets. Greater demand for more passenger transport and/or total mobility scheme. Greater emphasis is now being placed on the footpaths as a shared facility eg postal vehicles, cycles. Safety of pedestrians on footpath versus other road users.	Undertake accessibility audits in urban areas to assist with prioritising areas. Increase widths of paths from 1.4m to 1.8m wide. Identify where wider paths are required for mobility and/or wheelchair users, (will be a change to current level of service). Reviewing current bus service. Review current Council engineering standards. Survey the extent of the issue and how many km of paths are left to install. Will consider developing an integrated transport strategy.	Improved infrastructure to support accessibility or all road users Safety of pedestrians improved. Amenity value of pedestrians increases. Increase in people's wellbeing. Improved access. Less reliance on the use of private vehicles (less emissions).
2	Change in land use		Number of forest land being converted to dairy farming. Taupo is situated within the Central North Island Forestry	Water runoff may increase from land to roadway due to reshaping of watercourses – surface flooding, this could be	Continue with regular bridge and culvert inspections. Identify where flooding or	Improved data will mean more proactive work programmes.

	Strategic Issue		Evidence	Consequence of not funding or addressing issue	Council's proposed strategy/opportunities	Future benefits
			<p>Zone (CNI Forests), which accounts for a third of the total forestry plantations in New Zealand.</p> <p>Heavy vehicle traffic counts.</p> <p>Bridge/culvert inspection reports showing increase in flood damaged culverts and bridges.</p> <p>Observations.</p>	<p>an issue if climate change continues with more frequent storm events.</p> <p>Pavement strength challenged</p> <p>Increase in edge-break due to width of pavement and bridges.</p>	<p>ponding occurs on regular basis.</p> <p>Up sizing culverts where necessary.</p>	<p>Less flooding issues.</p>
3	Increase in larger vehicles using local road network	Ageing bridge network	<p>Traffic counts.</p> <p>VDAM changes.</p> <p>Customer service request complaints.</p> <p>Overweight and HPMV permits issued.</p> <p>Bi-annual bridge inspection/condition assessment reports.</p> <p>Observations.</p> <p>Increase in edge break, damage to kerbs etc.</p>	<p>Increase in bridge structure renewal components (w/c 215).</p> <p>Pavement structure challenged, faster deterioration of transport assets.</p> <p>Effects on community such as noise and congestion due to increase in traffic flows.</p> <p>Potential for crashes especially where there are vulnerable road users.</p> <p>Widening of some roads may need to occur to cater for HV, particularly on some curves, assets such as signs may be</p>	<p>Undertake detailed bridge inspections.</p> <p>Reduce the gaps in bridge data in RAMM database.</p> <p>Continue to undertake and monitor traffic counts within the district particularly HPMVs.</p> <p>Look at alternative routes within the district.</p> <p>Use dTIMS (Asset Management Software) to identify where work is required on pavements.</p> <p>Work closely with CVIU to enforce weights.</p>	<p>Efficient movement of freight.</p>

	Strategic Issue	Evidence	Consequence of not funding or addressing issue	Council's proposed strategy/opportunities	Future benefits
			<p>impacted.</p> <p>Efficiency for operators, if not able to use all roads.</p> <p>May need to restrict HV movements or find alternative routes.</p>		
4	<p>Seasonal demand and new growth</p> <p>(Links with the infrastructure strategy)</p>	<p>Traffic counts.</p> <p>Increase in tourist numbers.</p> <p>Customer service requests/complaints.</p> <p>Traffic modelling/travel time surveys.</p> <p>Number of new house lots being added to northern side of town.</p> <p>Number of events occurring in town.</p>	<p>With the increase in traffic volumes, traffic movements are impacted and drivers become frustrated.</p> <p>Increase in number of crashes.</p> <p>Congestion occurring at one or two key intersections coming into town.</p> <p>During events and summer months the traffic volumes increase ten fold and place more pressure on the network.</p>	<p>Continue to use traffic modelling.</p> <p>Collect further data on events and numbers of people coming into the CBD.</p> <p>Investigation in progress as to problems/benefits and options being developed for travel into Taupo particularly at Control Gates Hill/Norman Smith intersection.</p>	<p>Minimal travel delays to visitors/residents.</p> <p>More pedestrian and cyclist focussed environment.</p> <p>Less reliance on the use of private motor vehicle.</p> <p>Improved tourism benefits. Tourism is a major feature of the economy in the district, contributing 14% direct GDP and employs 23 % of the working age population.</p>
5	Road Safety	Increased number of crashes on the Taupo network (CAS data).	Crashes impact on the economy and have an impact on accessibility and a high	Use safety deficiency database to prioritise low cost low risk projects.	Safer roads and journeys.

	Strategic Issue		Evidence	Consequence of not funding or addressing issue	Council's proposed strategy/opportunities	Future benefits
			<p>Communities at risk register data.</p> <p>Waikato Regional road safety forum report undertaken by Opus.</p>	<p>social cost.</p> <p>Travel/time delays due to crash or having to use longer alternative routes.</p> <p>Increase in deaths and serious injuries (DSI's).</p>	<p>Focus on ONRC safety outcomes, personal and collective risk measures.</p> <p>Use ONRC to optimise the existing network.</p> <p>Undertake monitoring of crashes in district, safety audits of key routes.</p> <p>Continue with road safety promotion and campaigns.</p> <p>Work with other road safety partners.</p>	<p>Less travel time delays.</p> <p>Reduced Deaths and Serious Injuries (RDSI's) and social cost.</p>

While resilience of our local road network is seen on a lesser scale/issue than those issues above, when we have major road crashes or slips on State Highway One particularly south of Taupō Township there is an issue of the lack of alternative routes. When local roads are required to be used to re-route traffic there are issues with the Heavy Vehicles mainly HPMVs accessing these low volume routes and safety concerns. Taupō over the last year has seen changes in weather patterns and therefore an increase in the number of slips, culvert repairs and trees blocking roads have been an issue, up until now we have required little emergency works expenditure but this may change if climate change continues with storm events.

1.4 Our Challenges

1.4.1 DEMOGRAPHIC TRENDS AND INAFFORDABILITY TO PAY

Aligned with the infrastructure strategy, the forecasted demographic trends show the population for Taupō district is aging, with a much higher proportion of people aged over 65 years likely to be living in the district within the next 20 years. The issue is there will be more pressure to maintain the levels of service however some of the infrastructure required for the ageing population will mean a change in level of service however with many having a fixed income the new infrastructure may not be affordable.

At the same time, the issue is coping with the demand in growth of the Taupō and Kinloch urban areas so some new infrastructure will be required but realising the growth will cease in the next about 20 years.

For Turangi and Mangakino areas there is a decline in the growth of the areas. This will impact on the communities ability to fund the infrastructure in the future. The combined demographic change and declining population in some areas will impact on the inability to pay based on fixed incomes and less ratepayers to fund infrastructure in those areas.

Turangi was developed in 1960's with good infrastructure such as footpaths on both sides of the road. With the declining population and the majority of the population on a fixed income coupled with the trees which were planted many years ago impacting on the footpath surface creates a challenge.

Challenge: To provide infrastructure and services for people that are not reliant on a private motor vehicle. The challenge is to provide a service and facilities to cater for the whole community.

Opportunities:

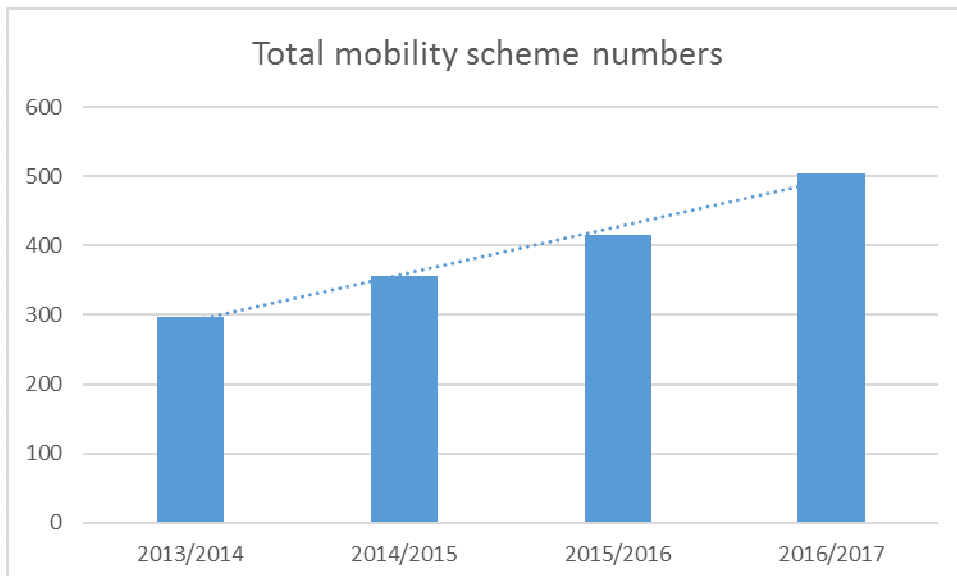
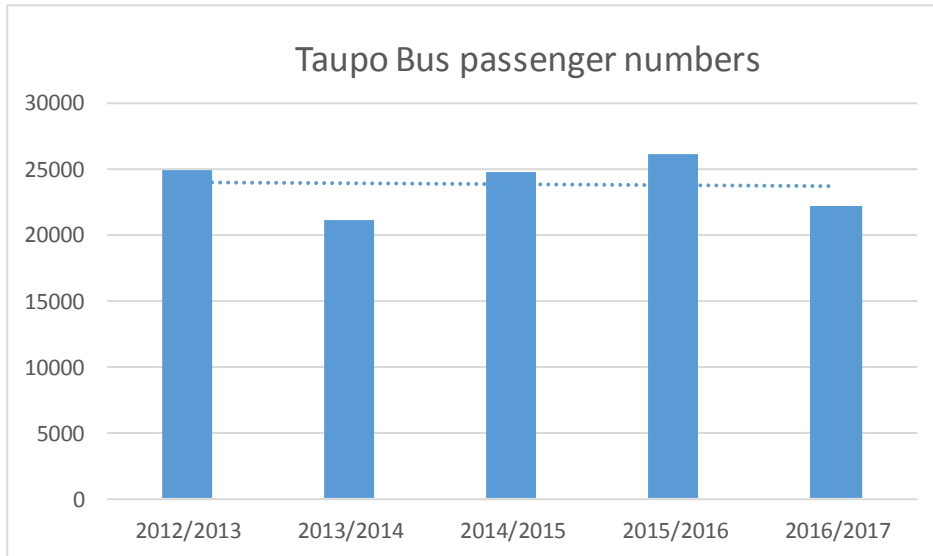
- Improve access to different modes of transport such as passenger transport and total mobility scheme, especially important for those who are unable to drive due to age.
- Improve the people's wellbeing with improved access to education and medical facilities and improving opportunities for social interactions.
- To provide a service which caters to the majority of the community for Taupō, Turangi and Mangakino.
- To provide wider footpaths for those who use mobility scooters and or wheelchairs (current 1.4m wide path is not wide enough for two to pass safely).
- To provide better links from the footpath to the bus stop locations.

Evidence:

- The number of passenger numbers increasing for both Taupō Connector service and the Total mobility scheme.
- More requests for the bus service to be extended to new locations in town as seen through the recent passenger survey and focus groups.

Benefits:

- Connectivity and accessibility is improved to health/education and work.
- Safety with less people driving (particularly older persons)
- Less congestion, if route is acceptable
- Economic with people being able to come into town
- Reduction in emissions
- Independence for those who are unable to drive and/or live alone.



1.4.2 INCREASE IN HPMVS AND/OR 50MAX

Challenge: While we have little issue with the capacity of the road network, the increased traffic movements and heavy vehicle usage have a high impact on the lifecycle of gravel roads and bridges with existing renewals and maintenance programmes on many low volume roads being insufficient to support increasing demands or having the appropriate width to handle these vehicles. The community complaints include noise and dust, but increasingly narrow road widths and safety implications.

There are also some bridges which may need to be renewed and or upgraded to allow for larger vehicles due to the age of the bridge network.

The Taupo district faces a significant issue with some bridges forecasted to reach the end of their economic lives within the next 30 years. Replacement of these bridges to retain the original levels of service is unlikely to be economically viable or affordable to the community. Council will need to consider further funding for renewals or consider looking at alternative routes. Either option is going to impact on ratepayers and residents.

Opportunities:

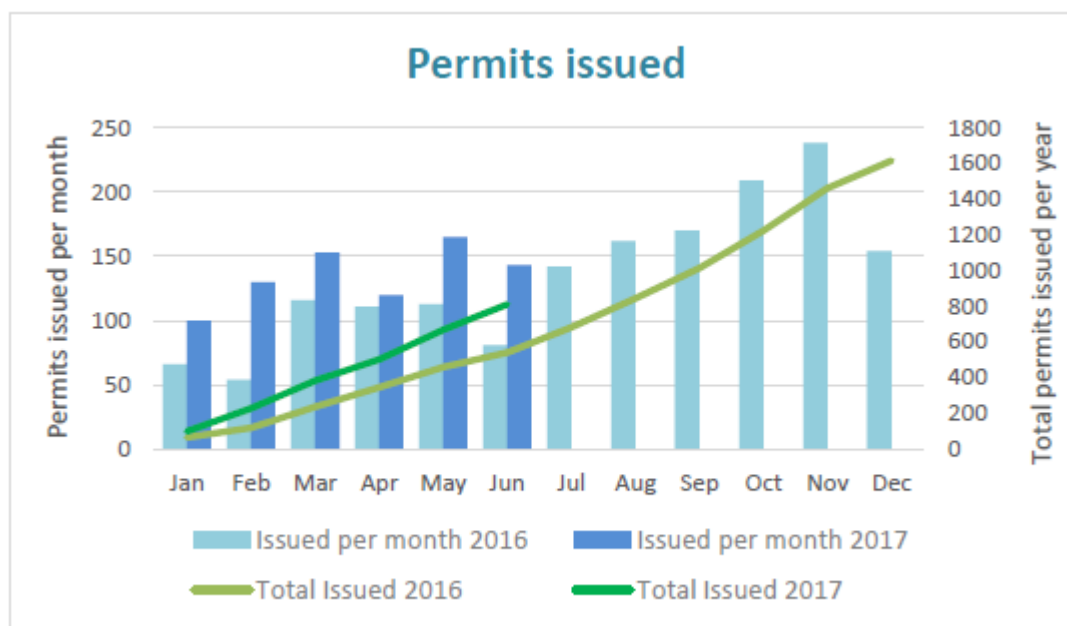
- Economic development and more efficient freight routes.
- Secure freight routes through and within the district.

Evidence:

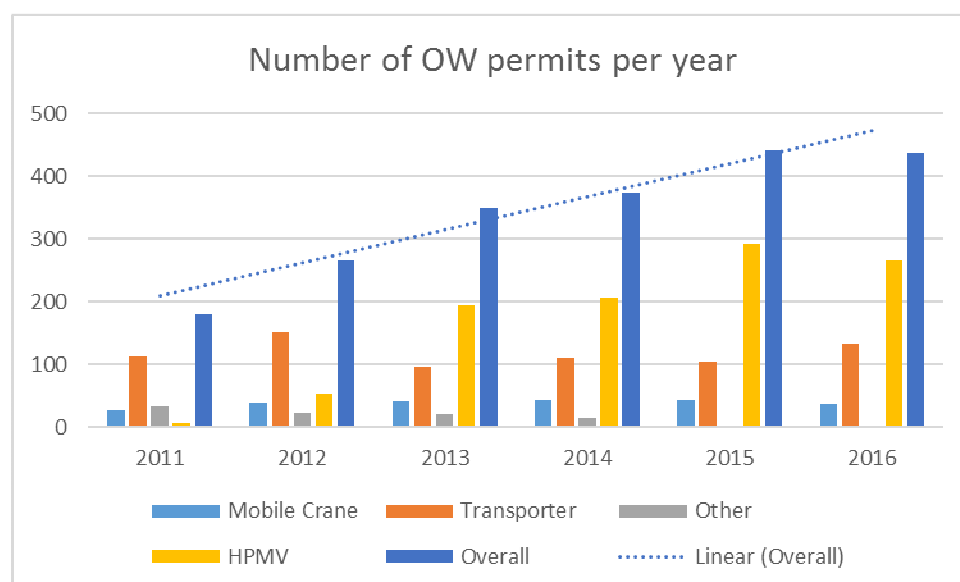
- Number of overweight permits issued per year.
- Customer service complaints of narrow road widths, heavy vehicle use.

Benefits:

- More efficient freight movements.



The above chart shows the increase in permits issued for Waikato/Bay of Plenty regions.



The above chart shows the increase in number of permits for the Taupo district only. Note in October 2016 a simplified method was introduced by NZTA so we receive less applications for local roads, as most HPMV routes are now pre-approved.

Following on from the above challenge, although the land use change from forestry to dairy farming is largely over in the district, we have seen the development of Geothermal power plans and some very heavy loads coming into the district or using local roads to access other regions. There is some concern with the increase in HCVs using local roads as they provide shorter distances and this is difficult to control.

Consequences:

- These changes need to be examined in more detail to determine the effect on the ONRC network including the land use change within and outside the Waikato region e.g. Hawkes Bay/Bay of Plenty regions.

Opportunities:

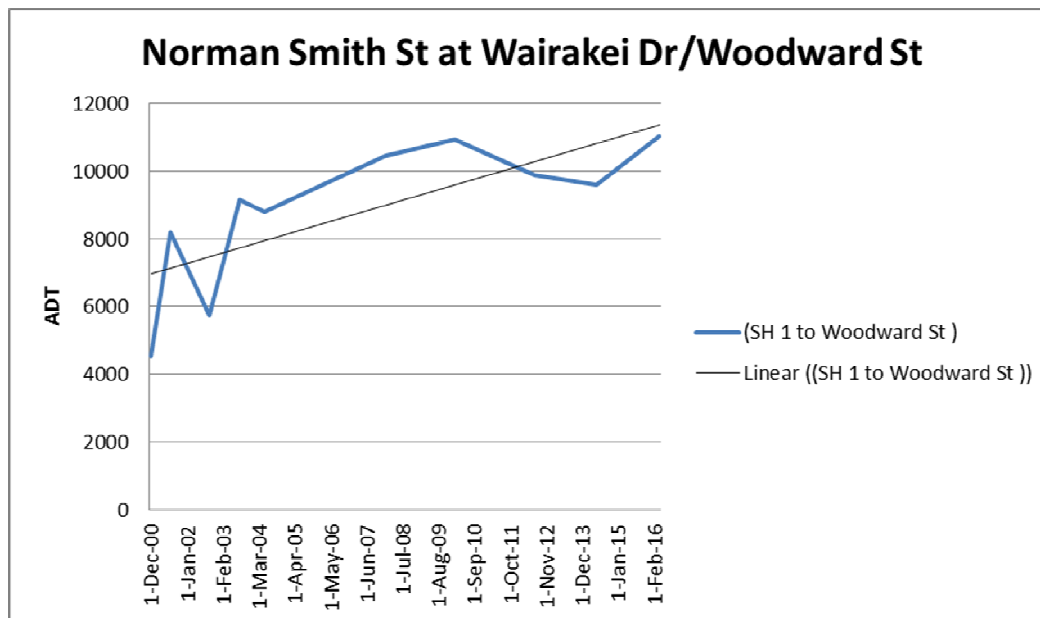
- Economic development for the district
- More work opportunities
- Ongoing productivity.

Evidence:

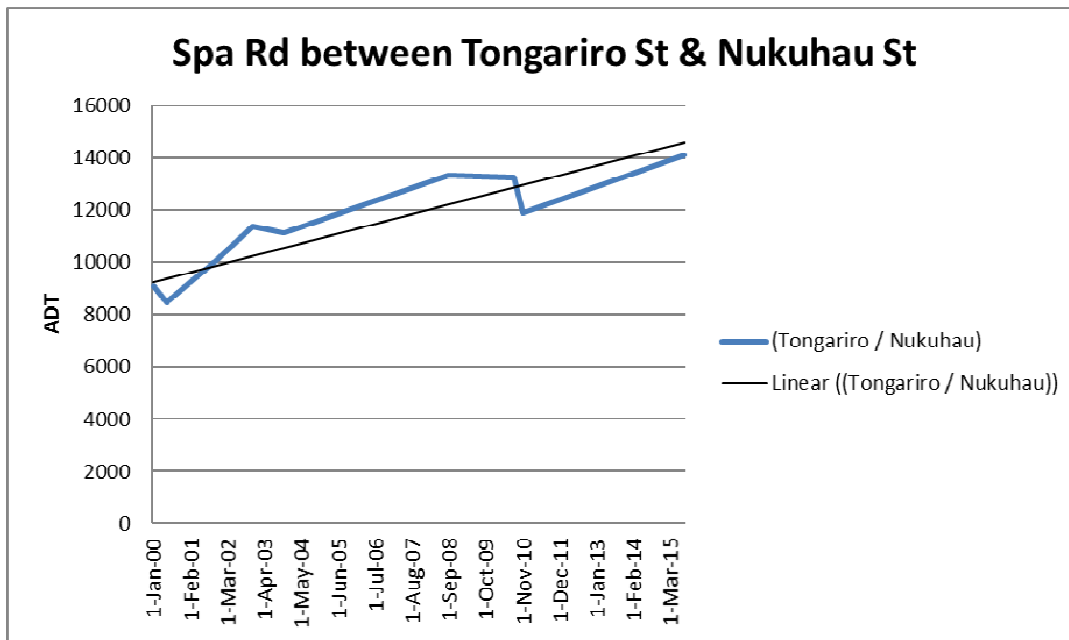
- Planning records – no of consents issued.

1.4.3 SEASONAL TRAFFIC DEMANDS AND NEW GROWTH

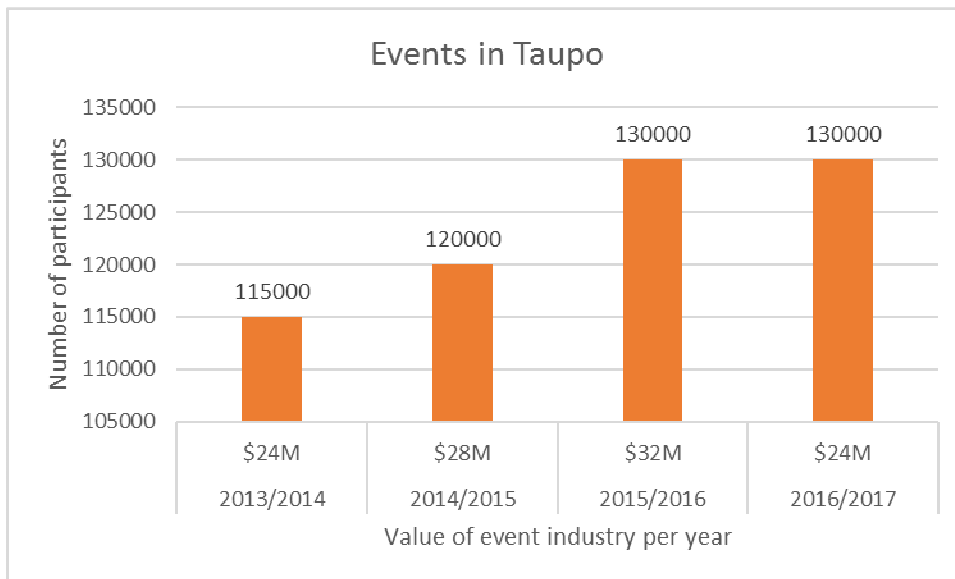
Challenge: With some areas of Taupo experiencing growth of new subdivisions there is added pressure on the road network particularly Norman Smith St and Wairakei Drive with the growth occurring on the north shore areas of Acacia Bay, Brentwood, Huka Heights and added to this the growth in Kinloch putting increased pressure on Poihipi Road and Wairakei Drive. Increased demand on some key routes and intersections due to growth and seasonal demand impacting on efficiency.



During summer and major events, travel times delays are experienced. With further development occurring at Acacia Bay and Brentwood areas there is congestion and delays already but when combined with the amount of vehicles still using Wairakei Drive to come into Taupō during summer months and events, even longer delays are experienced when exiting Norman Smith Street onto Wairakei Drive and the Huka Falls Rd intersection onto Wairakei Drive.



Another factor possibly adding to the pressure on the intersections on Wairakei Drive and Control Gates bridge is people either renting out their properties or permanently residing in them relocating to Taupo to retire or seeking employment out of the larger cities. There is a need to look at alternative options and possible new infrastructure to be installed in the near future.



Note: The graph data is sourced from the TDC Events team and doesn't include the number of supporters. For example, the Lake Taupō Cycle Challenge event where number of supporters can vary between 2,750 to 12,600..

Opportunities:

- Need to consider alternative routes for traffic or demand management such as walking and cycling, passenger transport.
- Less traffic congestion at one or two key intersections will be able to maintain travel times.
- Reduce driver frustration by reducing queues.
- Improve linkages for traffic movements from the schools to town and vice versa.

Consequences:

- Traffic entering the town would need to seek out more direct routes offered and will impact other roads and road users in the network, if not traffic modelled.
- Tourists may bypass Taupō Township and head south/north via East Taupō Arterial.

Benefits:

- More pedestrian and cycle focussed environment encouraging less reliance on the private motor vehicle.
- Slower traffic speeds, safer environment.
- Integrate opportunities with road improvements on Wairakei Drive and Norman Smith intersection.
- Improved tourism benefits along Lake Terrace and Tongariro Street.

1.4.4 ROAD SAFETY

Road safety risk does not seem to be out of step with the national average, however the district continues to have a high number of fatal road traffic crashes, mostly on State Highways. A more in depth analysis should provide information/evidence to target the risk areas. Our issues are young drivers, speed, rural roads and intersections. The solution may not be engineering but more education, policy changes and enforcement. There is an increase in recreational road cycling, across the district, which has resulted in increased safety issues between cycles and heavy vehicles.

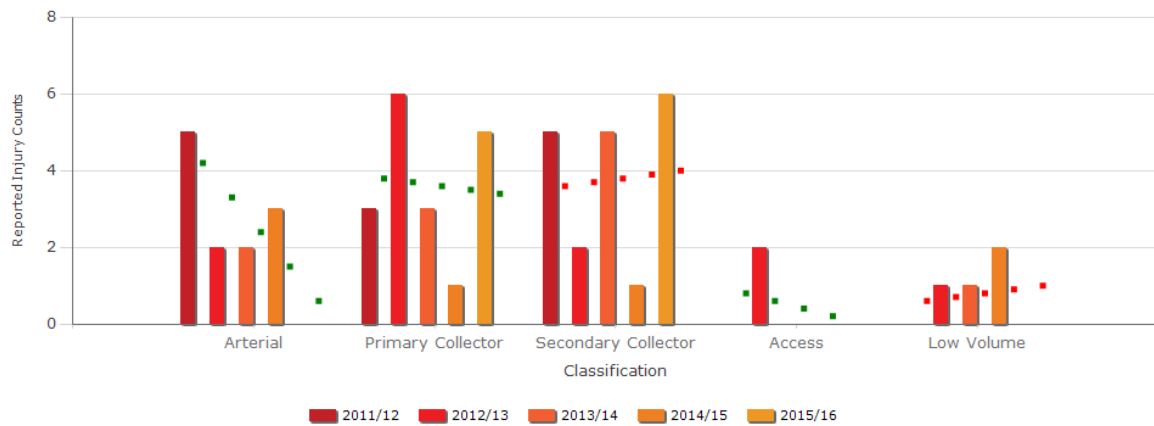
A speed management plan is to be developed where we are required to invest in new infrastructure or engineer up, targeted investment and speed limit reviews. As our speed limit bylaw review is due to be completed by October 2018, we are now in the process of drafting a bylaw and reviewing the speed limits against the NZTA safe and appropriate speed maps and the speed management guide. This comparison will assist in providing a "sense" test and also show where it is best to invest in any safety improvement and where it is more efficient to manage speed limits by reducing them with public consultation. Both 5% and 10% maps will enable us to plan ahead so it is accepted and understood by road users, our communities and stakeholders.

Early indications of the review show some urban roads have been identified as roads to be reduced from 50km/hr to 40km/hr or less. Some unsealed low volume access roads are showing a proposed reduction of 100km/hr to 80km/hr. These will need to be included in the speed management plan for more discussion with the community, some will be difficult conversations and some will require some engineering work prior to these being adopted. We also have some roads which have posted speed limits at 70km/hr and these locations may need to have discussions with the community as no 70km/hr signs to be installed under the new guidelines.

The bylaw review will take place between November 2017 and August 2018, in which we will be engaging with all key stakeholders including NZTA, Ministry of Transport, Police and other key road safety partners.

Below is the graph showing fatal and serious crashes for Taupō District as shown in ONRC reporting tool.

To date, from January 2017 we have had 12 fatalities, 4 being on local roads with 48 serious crashes, 15 have been on local roads.



Opportunities:

- Providing a safer environment for all road users.
- Increased economic benefits due to less road closures and detours or travel time delays.
- Develop speed management plan to coincide with engineering works.

Evidence:

- Crash Analysis System (CAS) data showing historical crash trends.
- Communities at risk register.
- Regional road safety forum report undertaken by Opus.

Benefits:

- Reduced death and serious injuries (DSI's).
- Less time delays for other road users if crash occurs.
- Safer roads and roadsides leads to safer journeys.

1.5 Our Changes in Demand

While Taupō District Council still has significant capacity available on our network, potential change in weather patterns, increased heavy vehicle use, a growing population in Taupō and Kinloch, declining population in Turangi and Mangakino, overall an ageing population and a surge in resident population during summer months, including when large events are on, all add to the financial pressures.

Climate Change

The climate is changing. All recent scientific data shows that the globe is warming and this is starting to impact on the climate. A telling fact is that as the atmosphere warms, it can hold more moisture – about 7% for every 1°C.¹ What this means long-term is hard to specifically pinpoint, but indications are that rainfall events will worsen, droughts will occur more often and seas will rise. While sea level rise isn't a major concern for the Taupō District (at least from a direct impact standpoint), we need to be acutely aware of what the other impacts might be.

¹ Preparing New Zealand for rising seas: Certainty and Uncertainty November 2015 - Parliamentary Commissioner for the Environment
<http://www.pce.parliament.nz/publications/preparing-new-zealand-for-rising-seas-certainty-and-uncertainty>.

The resilience of the transport network refers to route resilience, or minimising incidents such as road slips, lake level changes and road crashes. This poses a question for Council whether we should be proactive to ensure our council assets are resilient to natural hazards, notably in the light of climate change eg more intense storm events. Up until now we have had very little need to spend on emergency and minor events however an increase in emergency works in the last financial year has been required based on the number of storm events. With the likelihood of more intensive storm and weather bomb events in the future, heavy rain will continue to cause slips and trees to block the road network and damaging some of our culverts.

Demand Growth

The district is experiencing some growth in population, economic activity and tourism. Council is fostering economic development which may bring people into the district. The existing capacity of the network is sufficient to accommodate the anticipated growth in traffic volume without any significant effects on service level outcomes except for the northern side of town when events and summer season both occur, these all impact on the traffic congestion. Where improvements do become necessary, these are likely to be required at some intersections to maintain safety outcomes and these would be prioritised and funded using the Minor Improvement programme.

How we deal with a peak in population will be a challenge which we need to face. It is projected that the district's population will peak around 2035 and dealing with this peak will be a challenge. Therefore building new housing and providing new infrastructure could be unaffordable when the population is going to increase for a short period before declining. There are likely to be implications for the level of capacity we build into our infrastructure and the amount of land that is zoned for residential development.

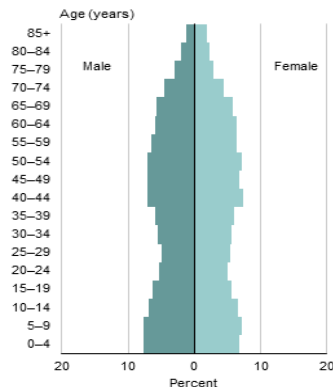
Demographic Changes

The population of the Taupō district has grown slowly but steadily over the past 27 years, from 29,027 in 1986 to 34,400 in 2013 (+18.5%). The population for Taupō is projected to grow slowly over the next two decades with the projections indicating a population of around 37,012 by 2033 (+8.4%) but peaking around 2035 and declining to 31,274 by 2063.

The major cause of the district's growth has long been natural increase with net migration loss a consistent feature. Taupō is expected to experience a decline in population between 2035 and 2046 where the older population will not be replaced by births (natural increase will reduce). As elsewhere, declining birth rates, increasing longevity, and – in Taupō's case – net migration loss at young adult ages, are causing the population to age structurally.

The demographic trends show that the population is aging, with a much higher proportion of people aged over 65 likely to be living in the district within the next twenty years. With an aging population it could lead to changes in the way councils plan for housing demand, notably in relation to location and type. The first group of baby boomers (the generation born between 1946 and 1965) are now retiring and this will continue for another 20 years. In the last 2013 census the median age of people in Taupō was 40.6 years. An increase from 2006 where it was 38 years.

Age and sex of people Taupo district 2013 Census



Source: Statistics New Zealand

A critical question is how to deal with the prospect of population growth or decline. Within our district we are likely to see some areas growing and some areas declining. The Taupō District can expect to have more elderly than children by 2021, around five years earlier than for the Waikato Region and total New Zealand².

This demographic change will mean a change in the older persons in the community having the ability to pay based on their fixed incomes and their ease of mobility. For now the issue is coping with the demand in the growth of the Taupō District so some new infrastructure will be required, but realising the growth will cease in the next 20 years.

Land Use Changes

In 2006 we adopted TD2050, which identified a future land use pattern for the district and identified a number of future urban growth areas. Where these required further detailed planning they were identified as red circles with an expectation that structure planning would establish densities of development and infrastructure requirements. A number of these areas have been structured, planned and carried through into the District Plan through plan changes.

Since 2006 we have experienced the global financial crisis and there has been more detailed modelling of likely changes in the district's population. This new knowledge will change our understanding of how much land we require for urban development. We need to revisit our preferred land use pattern in Taupō District 2050 and establish whether it is still sufficient or whether it may need to be altered.

As Taupo is situated within the Central North Island Forestry Zone (CNI Forests), which accounts for a third of the total forestry plantations in New Zealand. There is significant opportunity to grow this processing industry by connecting our extensive forestry assets with our geothermal resources to provide cost effective wood processing facilities.

Geothermal energy was first harnessed to generate power in 1958 at the Wairakei Power Station, the first power station of its kind (wet steam) in the world. Since then, the Taupō District has seen a rapid growth in geothermal power generation. This energy is totally renewable and has the lowest cost base of energy production. There is capacity for increasing its use and further projects are under exploration or have gained consent.

² Source: Natalie Jackson – National Institute of Demographic and Economic Analysis, Demographic Snapshot No.4, Taupō District, June 2014.

In more recent years geothermal energy has increasingly been used for its direct heat value. From drying milk powder at Miraka to growing tomatoes at Tuarōpaki to kilns for timber at Tenon. Using this cost effective geothermal direct heat to add value to primary produce is our point of difference. This coupled with the district’s significant natural resources (forestry, agriculture, aquaculture, and horticulture) provides significant opportunity for investment growth.

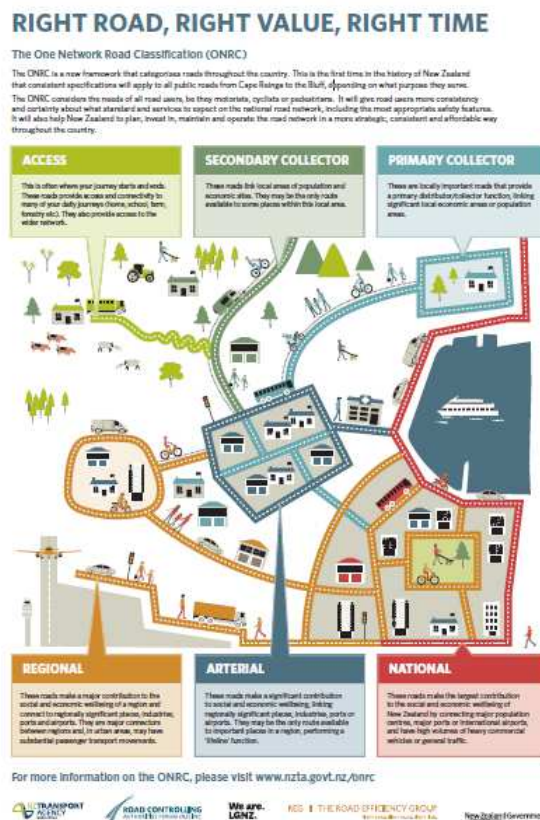
Land use changes include forestry to dairy conversion although this has slowed since the last AMP, it is continuing with the latest conversion of the Wairakei Estates between Broadlands Road and SH5. The change in land use can impact on the water runoff from adjacent properties on to roads and/or culverts and this will need to be monitored.

There is new development which can be seen in both building consents and the number of visitor attractions on the increase, particularly along Wairakei Drive and Huka Falls Road. This provides vitality to the district with positive flow-on effects to our economy.

1.6 Our One Network Road Classification (ONRC)

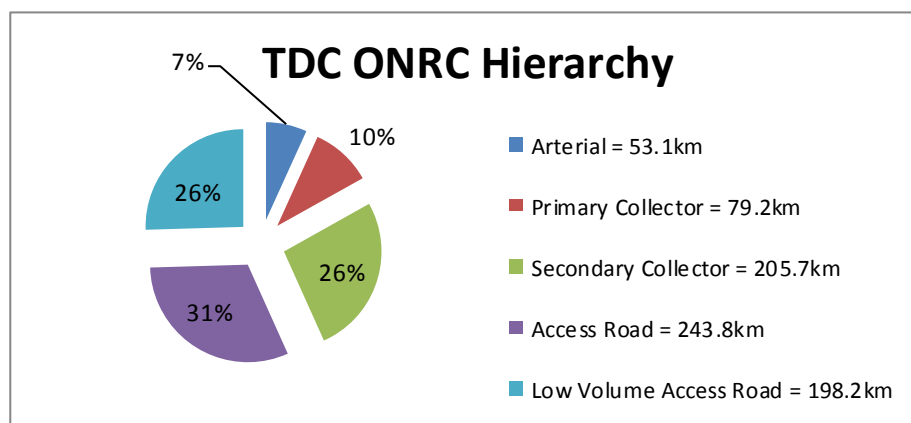
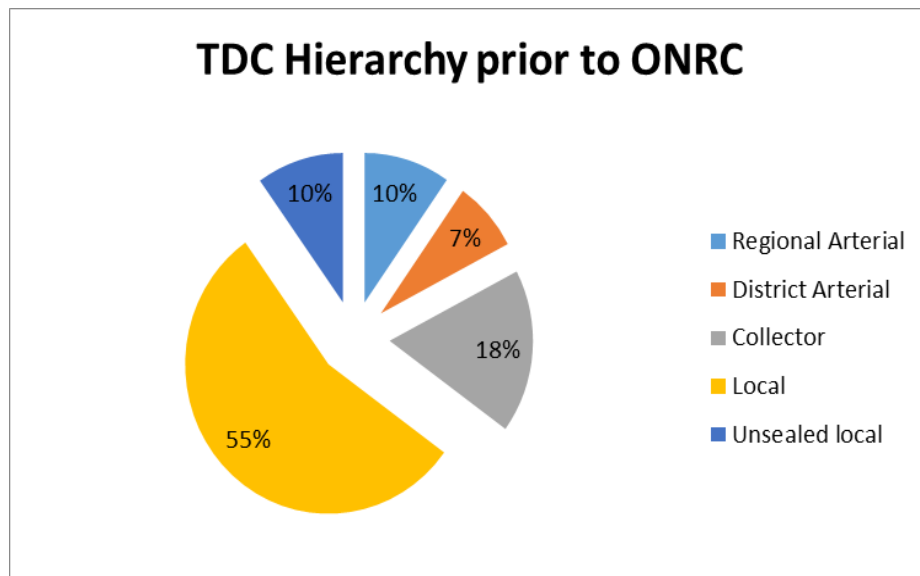
The One Network Road Classification (ONRC) was introduced in New Zealand to standardise data and create a classification system which identifies the level of service, function and use of road networks and state highways.

The ONRC involves categorising roads on based on the functions they perform as part of an integrated national network. This reflects a more customer focussed approach to service delivery. The ONRC also defines the nationally expected fit for purpose levels of service for each road classification to better enable delivery of value for money. The framework has seven Customer Outcomes: resilience, travel time, reliability, accessibility, amenity, safety, and efficiency.



1.6.1 ONRC FUNCTIONAL CLASSIFICATION

Below is the existing road hierarchy and the network based on the ONRC functional classification. The increase in the network is due to the inclusion of Wairakei Drive, Tongariro Street, Lake Terrace and Napier Roads approximately 18km and the new subdivisions being completed in Taupō.



The size of the transportation investment and importance of providing transport services to the community demands excellence in the management of these assets. The community expects the transportation network to be managed in such a way that costs are minimised while providing the levels of service the community desires.

Investment / Disinvestment programmes

For future investment programmes we will need to develop and improve on network asset data systems and information and to make sure the data in RAMM is accurate. For now we will be using our current levels of service while work is done to determine level of service more in line with the ONRC principles.

Some of the low volume access roads may over time not be cost effective to maintain to the current level of service due to the low volume of traffic etc, and this could impact on freight movements within the district particularly if Council decide not to maintain these to the level of service.

1.7 Our evidence

The evidence we have:

- Crash history data downloaded from the Crash Analysis System database.
- Demographic data taken from NZ Statistics and latest census material.
- Number of HPMV permits being issued is on the increase.
- Traffic volume trends within the district.
- Traffic modelling has been recently updated and has identified some serious issues in level of service at some intersections.
- RAMM database.
- Condition assessment rating.
- Bridge inspection reports.
- Speed management maps.
- Customer service complaints.

1.8 Our gaps in our evidence

A challenge we do face is making sure the data in RAMM is accurate and up to date. This will be required as part of the ONRC in order to continue to receive financial assistance from NZTA.

Collection of data is required including analysing of this data.

Some gaps we have identified to date are;

- Tourism data – traffic volumes/nights stay per person.
- RAMM data – streetlight pole conditions/treatment selection.
- Installation dates of some of our assets including some bridges.
- Identification of alternative routes when detours are in place, particularly where HPMVs are not allowed to travel.
- Bridge data missing or unknown.
- Regular SCRIM survey and annual weight deflectometer surveys required
- Lack of pedestrian and cyclist counts.
- dTIMS report has identified some gaps in the data which will need to be updated prior to the next AMP version 2021.

1.9 Our Summary

Taupō District Council is focussed on maintaining the defined levels of service as well as addressing growth pressure through robust management of the transport network. Even with the East Taupo Arterial there is still increase in numbers of tourists and events occurring in the district.

When combined with domestic tourists travelling regularly on our region's roads to favoured places such as Taupō and the Central Plateau, tourism growth is expected to put added pressure on our strategic corridors, particularly around Bulli Point on SH1.

We currently host just fewer than one million visitors within our district per year with a large percentage in the luxury segment. This, with the heavy vehicle movements, land use changes, and population changes all adds pressure on the transport network. The district has had steady growth over the years however recently this growth has risen with a number of new building consents occurring, particularly to the north of the town, and in summer when there are a large number of events occurring in town.

All of these growth issues discussed above - the growth in people and land use, the growth in freight and the growth in our tourism industry, impact on the ability to

maintain the efficiency of our strategic corridors. Unchecked, level of service drops, travel time increases and there is a flow-on effect on productivity and economic well-being for our region, the upper North Island, and ultimately New Zealand as a whole.

The GPS 2018 identifies that tourism creates demand for different quality roads than for freight for example. Applying a customer focussed lens to tourism journeys requires us to provide a consistent level of experience on transport corridors to minimise the risk of crashes and to maximise the tourist experience, which in turn is expected to have economic benefits.

The Taupō district infrastructure strategy provides a strategic direction for the Council to manage its key infrastructure over the next 30 years. The strategy will scope and prioritise key, long-term infrastructure issues, and outline how the Council proposes to address those issues. From this, the AMP contains the strategy and a programme of works setting out the districts planned transport and road investment. This case approach assists Council and its co-investor, the New Zealand Transport Agency (NZTA) to determine the right amount of work is being done at the right time and for the right reasons. It is a balancing act between meeting the wants and needs of our communities while keeping the rates affordable and sustainable and our local roads safe.