

# Activity Management Plan 2021

## Transportation Future Demand

Roading | July 2021







**Prepared by**  
**Waimakariri District Council**  
**215 High Street,**  
**Private Bag 1005**  
**Rangiora 7440,**  
**New Zealand**  
[waimakariri.govt.nz](http://waimakariri.govt.nz)

**Revision History:**

Revision N°	Description	TRIM	Date
A	Draft for Presentation to U and R Committee	201208166995	18 December 2020
B	Draft for presentation to Council		23 February 2021
C	Final for presentation to Council		

**Document Acceptance**

Action	Name		Signed	Date
Prepared by	Yvonne Warnaar	Asset Planning Engineer (Roading)		17 February 2021
	Simon Collin	Infrastructure Strategy Manager		17 February 2021
Reviewed by	Joanne McBride	Roading & Transport Manager		17 February 2021
Approved by	Gerard Cleary	Manager Utilities and Roading		17 February 2021
Adopted by	Council			

## Table of Contents

<b>1</b>	<b>Background</b>	<b>5</b>
<b>2</b>	<b>Demand Drivers</b>	<b>8</b>
2.1	General	8
2.2	Travel time	9
2.3	Key Assumptions	10
<b>3</b>	<b>Strategic context</b>	<b>11</b>
3.1	The Government Policy Statement (GPS) on Transport	11
3.2	The National Policy Statement on Urban Development (NPS-UD)	13
3.3	Greater Christchurch Partnership	13
3.4	Current and Historical Trends	13
3.5	Population Age Profile	14
3.6	Car Usage	15
<b>4</b>	<b>Current and Historic Demand</b>	<b>16</b>
4.1	Utilisation of Roads	16
4.2	Heavy Vehicle Demand	17
4.3	High Productivity Motor Vehicles	18
4.4	Footpath Utilisation	19
4.5	Cycling	19
4.6	Parking Demand	20
4.7	Traffic Growth	21
4.8	Effects of the Western Belfast Bypass and Christchurch Northern Corridor	23
4.9	Future Growth Across the Waimakariri River	24
4.10	Footpaths and Pedestrian Demand	24
4.11	Cycle Demand	25
4.12	Public Transport	25
4.13	Impact of Community Expectations on Demand	26

4.14	Impact of Climate Change on Demand .....	26
4.15	Technology Changes & Associated User Changes .....	26
4.15.1	Virtual Connectivity.....	27
4.15.2	Autonomous Vehicles.....	28
4.15.3	Connected Vehicles .....	28
4.15.4	Electric Vehicles .....	28
4.15.5	Shared Vehicles .....	29
4.16	Economic Development .....	30
4.17	Changing Land Use .....	31
<b>5</b>	<b>Meeting Demand.....</b>	<b>31</b>
5.1	Summary of Demand .....	31
5.2	Ability to Meet Demand.....	32
5.3	General .....	33
5.4	Traffic Growth and Congestion on the Northern access into Christchurch.....	34
5.5	Mitigation measures.....	34
<b>6</b>	<b>Projects to Address Demand.....</b>	<b>35</b>
6.1	Southbrook Road - Rangiora .....	35
6.2	Kaiapoi Traffic including Williams Street .....	36
6.3	Town Centres.....	37
6.4	Other Ongoing and Future Potential Developments .....	37
6.5	Other Towns .....	38
6.6	Footpaths and Cycleways .....	38
6.7	Public Passenger Transport.....	38
6.8	Bridges.....	39
6.9	General .....	39
6.10	Asset Programmes to Meet Demand .....	40
6.11	Key Improvement initiatives .....	40

## Figures

Figure 1: Waimakariri Population Estimates 1996 - 2020 (Source Statistics NZ).....	14
Figure 2: Projected Demographic Changes 2018 - 2048 (Medium Growth Scenario).....	15
Figure 3: ONRC Length by category and urban/rural split .....	17
Figure 4: HPMV Permits Issued per Year .....	18
Figure 5: Cycle counts from 2016 to 2020.....	20
Figure 6: Changes in EV uptake since 2014 .....	29
Figure 6: Vehicle Kilometers Travelled (VKT) Trends.....	34

## Tables

Table 1: Major Projects and Costs .....	7
Table 2 Summary of the Waimakariri District Roads (ONRC) .....	17
Table 3: Journey to Work Data 2018.....	27
Table 4: Key Demand Factors .....	32
Table 5: Key Demand Improvement Initiatives .....	<u>4140</u>

# 1 Background

Waimakariri District is a fast growing member of the Greater Christchurch partnership, which is a high growth area under National Policy Statement direction. The approved Future Development Strategy, (FDS), for Greater Christchurch anticipates steady District growth from the current population of 63,000 to around 75,000 by 2028, and in the order of 97,000 by 2048. Up to 15,000 additional homes are expected to be required to accommodate population change over the next 30 years. It is essential to ensure growth is well planned, and an integrated approach taken to land use and transport.

The changing demographics and the need to service its community means that Waimakariri is aligning itself more closely with the GPS priorities over time. The population has indicated both through the customer satisfaction surveys, and also by growing uptake, that this is a community seeking greater opportunities to engage in healthy, environmentally friendly travel both for recreation and for commuting, and it expects to do so safely. In addition, an aging population not only has more time to engage in activities, but by providing these locally it reduces the likelihood of its residents seeking these opportunities elsewhere, or even going so far as to relocate to a local authority which can provide these.

In addition, health is a growing issue with type two diabetes becoming one of the major health problems of the 21<sup>st</sup> century, particularly as people become older. By providing appropriate facilities WDC supports this change in lifestyle which many more of the community are seeking, both for a growing older population, and for the younger families we wish to encourage to this District. A factor in developing improved infrastructure is that many of our communities are within relatively easy commuting distance from each other. As more people choose to live in the District, providing them with quality safe pedestrian and cycling facilities not only allows them to make the choice to use other modes than motorised transport, it reduces the number of cars on the road. This in turn leads to fewer new roads and associated assets required to be built and maintained – cyclist and pedestrian infrastructure is less expensive to build and maintain than that built for cars and trucks. Thus responding to the demand of a growing community with a multi modal approach provides cost-effective environmental, social and health benefits to the community, and Waimakariri is working to meet these demands through the programmes and projects described in its Transport Activity Management Plan and the Long Term Plan.

While District job self-sufficiency is improving, there remains a significant commuter workforce available to Christchurch businesses that places peak demand on the capacity of the transport network. These employment areas are however spread across a large area within the Greater Christchurch area and as such establishing viable public transport routes can be challenging (around 40% of the workforce works outside the District, down from 60% three years ago).

Capacity increases as well as a range of mode switching initiatives to mitigate these effects are underway. Public transport provides a safer mode than the private motor vehicle, and an opportunity to indulge in activities only possible when not driving, i.e. working, reading or socialising. As the public transport network is improved to better meet the needs of potential customers, public transport will also offer an opportunity to transport more people with less impact on the Rooding network.

There is evidence that car use is declining internationally, due to factors such travel demand management measures, and also saturated networks in densely populated networks. However, this trend tends to be less pronounced in rural areas, and there is no evidence of declining car usage in the Waimakariri District.

It is hoped that an increase in walking, cycling and public transport usage will lead to a corresponding reduction in car usage. While much of this activity for those users who have a choice in mode tends to be recreational, the provision of a well-linked cycling network as per Council's walking and cycling strategy assists in confidence and fitness which in turn leads to greater transition to alternative modes for commuting where possible.

Much of the population growth in the District is currently occurring in the main centres of Rangiora, Kaiapoi, and Woodend (including Pegasus and Ravenswood), and this is expected to continue. There is also expected to be continued demand for rural-residential and larger "lifestyle" type blocks close to Christchurch city. Meeting this demand is likely to result in ongoing land use change from large agricultural blocks to more rural-residential type blocks close to townships. With future regulations likely to limit subdivision below 20 hectares in many rural areas, extra pressure will be put upon areas east of Mandeville.

Ongoing gravel extraction to support further subdivision will continue to impact on the network, both from a safety and a maintenance perspective.

The anticipated population growth, demographic changes, car use trends, and land use changes would suggest the following transport trends in the future:

- An overall increase in car usage
- A possible reduction in the proportion of trips at peak time due to aging population
- A need for better design and facilities to cater for the limitations experienced by the same group
- An increase in pedestrian demand and footpath usage, including an increase in use by vulnerable users such as the elderly
- An increase in cycle numbers
- An increase in heavy vehicle numbers and size.

Generally, the District's roads and intersections have more than enough capacity to comfortably carry current traffic volumes. It is expected that most of the roads will continue to operate within their capacity for some time.



However, there are a small number of locations within the network that are having difficulty accommodating current traffic volumes safely. Future growth is likely to put these locations under strain with longer delays at peak times being more likely in future. A Capital Works programme has been designed for the next 10+ years. Covid 19 has somewhat constrained this programme, both nationally and locally, and the programme has been stretched out to continue past the next LTP. However, there has also been cognisance that growth happens over time, and projects are planned for when it is believed they are most required.

In addition to the projects listed below, as mentioned previously, some areas of the network are experiencing much heavier wear due to high numbers of heavy vehicles and these can take up a disproportionate amount of the maintenance budget.

Major programmes and costs to meet the demand described above are shown below. The full detail is shown in Table 4: Ten Year Capital Forecast in Section 7: Financial Summary

*Table 1: Major Projects and Costs*

Project	Ten Year Costs	Years
Charles Upham and Oxford Lehman's intersections	\$2.1m	23/24, 25/26-26/27
Ohoka Road intersection improvements (Island and Robert Coup)	\$2.3m	21/22-22/23, 28/29-29/30
Kaiapoi Roding improvements - Williams St south intersections.	\$2m	28/29-29/30
Southbrook Road improvements including Southbrook Road/Torlesse Street/Coronation Street Intersection Improvements	\$3.8m	21/22-22/23, 24/25-25/26-26/27
Marsh Road/Railway Road Intersection	\$1m	27/28-28/29
Skew Bridge replacement	\$11m	28/29-30/31
New footpaths	\$1m	21/22-30/31
Walking and Cycling Projects	\$4.25	21/22-30/31
Park and Ride – Rangiora and Kaiapoi	\$1.5mm	24/25-25/26
Park and Ride Ravenswood	\$1.9m	21/22, 29/30
Passenger Transport Infrastructure - Shelters & Seats	\$1.23m	21/22-30/31
Tram Road safety improvements including McHughs Road	\$6.3m	20/21-25/26, 28/29-30/31
Support for MUBA (Area directly adjacent to KTC) (Growth portion)	\$1.125m	21/22-24/25
Rangiora Woodend Road Improvements including Boys Road	\$3.25m	21/22-23/24, 26/27-27/28
North West Arterial Rangiora (Lehman's Rd to River Road)	\$2.2m	30/31
West Rangiora Route Improvements	\$7.7m	2021/22-2030/31



Many of the demand assumptions above are based on an underlying assumption that transport in the future will be delivered in similar ways to transport in the comparatively recent past. However, there is a wide body of opinion that society could be on the cusp of significant changes to our transport system. These possible technology changes include:

- Much higher use of digital connectivity reducing the need for travel
- The possible introduction of autonomous vehicles, both with passengers and without.
- Increasing numbers of electric vehicles in the fleet.
- However, the nature of the technology changes is not at all clear at the moment. There are variables and questions surrounding possible transport changes.

These are likely to centre around four major themes, namely:

- How well technology lives up to, or exceeds expectations, or moves into as yet unexpected areas.
- How willing society at large is to accept and adopt new technologies.
- How affordable those changes are.
- Any legislative changes which are put into effect to enable technology to be implemented.

The development of technology, and changes in public attitudes towards transport will be monitored, along with population, demographic and land use trends. Expected transport demand will be reviewed and revised accordingly.

## 2 Demand Drivers

### 2.1 General

The Waimakariri district was one of the five fastest growing (measured as a percentage growth rate) local authorities in New Zealand in seven of the ten years between 2007 and 2016. Following the Canterbury earthquakes, growth rates in the district spiked in 2014 and 2015. In 2019, this dropped to 11th<sup>th</sup> and growth now sits at around 2.4%, compared with an average growth rate for New Zealand of 1.6%. However, this is still sufficient to place additional demand on the District.

Growth in the district has tended to be concentrated in the towns of Rangiora, Kaiapoi, and Woodend (including Pegasus and Ravenswood), and in the rural areas in the eastern areas of the district. Much of the growth in the rural areas has been in Residential 4A and 4B zones (typically referred to as Rural/Residential development), and in 4ha sites in Rural zones. 4ha is the current minimum lot size in rural zones, however this is subject to a potential District Plan change. These sites are often purchased as “lifestyle” blocks rather than traditional rural “farming” operations.

## 2.2 Travel time

Travel time from Waimakariri to Christchurch has reduced considerably since the opening of the Western Belfast Bypass and the subsequent opening of the Christchurch Northern Corridor (CNC) in December 2020. Peak hour travel times for vehicles with more than one occupant are expected to further improve with the implementation of High Occupancy Vehicle (HOV) lanes on both the Waimakariri River Bridge, and on the CNC.

One hour is often quoted as the maximum practical daily commute time for most people. The Christchurch CBD and many of the other employment centres within Christchurch are within a comfortable hour of most of the growth areas in the Waimakariri District. That commute time has been quite variable due to peak hour congestion and delays at the Waimakariri River Bridge, and in northern Christchurch. The new High Occupancy Vehicle lane over the bridge which opened recently, plus work planned to provide more capacity through Christchurch, is expected to result in improvements in travel time, and reductions in travel time variability, particularly for vehicles with more than one occupant. These travel time improvements are expected to diminish in the longer term as population and traffic volumes increase.

Despite that congestion and variability in commute times, the proximity to the Christchurch employment market results in 40% of the District's workforce working in Christchurch. This is a reduction of about 20% compared to three years ago, as the overall population is still growing. This represents a sizable percentage of the population travelling between Christchurch and Waimakariri on a regular basis.

Section 3 outlines the projected growth rates for the district over the next 20 years.

The overall population growth in the district is expected to impact on the Roding and Transport network in a number of ways, including a greater demand for travel, driven by commercial, recreational, and travel-to-work demands. This demand is likely to be met by a combination of the following:

- Increased numbers walking, cycling, or using micro mobility
- Increased numbers using Public Transport
- Increased number of vehicles on the roads. Without other interventions, such an increase in vehicles is likely to result in increased crash numbers and congestion.
- More people using the town centres putting pressure on parking and town centre footpaths and amenity areas
- Increased demand for footpaths, walkways, cycle paths and cycle routes
- In terms of economic development the construction, retail, manufacturing and health / community sectors in Waimakariri District are expected to continue to grow over the next three to five years.

Note that NZTA's Arataki document does not include Waimakariri in its list of areas in Canterbury expected to experience significant economic downturn as a result of Covid-19. This can be attributed to a number of potential causes

- The District economy does not have a strong tourism focus.
- Waimakariri's economy is primarily based around its function as a rural hub.
- The growing elderly population will continue to look for places to socialise, shop etc.

One of the issues identified with on-going growth is maintaining ability of traffic to travel easily to and from Christchurch. Any reduction in the ability to travel easily to and from Christchurch is likely to have particular impacts on freight servicing businesses.

The rural sector of the district is continuing to change its demographics with demand for lifestyle blocks. Proposed changes to the District Plan, if approved, will see areas east of Mandeville being able to subdivide to 2 hectare blocks, while areas to the west will be limited to a minimum of 20 hectares. This will have a flow-on effect for the patterns of traffic flow.

Dairying is more labour intensive than the cropping and forestry that it replaces. It also requires daily pick up by milk tankers. Consequently, an increase in dairying results in an increased number of people living in the area and an increased number of heavy vehicles using the roads. Many of the roads servicing these areas are unsealed and their condition can change rapidly in response to weather extremes and increases in traffic volumes.

Ongoing construction activity in Greater Christchurch is impacting on the district's roads. This includes trucks carrying aggregates from the Waimakariri and Ashley Rivers, and other sources, into Christchurch along the district's roads.

Across the district there is also growth in all types of traffic brought about by changing habits, levels of vehicle ownership and demographics. Technology and associated social changes are likely to change transport trends in the longer term (beyond 5 years). These changes are discussed in more detail in Section 4.15.

## **2.3 Key Assumptions**

The key assumptions on community trends likely to impact on the long-term provision of transport in the Waimakariri District are:

- An increasing number of residents will work within the District. Between 2018 and 2021 this figure rose from 40% to nearly 60% as further employment opportunities were provided within the District.
- Continued rural subdivision. The proposed changes to rural property sizes in the District Plan will result in more traffic closer in to urban areas and a slowing of the increase to the west of the District.

- The trend towards forestry on hill-country and lighter land and the move to dairying and horticulture on the plains that are served by the Waimakariri Irrigation Scheme.
- The population is becoming more urban based with associated expectations of amenities such as shops, cafes etc. While population projections expect the proportion of urban population versus rural to remain much as it is now, in practice this means due to the greater percentage of urban dwellers, in real terms this means more people, and hence transport users, are urban based.
- The increasing number of older people in the towns is likely to increase demand for the pedestrian network to cater for motorised and other mobility devices. Population trends in WDC show an increasing number of over 65's in coming years.
- Increasing public awareness of environmental issues is expected to result in a greater demand to protect sensitive areas, upgrade damaged ones, and preserve areas of open space. In particular, the need to treat stormwater from roads is likely to increase costs associated with stormwater management.
- Increased recreational demand alongside growing environmental awareness, including awareness of the impacts of vehicle emissions on climate change, is expected to result in increased demand for, improved cycling and walking facilities, and public transport infrastructure. Resident satisfaction survey written feedback indicated a high desire for increasing cycling facilities.

### 3 Strategic context

#### 3.1 The Government Policy Statement (GPS) on Transport

The Government has released its GPS, which was finalised end August 2020. While the key focus on safety remains, a new driver of increased freight to support economic activity has been added.

Transportation activities of Local Authorities are subsidised by central government from the National Land Transport Fund. Revenue raised from Fuel Excise Duty, Road User Charges, and motor vehicle registration and licensing fees supports this fund. The current standard Funding Assistance Rate (FAR) from the Fund for Waimakariri District is currently 51%.

Assistance from the Fund is guided according to central government's strategic priorities. These strategic priorities are outlined in the Government Policy Statement on Land Transport (GPS). The GPS covers a 10 year period, and is reviewed every 3 years. The current GPS was released in September 2020, and covers the period from 2021 to 2031.

These GPS Strategic Priorities and short to medium term targets for 2031 are outlined below:

## Safety

<b>Priority</b>	Developing a transport system where no-one is killed or seriously injured
<b>Results</b>	<ul style="list-style-type: none"><li>• Reduced number of deaths and serious injuries</li><li>• A safer land transport network</li></ul>

## Better Travel Options

<b>Priority</b>	Providing people with better travel options to access places for earning, learning, and participating in society
<b>Results</b>	<ul style="list-style-type: none"><li>• Improved access to social and economic opportunities</li><li>• Public transport and active modes that are more available and/or accessible</li><li>• Increased share of travel by public transport and active modes</li><li>• Reduced greenhouse gas emissions</li><li>• Reduced air and noise pollution</li></ul>

## Improving Freight Connections

<b>Priority</b>	Improving freight connections to support economic development
<b>Results</b>	<ul style="list-style-type: none"><li>• Freight routes that are more reliable</li><li>• Freight routes that are more resilient</li><li>• Reduced greenhouse gas emissions</li><li>• Reduced air and noise pollution.</li></ul>

## Climate Change

<b>Priority</b>	Transforming to a low carbon transport system that supports emissions reductions aligned with national commitments, while improving safety and inclusive access.
<b>Results</b>	<ul style="list-style-type: none"><li>• Reduced greenhouse gas emissions</li><li>• Reduced air and noise pollution</li><li>• Improved resilience of the transport system</li></ul>

Transport activities that are not aligned with the GPS Strategic Priorities are unlikely to receive funding from the Land Transport Fund

### **3.2 The National Policy Statement on Urban Development (NPS-UD)**

The National Policy Statement on Urban Development (NPS-UD) was implemented in August 2020. One of the provisions of the NPS–UD was to require Tier 1, 2, and 3 territorial authorities to remove minimum parking provisions from their District Plans. Waimakariri District is a Tier 1 territorial authority. Minimum parking requirements for developments will therefore need to be removed from the Waimakariri District Plan.

The NPS – UD encourages the use of comprehensive parking management plans to manage the effects associated with the demand and supply of car parking.

### **3.3 Greater Christchurch Partnership**

Agencies which have responsibility for transport within the Greater Christchurch area include Christchurch City Council, Selwyn District Council, Waimakariri District Council, Environment Canterbury, and Waka Kotahi (New Zealand Transport Agency).

There have been concerns expressed within Christchurch City about increasing vehicle numbers travelling between Waimakariri and central Christchurch via the urban areas north of central Christchurch. Indications from both Waka Kotahi and Christchurch City suggest that any further increases in vehicle capacity across the Waimakariri River are unlikely in the foreseeable future. Instead an approach of “More people in fewer vehicles” is likely.

### **3.4 Current and Historical Trends**

~~Figure 1~~ ~~Figure 4~~ shows the Waimakariri population and growth rates for the period from 1996 to 2016. Actual census data from the 1996, 2001, 2006, and 2013 census results are shown as blue circles on the graph. This data shows the following trends:

- Waimakariri has had an increasing population trend over the past twenty-year period. This has equated to a population increase of 96% from 33,000 in 1996 to 64,700 in 2020<sup>1</sup>

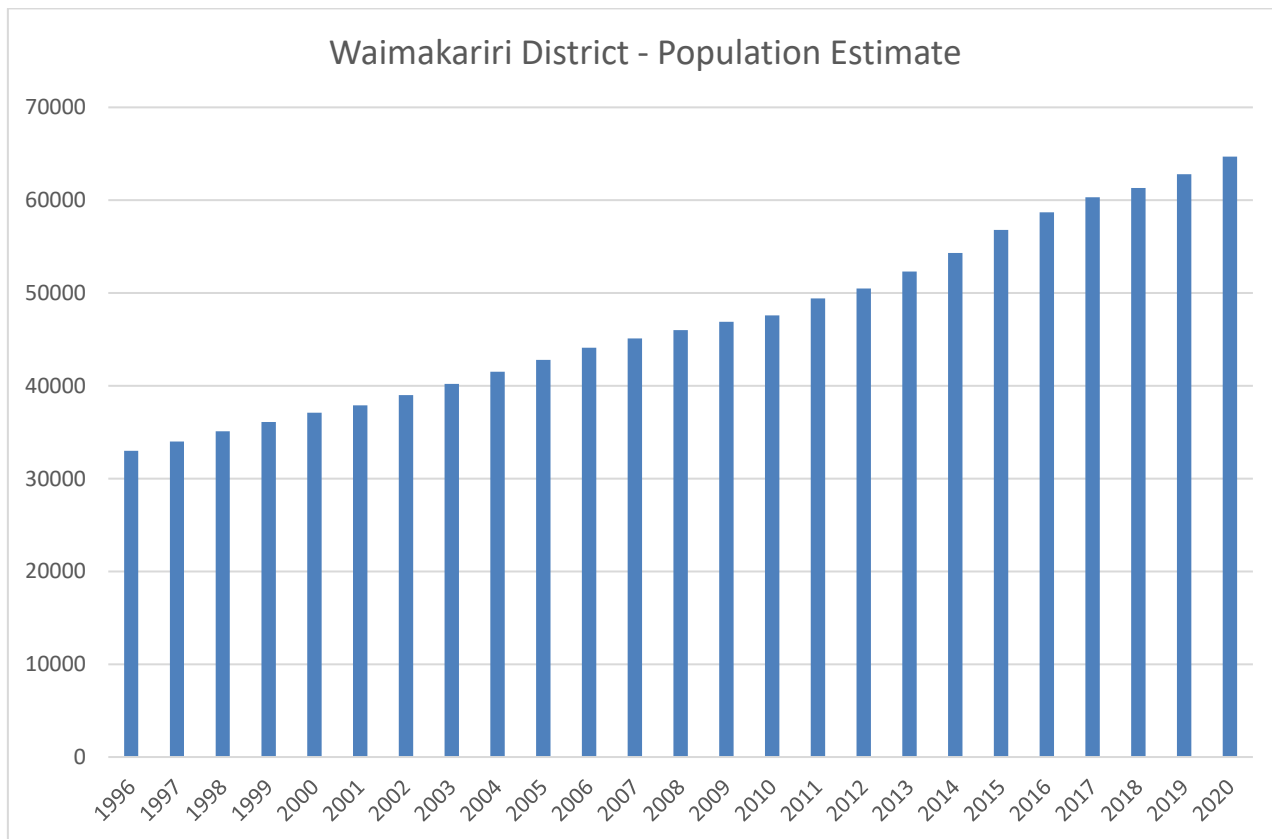
---

<sup>1</sup> 2020 figures are confirmed

<sup>1</sup> *Population – Waimakariri 2048 – Background Report on the Population of the Waimakariri District Council*

- Overall, the population increase has resulted in 29,800 additional people in the District.
- The population growth has resulted in an average growth rate of 2.8%. As a comparison, the overall growth rate for New Zealand for the same time was 1.2%.
- The Waimakariri district has been one of the fastest growth districts in New Zealand over the past fifteen years.

Figure 1: Waimakariri Population Estimates 1996 - 2020 (Source Statistics NZ)

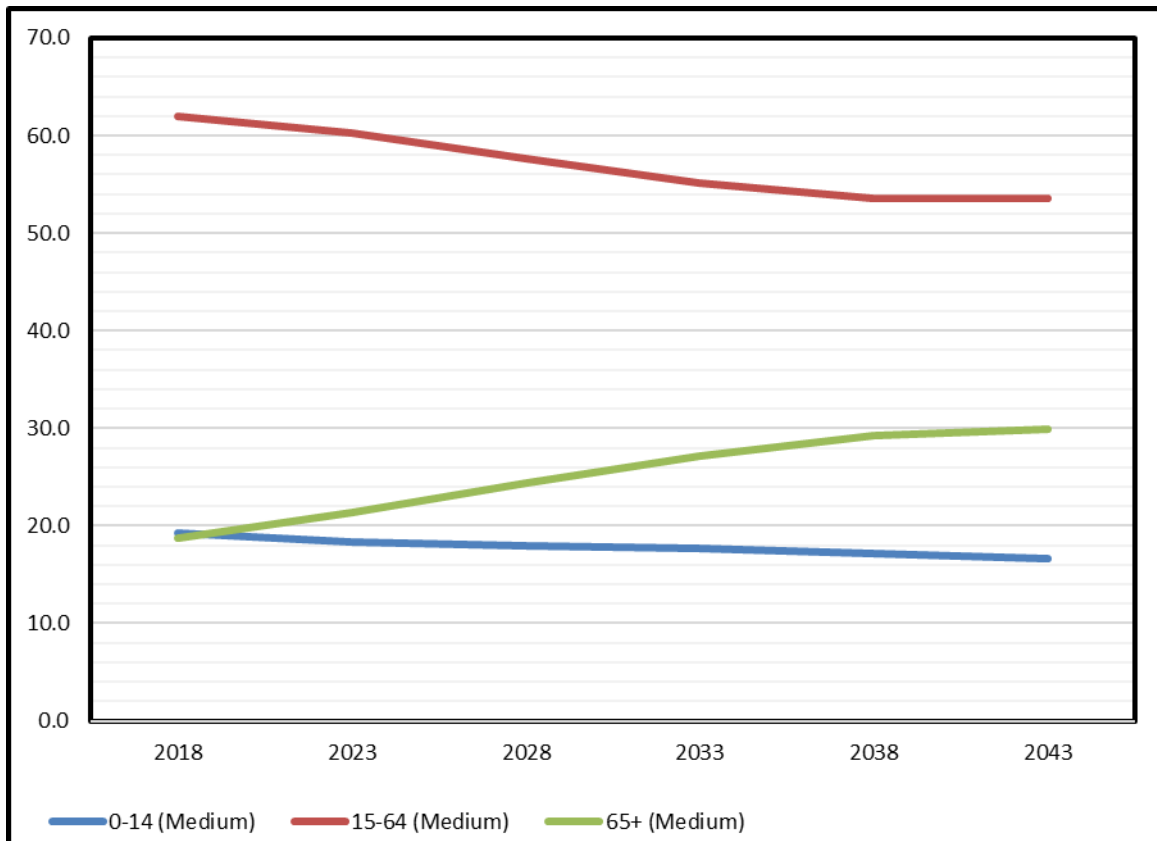


### 3.5 Population Age Profile

StatsNZ have also prepared estimates of demographic changes under each of their population growth scenarios. Figure 2 shows estimated age group projections to 2048 under StatsNZ medium growth scenario.



Figure 2: Projected Demographic Changes 2018 - 2048 (Medium Growth Scenario)



This indicates an increase in the proportion of over 65 year olds, and a corresponding reduction in younger age groups.

### 3.6 Car Usage

As the population grows so generally does the volume of motor vehicles using the roading network. The OECD International Transport Forum (2013) concluded that car use was declining internationally. However, reductions in car usage were generally less pronounced in rural areas.

The proportion of individuals who drove to work in New Zealand (either in a private vehicle, or a company vehicle) increased from 60% in 2001 to 62% in 2006. It then stabilised at 62% in 2013, increasing to 69% in 2018.

In Waimakariri the proportion increased from 65% in 2001 to 66% in 2006, 67% in 2013, and 78.2% in 2018.

Population growth in the district is expected to impact on the transport and roading network in a number of ways, including:

- A greater number of vehicles on the roads due to increased demand for travel, resulting from commercial, recreational, and travel-to-work demands

- More people using the town centres putting pressure on parking and town centre footpaths and amenity areas
- Increased demand for footpaths, walkways, cycle paths and cycle routes
- The growth in private motor vehicle travel is the most significant in terms of volumes and the cost of providing solutions. The cost to maintain the roads is likely to increase as the traffic volumes increase.

## 4 Current and Historic Demand

### 4.1 Utilisation of Roads

The One Network Road Classification (ONRC) is a nationwide system for classifying roads based on the function of the road. It categorises roads based on the functions they perform.

The six ONRC categories are:

- National
- Regional
- Arterial
- Primary Collector
- Secondary Collector
- Access
- Low Volume (a lower level of Access)

State Highway 1 (SH1) passes through the District, and State Highway 71 (SH71) connects Rangiora with State Highway 1 and Kaiapoi. SH1 is categorised as a National road under the ONRC, and SH71 as an Arterial. Being state highways, both these roads are administered by NZTA. There are no other National or Regional roads in the Waimakariri District.

Figure 3 lists the total length of road and percentage of network for each ONRC category of road in the district.

Figure 3: ONRC Length by category and urban/rural split

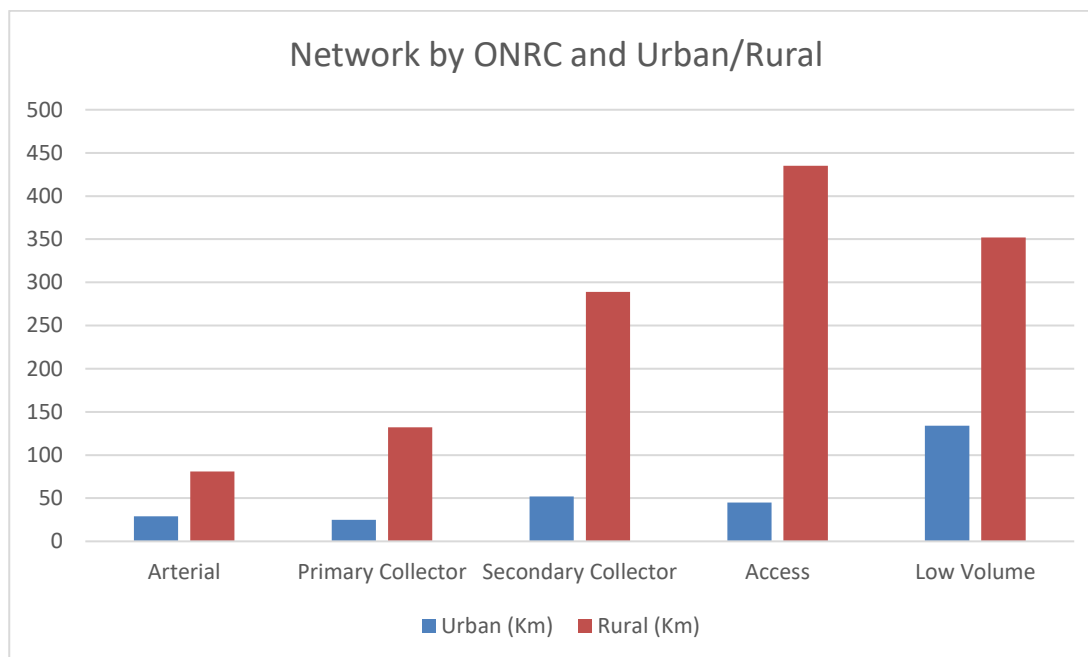


Table 2 Summary of the Waimakariri District Roads (ONRC)

ONRC	Urban (Km)	Rural (Km)	Total Length(Km)	Lane (Km)	Urban Journeys (M VKT)	Rural Journeys (M VKT)	Annual Total Journeys Travelled (M VKT)	Percentage of length
Arterial	29	81	110	220	78.9	137.3	216.2	7%
Primary Collector	25	132	157	314	31.0	96.9	127.9	10%
Secondary Collector	52	289	341	672	25.0	46.7	71.7	22%
Access	45	435	480	826	10.8	15.2	26.0	30%
Low Volume	134	352	485	747	3.6	4.0	7.5	31%
Not Required	0		0	0				0%
Unclassified			2					0%
<b>TOTAL NETWORK</b>	<b>284</b>	<b>1,289</b>	<b>1,575</b>	<b>2,778</b>	<b>149.3</b>	<b>300.0</b>	<b>449.3</b>	

## 4.2 Heavy Vehicle Demand

The roading network carries a significant amount of heavy traffic due to the close proximity to Christchurch, and land-use activities such as dairying, cropping, forestry and gravel extraction.

Waimakariri District is one of the sources of supply of roading and building aggregates for the greater Canterbury region, including the Christchurch rebuild. Currently there are five active resource consents for gravel extraction in Waimakariri District. These include:

- RC105215      KD & JE Dalley      2064 Tram Road, West Eyreton
- RC125069      Silverstream      1 Butchers Road, Kaiapoi
- RC125148      Prestons Road Ltd      354 Downs Road, West Eyreton

- RC135380 Ngai Tahu Farming 5 Downs Road, West Eyreton
- RC145071 Chch Ready-Mix 1 Browns Road, Swannanoa (200 Vpd)

There is a maximum total of 900 permitted vehicle movements per day associated with these consents. The applicants for these consents appear to typically seek consent for a large number of daily trips, so that they are not in breach of their consents during peak times. It is therefore unlikely that all of the consented operations will consistently be operating at their peak consented vehicle numbers at the same time.

Weights will also vary, with ReadyMix for example carrying up to 57.8t per load, through its HPMV permit.

### 4.3 High Productivity Motor Vehicles

High Productivity Motor Vehicles (HPMV) were introduced in 2011. An HPMV exceeds the maximum length and mass requirements for standard vehicles, and operates under a route specific permit issued by the Road Controlling Authority. Permits are valid for a period of two years.

**Error! Reference source not found.** ~~Figure 4: HPMV Permits Issued per Year~~ shows the number of HPMV permits issued for travel on Waimakariri local roads per year since 2011. 318 permits were issued 2017. There was a sharp increase in HPMV growth in the numbers of HPMV permits issued between 2013 and 2015. .

Figure 4: HPMV Permits Issued per Year



While there was a levelling off of permits between 2015 and 2017, numbers have since increased sharply, from 290 in 2017 to 967 in 2020. Fonterra are currently investigating with

Council as to how a general permit could be implemented to avoid having to reapply each time a route changes even slightly. This could reduce the number of permits but not the number of vehicles travelling. The permits themselves do not reflect the number of trips being made by a particular vehicle on a permitted route.

The five major industries operating with HPMVs in the district are dairying, logging, livestock cartage, general bulk cartage, and road metals / aggregate cartage.

#### **4.4 Footpath Utilisation**

No formal assessment of footpath usage in the district has been carried out. However, it is expected that the following factors are likely to have resulted in changes in footpath usage in the District:

- Renewal and revitalisation of the Kaiapoi and Rangiora town centres (including replacement and repair of damaged buildings and improved pedestrian amenity) is expected to increase pedestrian numbers in both town centres
- Older person housing (including retirement villages and over 50s complexes) are expected to increase pedestrian numbers in the vicinity of the complexes. The pedestrians associated with this housing are likely to use a greater proportion of mobility devices than the wider population.
- New Zealand Post has been granted approval to use small delivery vehicles on footpaths.
- E-scooters are allowed to travel on footpaths. These are not yet permitted in Waimakariri but allowance needs to be made for the likelihood.

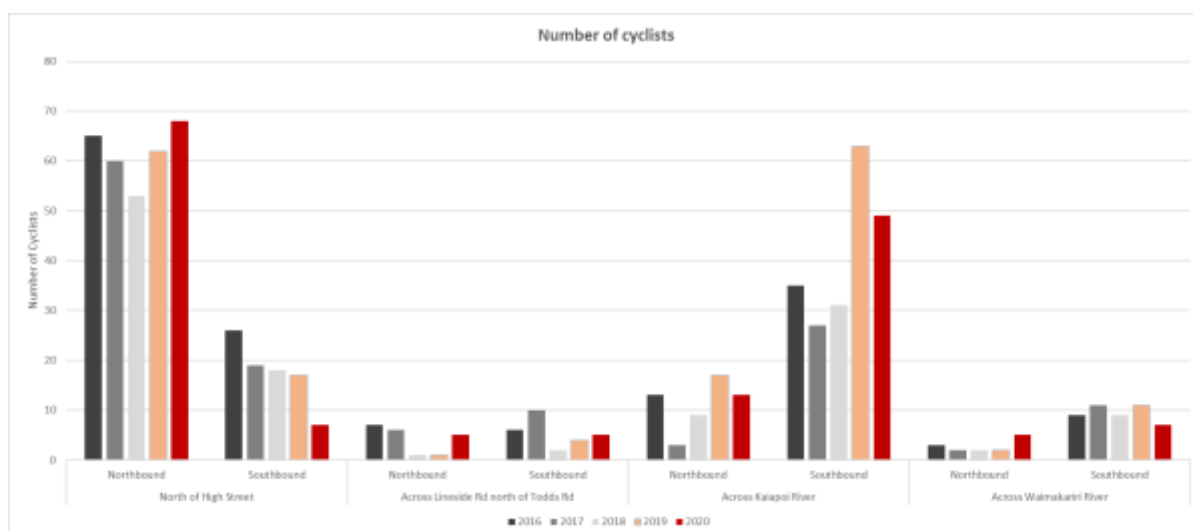
#### **4.5 Cycling**

Off road cycleways between Rangiora and Kaiapoi, Rangiora and Woodend and Kaiapoi to Belfast are fully or almost complete and an on-road cycleway from the Kaiapoi Community Board and is scheduled for completion in mid-2021. These cycleways are expected to result in increased numbers of cyclists, and an increasing demand for improved cycle facilities within the towns of the District.

A cycle monitoring plan was developed in 2016. It included pedestrian and cycle count sites at ten locations in Rangiora and Kaiapoi. Cycle counts have been carried out since 2016 at these sites.

Further new sites, including a permanent calibration site will be established on the Rangiora to Kaiapoi and Rangiora to Woodend cycleways. Cyclists will be counted at all the existing and proposed sites following the construction of the cycleways.

Figure 5: Cycle counts from 2016 to 2020



## 4.6 Parking Demand

Typically the only areas in which parking demand is not adequately met by on street and private off street parking is within the town centres of the District. There is demand for parking from both staff and customers of businesses in the town centres.

Staff tend to arrive early in the day, and park for long periods (up to all day). This means that the parking spaces that staff use are unavailable for business customers to use. Up until recently, Council-operated off street car parking in Kaiapoi and Rangiora was unrestricted. This parking was close to 100% full on most weekdays, and there was very little turnover of parks.

In 2012, P120 restrictions were implemented in Council operated off street parking in both Rangiora and Kaiapoi town centres. This freed up these parking areas for use by customers of the businesses in the town centres.

In 2016, additional temporary Council operated off street parking was provided. This parking area has a P120 restriction. This parking is on private land which Council has a 2 year lease over.

Parking is a key factor being considered in the Kaiapoi Town Centre Plan Review.

Parking surveys have been carried out in Rangiora in 2014, 2016, 2017, 2019 and 2020 and in Kaiapoi in 2014, 2017, 2019, and 2020. These have been extensive all day surveys which have recorded parking occupancy at 30 minute intervals throughout the day. These surveys have been supplemented by weekly spot surveys of Council operated off street parking in both Rangiora and Kaiapoi.

These surveys indicate that parking in both town centres operates at less than 80% capacity most of the time, with the following exceptions:

- The unrestricted parking immediately adjacent to the edge of the town centres operates at close to 100% capacity throughout the day. This is assumed to be parking by staff of businesses in the town centres
- Parking close to High Street in Rangiora, and Williams Street in Kaiapoi (the main shopping streets of both towns) had a much higher demand during the peak period measured (11:00 to 12:00). However there was adequate parking available within a 250m walk of the shopping streets.
- The highest demand carparks in Rangiora were the Blake Street, Ashley Street, and library carparks.
- Unrestricted on-site parking at Hilton and Charles Streets experienced near-full occupancy, likely due to commuter all-day parking demand.
- Occupancy has increased significantly north of the river, but decreased slightly south of the river between 11.30am and 3.30 pm.

On street and off street parking is provided in the Woodend, Pegasus, Cust, and Oxford town centres. Parking in these centres is occasionally raised as an issue.

The weekly Ohoka Farmers Market generates significant parking demand in Ohoka. The market provides some off street parking, with the remainder being met on the grass berms of the adjacent streets. There are occasionally tensions between adjacent property owners and parked vehicles.

See Section 3.2 for discussion on the parking provisions of the National Policy Statement on Urban Development (NPS-UD). The likely impacts of these provisions on parking demand and supply are not yet clear. One possible outcome is an increase in demand for on-street and other publically provided parking.

It is proposed that parking management plans are developed for the town centres, and for any significant new developments.

## **4.7 Traffic Growth**

### *Background:*

The Council's District Development Strategy framed within this wider FDS context anticipates ongoing residential growth in western and eastern parts of Rangiora and in northeast Kaiapoi. The Minister for the Environment has agreed to progress under Streamlined Planning Process within the overarching Infrastructure Boundary and in accordance with a Change to the Regional Policy Statement.

As well, continued growth of the Southbrook business area is provided for in the FDS. These changes will result in significant increases in traffic volumes (including heavy vehicles) using



Southbrook Road as well as the Fernside Road / Flaxton Road / Skewbridge Road route as a viable and attractive route between West Rangiora, Kaiapoi and State Highway SH1. Assessments of both these routes have been carried out and a number of improvements recommended, some of which commenced in the 18-21 AMP. Key Improvements along this route are included in Council's Long Term Plan, Infrastructure Strategy and this AMP.

Generally the District's roads and intersections are far from their ultimate capacities and few are likely to reach those points in the near future.

Traffic modelling has been used to assess the projected performance of the networks in both 2041 and 2048 (the Christchurch Transport Model base year, and Waimakariri District Council District Development Strategy horizon respectively). This modelling has included the following steps:

1. The Christchurch Transport Model was used to assess traffic changes on the following key routes within the District, as a result of the growth forecast in the District Development Strategy:
  - Lineside Road (SH71)
  - Rangiora Woodend Road
  - Fernside Road
  - Flaxton Road / Skewbridge Road / new arterial corridor
  - SH1, including Christchurch Northern Motorway (from the Waimakariri River Bridge to Woodend)
2. The capacity vs future flow was assessed for each of the routes above.
3. The Rangiora Paramics model was used to assess the future network as follows:
  - Recent and proposed changes to the network included
  - 2017 recorded traffic volumes included, so that 2017 is now the base year.
  - District Development Strategy growth forecasts included
  - Potential upgrades tested.
4. The modelling suggested the following:
  - With a few exceptions (as discussed below), the majority of the District's roads are expected to cope comfortably with projected traffic increases through to 2048.
  - Projected traffic volumes on SH1 at the Waimakariri River Bridge are expected to result in congestion at the bridge, even with the currently proposed 3 laning.
  - Any congestion on SH1 at the Waimakariri River Bridge is likely to extend to local roads within the District, such as Tram Road.
  - Congestion is expected to become more severe on Southbrook Road.

- Measures such as the Rangiora Woodend Road improvements (including improved access to SH1), Eastern arterial, and Flaxton Road / Skewbridge Road improvements are likely to relieve some pressure on Southbrook Road. However, a significant portion of the traffic on Southbrook Road is associated with the Southbrook business area, and is less likely to use alternative routes to SH1.
- Traffic volumes on Rangiora Woodend Road and the Flaxton / Skewbridge route are expected to grow to carry a similar traffic volume to Lineside Road (SH71). This supports safety upgrades on these roads.

Modelled future traffic volumes are based on an assumption that there will be little change in mode share and vehicle occupancy numbers in the future compared to current numbers. Travel Demand Management (TDM) measures which increase walking, cycling, and public transport use are expected to result in a corresponding reduction in private car usage. Such a reduction is expected to help to address the congestion issues identified above.

This increase in traffic impacts on the capacity of the road network and also on the safety of the network. More vehicles result in a higher risk of crashes.

#### **4.8 Effects of the Western Belfast Bypass and Christchurch Northern Corridor**

The Western Belfast Bypass (WBB) opened in mid-November 2017, and the Christchurch Northern Corridor (CNC) was completed at the end of 2020. These two projects are expected to reduce congestion on the Christchurch Northern Motorway at the Waimakariri River Bridge, and the northern approaches to Christchurch, leading to reduced, and more consistent travel times.

Improved and more consistent travel times between Waimakariri and Christchurch are likely to both reduce the existing impediment to travel to Christchurch, particularly at peak times, and make Waimakariri a more attractive place to live. This combination is likely to result in an increase in traffic between Waimakariri and Christchurch, resulting in an increased pressure on local roads, particularly those linking to SH1.

The CNC also includes a cycleway and High Occupancy Vehicle (HOV) lanes across the Waimakariri River, and along the length of the CNC.

The cycleway is connected to a cycleway along the CNC corridor to Christchurch, which also links to Christchurch City's Major Cycleway projects.

A cycle link between the new cycleway across the river and central Kaiapoi was proposed to be constructed by WDC to coincide with the construction of the CNC cycleway by 2020, however delays in reaching an agreement on the route have meant that construction has been delayed and is unlikely to be complete before the end of June.

HOV lanes are dedicated lanes for use by buses and vehicles with more than one occupant. There is one HOV lane and two general traffic lanes southbound across the Waimakariri bridge at all times, and one HOV lane and one general traffic lane southbound over the length of the CNC in the morning peak period. This is expected to result in improved travel times and trip reliability for vehicles with more than one occupant, whilst providing smaller travel time benefits for single occupant vehicles.

In order to complement the HOV lanes, Waimakariri District is providing Park and Ride facilities in Rangiora and Kaiapoi, and Environment Canterbury is providing direct peak hour bus services between the Park and Ride facilities and the Christchurch central city.

It is therefore expected that the cycleway and HOV lanes will result in a reduction in single occupant vehicles at peak times, thereby taking some pressure off the wider transport network.

## **4.9 Future Growth Across the Waimakariri River**

Agencies which have responsibility for transport within the Greater Christchurch area include Christchurch City Council, Selwyn District Council, Waimakariri District Council, Environment Canterbury, and Waka Kotahi (New Zealand Transport Agency).

There have been concerns expressed within Christchurch City about increasing vehicle numbers travelling between Waimakariri and central Christchurch via the urban areas north of central Christchurch. Indications from both Waka Kotahi and Christchurch City suggest that any further increases in vehicle capacity across the Waimakariri River are unlikely in the foreseeable future. Instead an approach of “more people in fewer vehicles” is likely.

## **4.10 Footpaths and Pedestrian Demand**

Council is planning for an aging population which is expected to have a major impact on future pedestrian facilities.

With the proportion of elderly in the population projected to increase the use of mobility scooters is also expected to increase. Additional mobility scooters means increased pressure to provide wider footpaths. Current footpaths are typically 1.5m wide. Footpath renewals constructed by Council are now 1.8m wide.

A demand for smoother footpaths (fewer bumps, depressions, and potholes) is also likely as mobility scooters typically have no suspension system and any irregularities in the footpath surface will be felt by the rider. Current road crossings can have steep and/or stepped curbs that are difficult for mobility scooters to use, therefore there is likely to be a demand for improvements in this area.

Elderly pedestrians are typically less sure-footed than younger users and therefore are likely to require a smoother surface of footpaths be provided.

E-scooters and other micro mobility devices are allowed to travel on footpaths. No commercial e-scooter operators are currently operating in Waimakariri. There is a proposal to invite expressions of interest from scooter operators to conduct a 3 month trial of e-scooters in late 2020, early 2021. In addition, there are a number of privately owned e-scooters operating in the District.

The New Zealand Government has consulted on a regulatory package entitled “Accessible Streets”. This package would make the use of cycles and mobility devices, such as mobility scooters, legal on footpaths.

Growth in e-scooter, bicycle, and other mobility devices on footpaths is likely to result in increasing congestion in busy parts of the pedestrian network, and conflict between pedestrians and users of these devices. This in turn is likely to result in increasing demand to upgrade pedestrian facilities to better suit the wider range of users.

#### **4.11 Cycle Demand**

The construction of cycleways between Rangiora and Kaiapoi and also Rangiora and Woodend, and the connection to the Christchurch Northern Corridor cycleway, is likely to increase cycle numbers on these routes. This, in turn, is likely to result in demand for improved cycle facilities in Rangiora, Kaiapoi, and Woodend to connect to the new cycleways. There is also likely to be demand for similar facilities in other areas throughout the District.

The numbers of e-bikes sold in New Zealand has increased steadily over the past few years. The number of e-bikes and e-scooters imported into New Zealand reached 65,000 in 2019. It is anticipated that e-bikes could become an increasingly attractive transport mode choice in years to come. E-bikes are likely to be particularly attractive to travel the longer distances between towns in the Waimakariri District. An increase in e-bike popularity is likely to result in increased demand for cycle facilities which are appropriate for the increased number and higher speeds of e-bikes.

#### **4.12 Public Transport**

A Detailed Business Case has been prepared on behalf of the Greater Christchurch Partnership. This Business Case is titled “PT Futures – Foundations and Rest of Network”. It recommends a ten year programme of works (both Capex and Opex) for public transport across the Greater Christchurch area. The draft Business case is recommending infrastructure works within Waimakariri, made up primarily of improvements to bus stop facilities, and additional park and ride facilities. It is anticipated that these infrastructure works will complement increased bus services to be provided by Environment Canterbury.

A Strategic Business Case is also being prepared for Mass Rapid Transport (MRT) in Greater Christchurch. This Business Case has not advanced sufficiently to be considering options for

MRT. Any recommendations arising from this Business Case will need to be considered in the 2024 to 26 AMP.

#### **4.13 Impact of Community Expectations on Demand**

Feedback received from some areas of the community indicates a desire for an even higher level of service across the district's roads, despite the fact that in general current technical performance targets are met or exceeded. This includes wider shoulders, improved alignments, more permanent surfacing, smoother surfacing, more kerbing, streetscaping, and high levels of road safety intervention. Further engagement with the community is required to determine the extent of this in light of the generally favourable replies to community satisfaction surveys, with costed options to assist in realistic decision making.

#### **4.14 Impact of Climate Change on Demand**

Climate change and changing weather patterns may result in more significant weather events, and associated emergency responses, in the 10 year life of this AMP. However they are not expected to have a significant impact or effect on demand during the 10 year period.

In the longer term the most significant impacts on transport demand are likely to be as a result of:

- Increases in intensity and duration of rainfall. This could alter land use and therefore road usage. Rainfall could also affect the drainage requirements and the water proofing of roads.
- Changes in climate affecting the viability of some crops and agricultural land uses, thereby affecting land uses in the District. Changing land uses could affect transport demand across the district.
- Rising sea levels. This could affect the viability of a small number of small communities near the coast, (Pines Beach, Kairaki, Woodend Beach, and potentially part of Kaiapoi) and impact maintenance and construction of transport infrastructure near the coast.

Further work is required to assess the long term effects of climate change on the roading network and to develop policies to manage this. Council have resolved to investigate this further during the period of the 21-24 LTP.

#### **4.15 Technology Changes & Associated User Changes**

Many of the demand assumptions above are based on an underlying assumption that transport in the future will be similar to transport in the past 20 to 30 years. However, there is a growing body of opinion amongst transport commentators that society could be on the cusp of changes to our transport system which are as radical as the changes which accompanied the transition from horse drawn transport to motor vehicles.

These possible technology changes include:

#### 4.15.1 Virtual Connectivity

Recent advances in telecommunications technology have resulted in significant improvements in remote connectivity. Individuals can meet remotely via packages such as Skype, Zoom, and Microsoft Teams. Many business transactions, including buying and selling goods and services, banking, and research, are able to be completed on line.

[Table 3](#) below shows journey to work data for the Greater Christchurch Local Authority areas from the 2018 census

Table 3: Journey to Work Data 2018

Mode	Christchurch City		Selwyn District		Waimakariri District		Total	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Work at home	18,033	9.04%	5,556	15.81%	4,350	13.71%	27,939	10.49%
Drive a private car, truck or van	122,901	61.61%	20,907	59.48%	19,503	61.46%	163,311	61.31%
Drive a company car, truck or van	22,473	11.27%	5,529	15.73%	5,289	16.67%	33,291	12.50%
Passenger in a car, truck, van or company bus	6,363	3.19%	822	2.34%	873	2.75%	8,058	3.03%
Bicycle	11,160	5.59%	501	1.43%	327	1.03%	11,988	4.50%
Walk or jog	7,728	3.87%	1,038	2.95%	804	2.53%	9,570	3.59%
Public bus	8,304	4.16%	318	0.90%	309	0.97%	8,931	3.35%
Train	39	0.02%	6	0.02%	3	0.01%	48	0.02%
Ferry	60	0.03%	3	0.01%	3	0.01%	66	0.02%
Other	2,427	1.22%	474	1.35%	276	0.87%	3,177	1.19%
Total Alternative Modes	29,718	14.90%	2,340	6.66%	1,722	5.43%	33,780	12.68%
Total	199,494		35,151		31,734		266,379	

“Work at Home” made up almost twice as many “trips” as all other alternative modes combined for Waimakariri, and close to all other alternative modes for all of Greater Christchurch. The number recording “Work at Home” in Waimakariri increased by 59% between the 2013 and 2018 census

Anecdotal evidence suggests that a significant portion of the workforce is choosing to work from home for at least one or two days per week following the experience of Covid-19 alert level 4 lockdown. If this trend continues it is likely to result in a reduction in peak hour trips to and from work.

### **4.15.2 Autonomous Vehicles**

Vehicle manufacturers continue to work on developing autonomous vehicles. Fully autonomous vehicles could theoretically be able to travel whilst empty. This could result in an increase in vehicle numbers on the road due to vehicles relocating or running errands

There are a number of significant obstacles which will need to be overcome before autonomous vehicles are widely available. One of the most challenging of these obstacles will be the time period when autonomous vehicles will need to share road space with vehicles driven by unpredictable humans, who do not have the technology to communicate directly with vehicles or infrastructure.

### **4.15.3 Connected Vehicles**

Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) communication is critical to the operation of autonomous vehicles.

V2V communication enables vehicles to inform nearby vehicles of their intentions, of road and traffic conditions, hazards and obstacles. This enables a number of autonomous vehicles within close proximity to operate efficiently and safely.

V2I communication allows vehicles to inform the infrastructure operator of their intentions, and report road and traffic conditions, hazards and obstacles. It also allows the infrastructure operator to instruct vehicles and inform of road and traffic conditions, hazards and obstacles, and parking availability.

Whilst V2I communication is critical to the safe and efficient operation of fully autonomous vehicles, the information available from V2I communication also has the potential to improve safety and efficiency of manually driven vehicles, particularly those with an increasing level of autonomy due to a variety of driver assistance packages.

It is likely that Road Controlling Authorities will be expected to provide increasing levels of V2I communication in future years.

### **4.15.4 Electric Vehicles**

The number of Electric Vehicles (EVs) in the New Zealand fleet is steadily increasing, with most vehicle manufacturers having at least one fully electric or plug in hybrid model in their line-up.

There remain a number of factors which limit EV uptake:

- EVs are still expensive to purchase compared to equivalent Internal Combustion Engine (ICE) vehicles.
- Whilst the range of EVs continue to improve, there are still concerns about the effective range of them compared to ICEs.

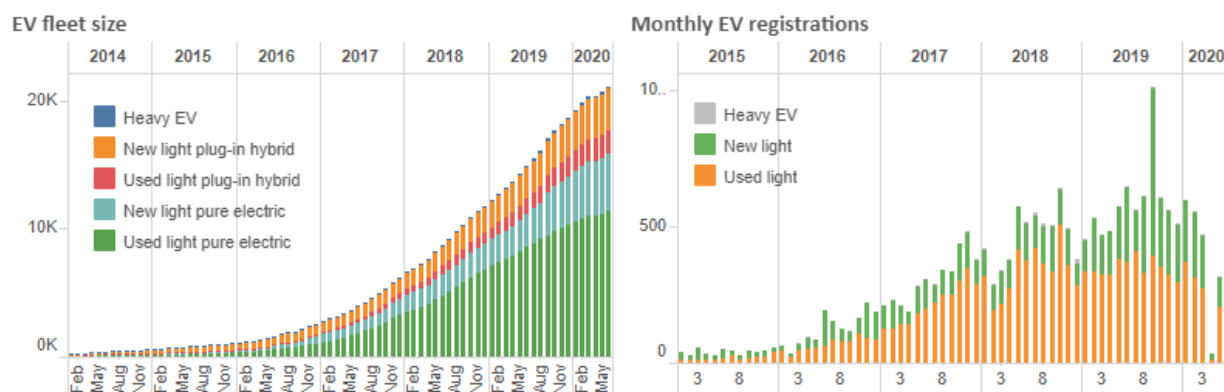


- There remain some concerns about carbon emissions and other environmental impacts associated with the manufacture of EVs and their batteries.

Technology improvements are likely to address, at least in part, the purchase cost and range of EVs in coming years, thereby further increasing their popularity.

The low cost of operating EVs, particularly when combined with solar power generation, may result in increased vehicle usage compared to ICEs.

Figure 6: Changes in EV uptake since 2014



#### 4.15.5 Shared Vehicles

A number of different shared vehicle models currently operate. These models do not require private ownership of individual vehicles. Rather, users purchase rides on an as needed basis. These rides have the ability to be shared with other users. Some of these models (such as Uber and Lyft) include drivers who drive the users. Others, such as Cityhop are self drive models which enable users to rent vehicles by the hour.

These shared vehicle models currently rely on humans to drive them. However, they could be operated by autonomous vehicles should these become an option in the future.

Shared trips in which more than one person shares a trip from a common origin to a common destination have the potential to reduce vehicle usage. However, trips which involve vehicles travelling significant distances to pick up a rider may end up increasing vehicle trips

Unfortunately, the nature of likely future changes is not at all clear at the moment. There are a large number of variables and questions surrounding the possible transport changes we are facing. These variables and questions are likely to centre around three major themes, namely:

- How well technology lives up to or exceeds current expectations, or moves into as yet unexpected areas.
- How willing society at large is to accept and adopt new technologies.
- Any legislative changes which are put into effect to enable technology to be implemented, and to direct how it is used.

A Transport Future paper was prepared as part of Council's District Development Strategy. This paper concluded that there was "deep uncertainty" regarding what the nature and shape of our future transport systems.

Transport policies and strategies will therefore need to include monitoring of technological changes, and be adaptable and flexible enough to both respond to those changes, and to influence and guide other changes.

## **4.16 Economic Development**

Economic development, as defined in the local economic development strategy<sup>2</sup>, is those activities that cause a net gain of money flow into a community. In a broader sense, economic development means increases in business outputs through establishment of new businesses, relocation, or higher existing business productivity growth, increases in employment and real growth in incomes and asset values.

The local economic development strategy predicts that the construction, retail, manufacturing and health / community sectors are set to grow significantly over the next five years. One of the issues identified with that growth is the speed and connectivity of roads into Christchurch. This is particularly true for freight servicing those businesses. More heavy traffic, including HPMVs, on the network is likely to contribute to higher maintenance costs on roads not constructed for the greater loads.

Key Activity Centres (KACs) are required to be identified by the Canterbury Regional Policy Statement (CRPS). They are commercial centres identified as focal points for employment, community activities and the transport network that are suitable for intensive mixed-used development. Rangiora and Kaiapoi town centres have been identified as Key Activity Centres in the CRPS. North Woodend (Ravenswood) has been identified as a potential KAC.

It is anticipated that the retail floor area in the central business districts of Rangiora and Kaiapoi are likely to continue to grow as the population in and around the towns grows.

Recent trends have indicated a growth in online shopping and digital connectivity, and in the number and range of food, beverage, and hospitality activities in the town centres. Should these trends continue, they are likely to result in changes to the make-up and nature of the town centres, with a decreasing emphasis on retail, and a corresponding increasing emphasis on hospitality and social activities.

---

<sup>2</sup>Towards a Prosperous Economy waimakariri local economic development strategy 2012

This may result in increasing demand for town, and key activity, centres to provide pleasant places to socialise. Amenity factors may become increasingly important in decisions regarding location and function of roads, and location of parking in these centres.

The draft District Development Strategy has identified Southbrook, north Woodend (Ravenswood), and south Kaiapoi as appropriate locations for Business 2 (industrial / manufacturing / warehousing type activities) growth. Further growth in business and employment is likely to result in increased traffic in these areas. This traffic is likely to be made up of workers, customers, and delivery of goods to and from businesses. Good linkages between those business locations and potential employees, sources of incoming goods, and markets are essential for businesses to thrive in those locations.

#### **4.17 Changing Land Use**

The rural sector of the district is continuing to change with increasing numbers of dairy farms, lifestyle blocks, and industrial and manufacturing businesses on rural land.

These changes increase the number of people living in the area, and the number of vehicles, including heavy vehicles, using the roads.

The development of lifestyle blocks can create conflict in expectations between farmers and “lifestylers”. There may be pressure to seal unsealed roads due to dust and road condition issues that may be acceptable to the farming community but are not necessarily acceptable to residents and drivers more accustomed to urban conditions.

## **5 Meeting Demand**

### **5.1 Summary of Demand**

- Most roads in the district have the capacity to cater for traffic growth into the future.
- A Transport Model has been developed for Rangiora and this shows that the programmed and planned improvements will generally accommodate the demands of urban growth through to 2041.
- One critical road section is Southbrook Road leading into Rangiora and this will require improvements in the near future.
- An alternative route for west Rangiora is being developed and promoted. This will use Fernside and Flaxton Roads to link to SH1 via the new arterial road around Silverstream. It is therefore expected to take some pressure off Southbrook Road.
- Williams Street in Kaiapoi is likely to be impacted by changing traffic due to red zones and new growth areas.

- Increased population is likely to put increased demand on parking, traffic circulation, and footpaths and amenities in Rangiora and Kaiapoi town centres and on walking and cycling facilities, public transport, and the transport infrastructure in general.
- Changing demographics mean that there will need to be more varied management of the network to cater for differing needs.

Rural land use changes, including increased dairy farming activities, quarrying activities and rural-residential developments, are likely put pressure on the rural road network.

## 5.2 Ability to Meet Demand

The key demand issues expected to be faced by the transport network in the District are summarised in [Error! Reference source not found. Table 4 Key Demand Factors](#)

Table 4: Key Demand Factors

Demand Factor	Impact on Service	Ability to Meet Demand	Management Strategy
Population Growth	Increased car usage resulting in reduced Levels of Service, increased congestion, and increased crashes	Expected growth is expected to be able to be managed with a mixture of: Improved LOS Appropriate planning Demand Management	Projects to increase capacity are summarised in Table 1
			Transport planning is an integral part of the District Development Strategy and the District Plan Review process
			Working with Greater Christchurch partners on Travel Demand Management initiatives
Rural Land Use Changes	Increased car usage from increase in residential or “lifestyle” development	Expected growth is expected to be able to be managed with a mixture of: Increased capacity Appropriate planning Demand Management	Projects to increase capacity are summarised in Table
	Increased heavy vehicle numbers from more intensive agricultural or commercial land uses		Transport planning is an integral part of the District Development Strategy and the District Plan Review process
Customer Expectations	A community desire for higher levels of service across the District.	Implementation of best practice standards across the District’s	Acknowledgement that best practice may not always match community expectations. Communicate this to the community appropriately
Aging Population	Increased number of mobility devices (including scooters, walkers etc)	Wider footpaths included in all Council footpath renewals	Consider needs of aging population in review of District Plan and Engineering Code of Practice
	Reduced ability of users to cope with poorly maintained footpaths	Ongoing condition rating of footpaths	

Demand Factor	Impact on Service	Ability to Meet Demand	Management Strategy
	Increased demand for public transport as ability to drive declines	Consider public transport in all new infrastructure designs	
Increase in Heavy Vehicle mass and dimensions (including HPMVs)	Increased maintenance costs due to larger trucks	Budget for possible increased maintenance costs.	Consider needs of larger vehicles in review of District Plan and Engineering Code of Practice
	Larger vehicles require more space to manoeuvre	Consider larger vehicles in all new infrastructure designs	
Technology Changes	Likely impacts are unknown at the moment		Monitor developments and remain adaptable to rapid change if necessary
Climate Change	Likely impacts are unknown at the moment		Monitor developments and remain adaptable to rapid change if necessary

### 5.3 General

Most of the District's roads and intersections do not operate at close to capacity, and therefore have good levels of service with respect to safety and delays. Few are likely to operate at near capacity (and experience deteriorating levels of service) in the near future.

There are, however, some parts of the network that are having difficulty meeting the demand and where growth will put them under strain with longer delays at peak times being more likely in future. Increasing delays often result in a decline in safety as drivers accept greater risks in order to avoid delays.

The arterial and collector roads in the rural network are becoming increasingly important in terms of economic productivity. Maintaining a level of service that supports the economic productivity role of these roads is therefore critical. The increased traffic using the rural road network, particularly heavy traffic, is resulting in increased annual maintenance costs to meet the customer levels of service.

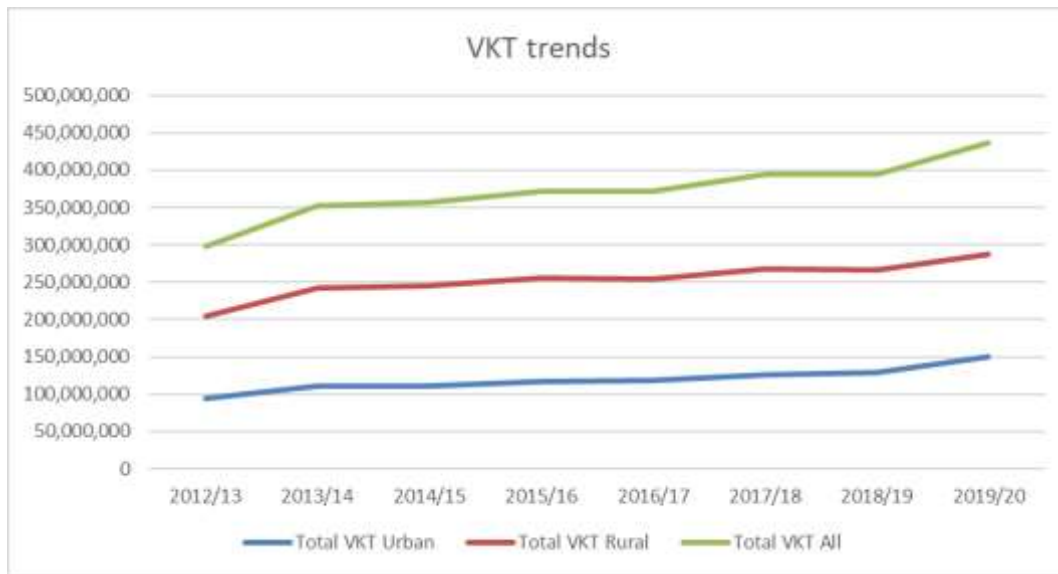
Council's traffic counting until recently has utilised tube counters, with classifiers only reserved for key sites. A year ago this was changed to classifiers at all sites and a better picture of heavy traffic movements is being picked up. This will be utilised in the next AMP to provide a better picture of traffic movements versus maintenance costs.

From a safety perspective the increase in traffic volumes on rural roads, which are generally higher speed than urban roads, is likely to have an impact. For example the head-on collision risk increases with traffic volume increases on roads if the seal width is not sufficient<sup>3</sup>. Surface conditions maybe also impact on safety. Proactive maintenance and

<sup>3</sup> The next generation of rural road crash prediction models: final report December 2012, NZTA Research Report 509

monitoring of aspects such as seal width will be required as traffic volumes increase. Road Safety is discussed further on.

Figure 7: Vehicle Kilometers Travelled (VKT) Trends



As noted above the main impact of these trends will be an increase in vehicular traffic on District roads.

#### 5.4 Traffic Growth and Congestion on the Northern access into Christchurch

The opening of the Christchurch Northern Corridor (CNC) in 2020 should alleviate some congestion issues in the District, however this will also require an increased uptake of the PT system. If people continue to travel by private car the benefits of the extra lanes are unlikely to be realised.

#### 5.5 Mitigation measures

- Employ a Journey Coordinator resource to manage driver behaviour change to reduce the number of single occupancy vehicles travelling to Christchurch at peak times
- Provide 50% of Christchurch city's local share funding for the construction of bus lanes on Main North Road at 'Chaney's' corner.
- Develop interim park and ride sites in Rangiora and Kaiapoi (Silverstream)
- Work with ECan to change bus routes and services in the district and to promote bus usage.

## 6 Projects to Address Demand

The following projects have been identified to address demand:

### 6.1 Southbrook Road - Rangiora

Southbrook Road is the most congested section of road in Rangiora. It links central and northern Rangiora with the business area in Southbrook via Lineside and Flaxton Roads, and with Kaiapoi and Christchurch via SH71 (Lineside Road) and Flaxton Road. It also provides access to:

- Residential properties
- Businesses, including
- A large supermarket
- A large hardware store
- A restaurant
- Two schools
- A childcare centre

The options for increasing the capacity of Southbrook Road by widening are limited due to its 20m road reserve, and the number of established residential and business properties. Managing traffic demand is therefore considered to be the most viable method of addressing the capacity issues on Southbrook Road

Most of the residential growth in Rangiora in the past 10 years has been to the north west of town. An alternative route via Townsend Road, Fernside Road, Flaxton Road, Skewbridge Road, Island Road, and the new arterial around Silverstream to Kaiapoi and SH1 is expected to be an attractive alternative between north-west and south Rangiora when compared to Southbrook Road and SH71.

The new arterial road around Silverstream and a new link between Townsend Road and West Belt have been completed.

Further proposed changes to this route include intersection improvements, safety improvements, and a new bridge on Skewbridge Road.

Improvements to linkages between the east and north of Rangiora and SH1 at Woodend are also underway, which will relieve pressure on Southbrook Road. These include:

- Upgrades to Rangiora Woodend Road
- Improved connections to SH1 in Woodend (in conjunction with NZTA).
- Longer term projects include the Ravenswood Spine Road, in conjunction with the Ravenswood developers. This will provide a connection between Rangiora Woodend Road and the northern end of NZTA's Woodend Bypass.



The planned route improvements to both the Western and Eastern sides of the District are designed to lessen the demand on the Southbrook Road route, which is poorly equipped to meet the needs of children, residents, businesses, commuters and heavy freight all along the same congested route. While widening this central route might seem an obvious solution, this will have greater social disconnect for those living on either side of the road, more traffic would be encouraged to use this route leading to greater air pollution and vehicle noise, and eventually the road would clog up again. Meanwhile safety for pedestrians and cyclists would become worse, our youth would have greater problems accessing educational facilities, and the general neighbourhood would become even less pleasant for those living alongside the route.

An advantage to moving the traffic along the western route, which is primarily rural, or to the east along an improved State Highway, or eventually an eastern bypass if still required, would be to spread the growing vehicular load, and in particular move heavy traffic off Southbrook Road onto more appropriate routes.

## **6.2 Kaiapoi Traffic including Williams Street**

Williams Street in Kaiapoi between Ohoka Road and Charles Street has had some issues with delays in the past at peak times. Further growth has the potential to cause even more delays. However with changes in Kaiapoi due to the earthquake and the red zones the traffic patterns are changing. Residential development to replace the red zones has occurred to the west of the motorway. This is expected to reduce the demand on Williams Street for travel to Christchurch city.

Growth is also occurring to the north of Kaiapoi. The Smith Street connection to the motorway is therefore likely to become more attractive thus limiting the demand on Williams Street, through the Kaiapoi CBD, as a through road.

While the through traffic demand is likely to reduce on Williams Street, through the CBD, the local traffic demand will continue and if the revitalisation of the town centre is successful then this is likely to grow. This local traffic will be for shopping, education and recreation purposes. It is expected that with this change in traffic then local intersection and town centre improvements associated with the town centre revitalisation project will be sufficient to manage these changes.

Planned intersection improvements along Williams Street at Beach Road, and Hilton Street along with improvements to the town centre, and greater use of the Motorway for travel to the south are expected to accommodate the demands of urban growth in Kaiapoi into the foreseeable future.



A Transport Model has not been developed for Kaiapoi so this conclusion is not supported by transport modelling as it has in Rangiora however various investigations and studies along with transport assessment of new subdivisions support the conclusion. These studies and investigations include:

- Kaiapoi Traffic Study (Stage 1 in 1996 and Stage 2 in 1998) by Traffic Design Group
- Williams Street Intersection Review in 2008 by MWH
- Traffic studies for Kaiapoi Town Centre revitalisation in 2010 by Abley Transportation Consultants
- Kaiapoi Structure Plan development in 2009/10 by in house staff
- Kaiapoi North Plan Change, Kaiapoi West Plan Change and Ruby Views Plan Change Transport Assessments
- Kaiapoi Town Centre Integrated Transport Plan (2012)

An updated investigation of Kaiapoi is planned for year 2 of the next LTP. This will enable the various assumptions and predictions of the last three years to be thoroughly tested.

### **6.3 Town Centres**

Increased population in the towns and visitors to the towns will continue to put pressure on town centre assets such as parking supply, traffic circulation and footpath and amenity areas. Town Centre Plans have been developed for Rangiora and Kaiapoi.

The multi-disciplinary Kaiapoi Town Centre Plan Review includes transport inputs.

### **6.4 Other Ongoing and Future Potential Developments**

#### Ravenswood

This subdivision opposite Pegasus is expected to continue growing for at least the next decade, and will provide around over 1200 properties. These will be a mix of residential and commercial use.

#### Bellgrove Development

Developers are hoping to begin on this development north east of Rangiora within the next 3 years. At completion around 2030, it is expected to provide another 1400 houses.

#### Further development of Townsend Fields

This development already contains around 30 private properties and a primary school. Further growth between now and 2030 will potentially account for another 600 properties

#### Daniel Smith's Development

This development at the intersection of Flaxton and Fernside Roads will include a hotel, museum and café.

#### Silverstream Development – Lime Living

Older persons housing/aged care developments – Kaiapoi opposite Silverstream.

#### Somerset Development – South Belt

Older persons housing/aged care developments.

#### Waimak Junction

Development by Placemakers with Countdown etc.

### **6.5 Other Towns**

Oxford and Woodend are the other main towns in the district. They have sufficient road capacity to cater for the expected growth in traffic for the foreseeable future and so no growth related works are planned in these towns.

However, State Highway 1 passes through Woodend. NZTA have a designation in place for a bypass to the east of Woodend. Construction of the bypass is expected to be more than ten years into the future and so no provision has been made in this plan for any local road improvements that will be required as a result of the work.

In addition, NZTA has a project underway to address immediate access issues to and across SH1 through Woodend. The Detailed Business Case for this project is expected to be completed in 2018. It is possible that changes to local roads may be required to tie into changes NZTA may make on the State Highway.

### **6.6 Footpaths and Cycleways**

More people are walking and cycling for travel and for recreation, and this will put pressure on ensuring the walking and cycling facilities are being extended and improved. Funding in the Low Cost Low Risk Programme is used to improve walking and cycling facilities and in particular there is an emphasis on the less able and disabled to ensure the standard of footpaths enables them to be mobile and active.

### **6.7 Public Passenger Transport**

Across the Greater Christchurch area increasing the use of public transport is a means of reducing the peak traffic demand on roads. While Environment Canterbury is responsible for providing public bus services, the Council is responsible for providing the infrastructure, such as bus stops, seat and shelters, to support those services.

The increase in population in the district will increase the demand for these services. Providing good quality and convenient bus stops, seats and shelters will help encourage and manage that demand. Park and Ride Facilities have been constructed in Kaiapoi and Rangiora, with further potential sites investigated as part of the PT Futures Business Case.

## 6.8 Bridges

The majority of bridges in the district have adequate capacity to cater for the projected future loading and traffic volumes. Council has also made allowance in the IS for improvements to the Old Waimakariri River Bridge which is jointly funded with Christchurch City. This is not anticipated to be required until 2041.

There are no designated and separated pedestrian or cycle facilities on the Old Waimakariri River Bridge. NZTA have addressed this by including a combined walk and cycleway across the river as part of the CNC.

In addition to changes to the Old Waimakariri Bridge it is proposed to replace Skew Bridge within the next 10 years. This is predominantly due to levels of service issues, but these have arisen out of increased demand on the route this bridge sits on, plus latent demand for cycling facilities. The actual bridge still has an estimated twenty year remaining life so does not qualify for replacement as a renewal.

## 6.9 General

The management of the transport network to cater for future growth in the district will be by a combination of asset and non-asset solutions. In particular the integration of land use planning and transport planning as envisaged by the Greater Christchurch Partners (formerly the Greater Christchurch Urban Development Strategy (UDS)) along with travel demand management, the increase in the provision of walking and cycling facilities and improved passenger transport will be key tools in reducing the reliance on the motor vehicle.

Creating more job opportunities in the district will reduce the need to travel to Christchurch for employment as will reducing the growth on key commuting routes to Christchurch. Road improvements will be mainly focussed on maximising the capacity of the existing network, and on safety improvements.

The general approach to be taken is as follows:

- Maintaining and using the existing transport infrastructure efficiently and effectively
- Targeted investment in infrastructure improvements for both capacity and safety outcomes
- Increased emphasis on walking, cycling and public passenger transport to provide greater transport choice, integration, flexibility and to promote good public health outcomes
- Ensuring growth areas and development support modal choice and provide opportunities for people to travel less, especially by private motor vehicle
- Implement travel behaviour change programmes to encourage more efficient travel patterns

- Funding the growth component of projects from development and financial contributions

This approach is consistent with the New Zealand Transport Strategy 2008 and Government legislation, mainly the RMA, LGA, Ministry of Transport Framework, GPS and LTMA which requires a more integrated approach to land use, transport planning, and funding to provide a sustainable land transport system that is supported by sustainable land use patterns and good urban form, and with the Regional Land Transport Strategy (RLTS).

The following strategies and implementation plans drive the programmes for managing growth:

- Greater Christchurch Urban Development Strategy and implementation plan
- Land Use Recovery Plan (LURP)
- Greater Christchurch Travel Demand Management Strategy and implementation plan
- Structure Plans and Outline Development Plans
- Rangiora Town Centre Plan (RTC 2020)
- Kaiapoi Town Centre Plan (New Foundations)
- Walking and Cycling Strategy and implementation plan
- Road Safety Strategy and Road Safety Action Plans
- Metro Strategy and implementation plan, and Regional Passenger Transport Plan (Bus services)

## **6.10 Asset Programmes to Meet Demand**

Major programmes and costs to meet the demand described above are shown below. The full detail is shown in **Section 6- The Lifecycle Management Plan**.

Other capital works are identified via monitoring, community and Council input, and through statutory requirements. The condition of the network and its components are continually monitored and council staff, contractors and consultants identify development opportunities. The concerns and desires of all stakeholders are also identified, considered and taken into account through feedback and consultation.

## **6.11 Key Improvement initiatives**

Key improvement initiatives relating to the future demand include the following:

Table 5: Key Demand Improvement Initiatives

Section References	Improvement action	Priority	Proposed Completion date	Owner and Key Staff
Section 4 Future Demand				
4.1	Investigate whether further modelling is required to accurately represent changed demands in Rangiora and Kaiapoi	Low	December 2021	TE
4.2	More in-depth analysis as to needs of the older demographic	Medium	June 2022	TE
4.3	Prepare a freight strategy	High	December 2022	TE