7.0 GROWTH AND DEMAND

This section provides details of growth forecasts and demand drivers which affect the management and utilisation of Transportation assets.

Contents

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7.1 Overview

The future demand for services will change over time in response to a wide range of influences including:

- Local population trends,
- Accuracy of predicted future populations,
- Local economic trends,
- Land use change,
- Changing technologies,
- Changing legislative requirements,
- Changing regional and district planning requirements,
- Water resource issues, and
- Climate change.

There are 4 main demand factors the affect the ongoing operation and performance of the roading network and transportation system; increases in populations, changes to the nature of road use, changes in users' expectations, changes to road management systems and processes.

An increase in population will result in an increase in traffic volumes, which can increase deterioration and congestion, and may reduce the customer Level of Service. The resulting demand for maintenance and improvement will increase costs and disruptions on the network from works.

A change in the way a road is used will create demand for upgrades to accommodate the new use patterns. For example, the creation of a new sub-divisions or the development of new industrial areas will change the patterns of access for different types of vehicles on different roads as commuter and commercial traffic patterns adjust to the new developments.

A change in the road users' expected level of service may prompt improvements to deliver perceived value for money. Burgeoning communities tend to expect high levels of service, as the assets associated with growing communities are typically new. These expectations may be transferred to the wider roading network and improvements may be required to deliver consistency.

A change in the strategic management of the assets. Council's policies and management strategies are in continual evolution to keep pace with the changing needs of the community, NZTA, and Central Government statutory requirements.

Demand for new or upgraded assets arises from meeting the needs of both the existing and the expected future populations. This demand manifests itself in the need for:

- New roads,
- Sealing of unsealed roads,
- Widening and alignment improvements,
- Upgraded intersections,
- New and upgraded bridges, and
- Upgraded ancillary services.

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7.2 Population and Projections

The population of the Selwyn District has tripled in the past thirty years, from 20,520 in 1986 to approximately 65,600 in 2019. The district has grown by 6% per year since 2013, much higher than the national average of 2%. The population has almost doubled since 2006.

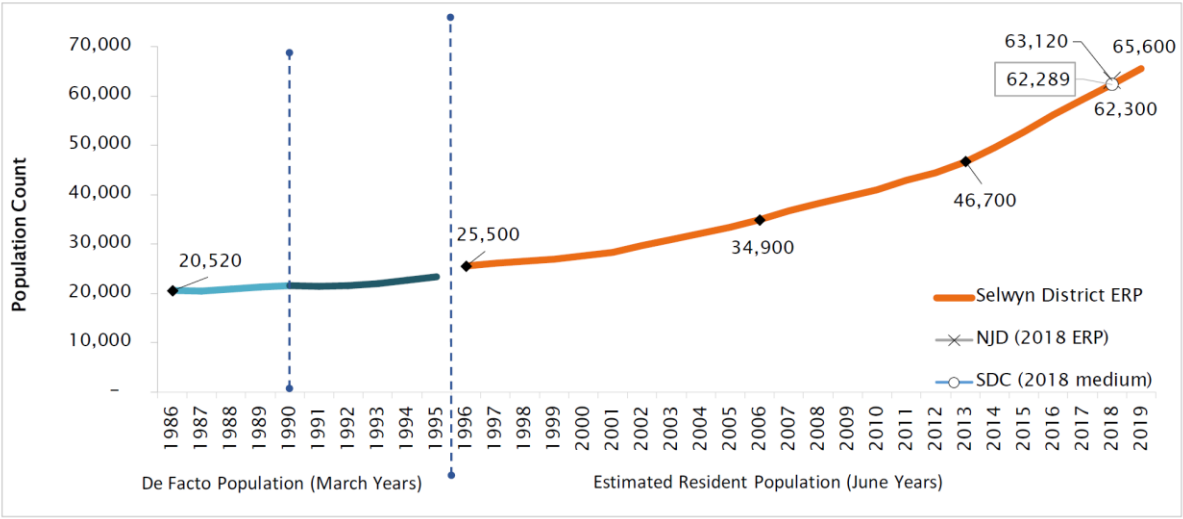

Figure 7-1: *Selwyn District Population Size and Growth, 1986-2019*[1]

The District has seen growth from both migration and natural increase. Selwyn is the third-youngest territorial authority in New Zealand, but the District's population is also ageing at a faster rate than both the Canterbury Region and New Zealand. This does not appear to be caused by significant migration gain at older ages but rather from ageing-in-place. Selwyn has larger growth in residents of older ages than for both Canterbury total New Zealand.

Most of Selwyn's population gains have been driven by regional migration. In recent years this has accounted for over 80% of total growth. The majority of this migration is coming from Christchurch City, with around 70% of new residents moving to Selwyn from the city.

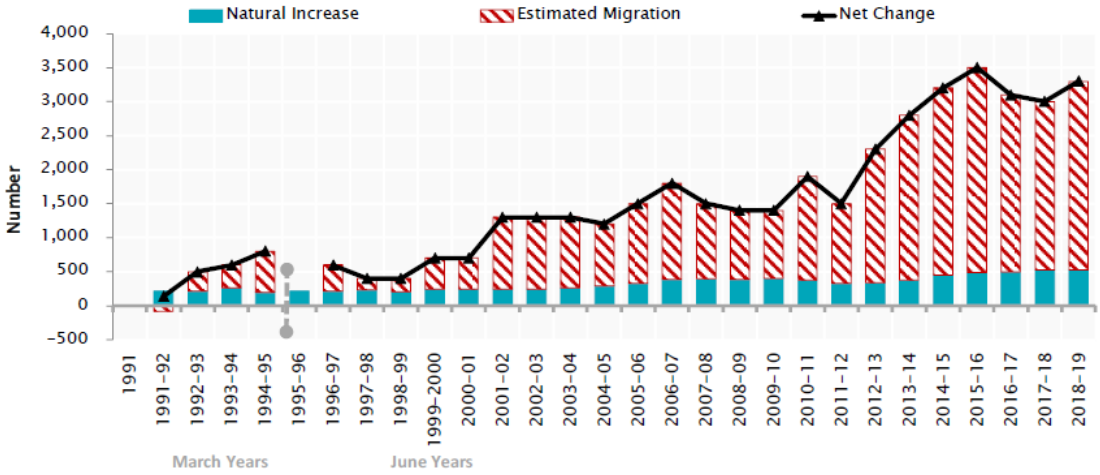

Figure 7-2: *Selwyn District Estimated Components of Change (1991-2019)*[1]

[1] Source: Jackson, N.O. (2020). Selwyn – 2020 Review of Demographics Report (Part A).

7.2.1 District Growth Model

The Selwyn District growth model is used to predict the strength and distribution of growth across the district, which is important to understand in the provision and management of infrastructure in the district. Providing infrastructure in advance of development is the most cost effective method, but care must be taken to avoid constructing speculative infrastructure to service growth that doesn't eventuate.

Selwyn District Growth and Demand

Figure from teara.govt.nz

A Growth and Demand report has been prepared in line with the Long Term Plan process, which contains the population, household and dwelling projections that are used to base infrastructure planning decisions off for the next 3, 10, and 30 year programmes. The model itself takes household projections as inputs and uses these to spatially identify the capacity to facilitate the growth within the district. The capacity estimates are based on the historic trends of development, which are constrained by the operative District Plan at the time of development.

The main considerations for the provision of the transportation system are to anticipate where and when populations will move, to ensure adequate transport infrastructure is available to service the demands of communities while ensuring that there is not over-investment in under-utilised facilities. Figure 7-3 shows the estimated spatial distribution of township growth for Selwyn for the next 10 years, and shows the areas where the most value will be achieved in targeting infrastructure investment.

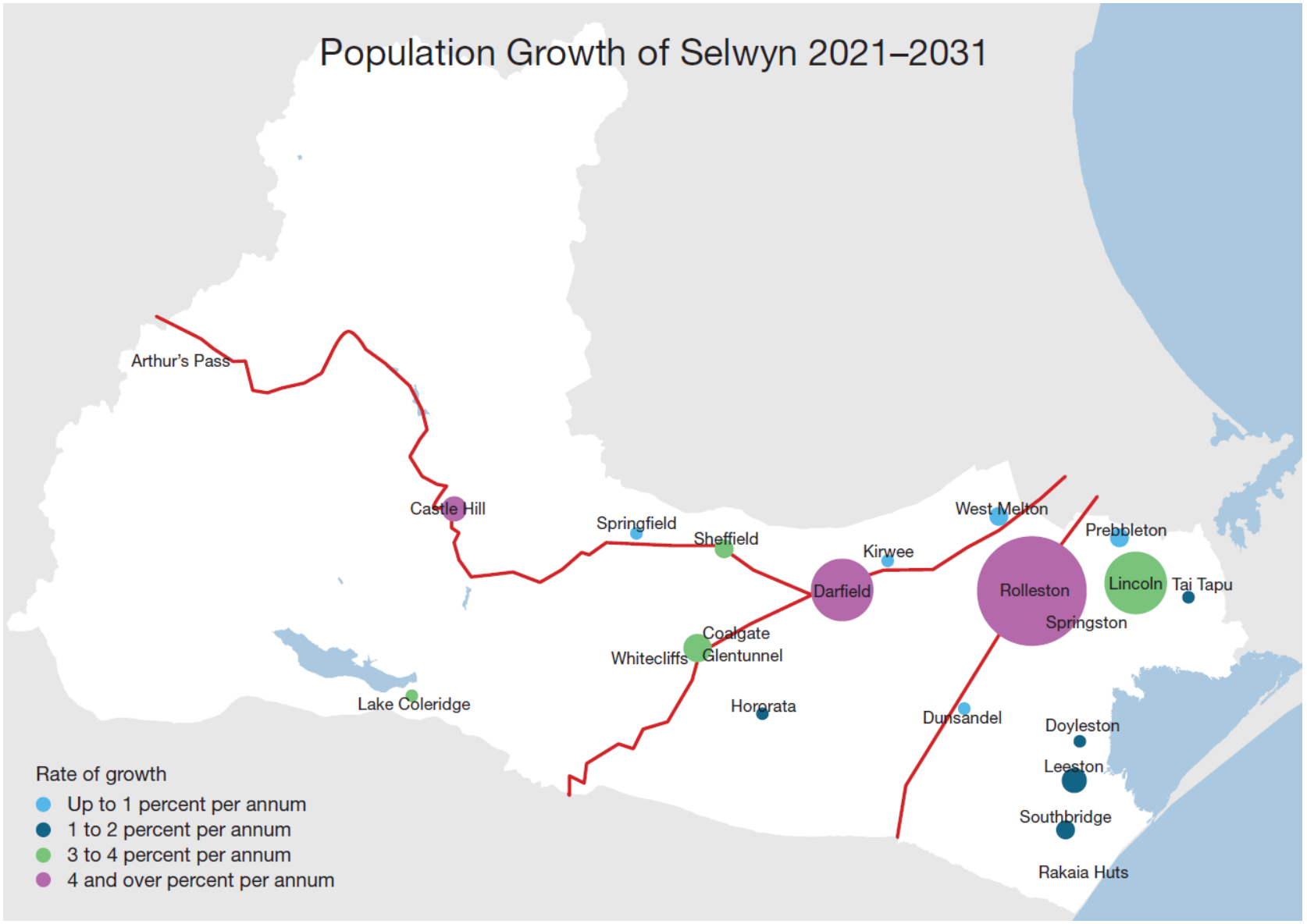

Figure 7-3: *Population Growth for Selwyn 2021-31(Source: Jackson, N.O. (2020). Selwyn – 2020 Review of Demographics Report (Part A).)*

7.2.2 Individual Community Projections

Growth can be expressed in both absolute quantities and percentage increases. While the percentage increases indicated for some of the rural communities are higher, the greatest absolute growth occurs in the peri-urban Greater Christchurch Partnership areas. In the later decades from 2031-51 the Central Selwyn growth rates settle and the majority of the growth is centred within the Rolleston-Lincoln-Prebbleton urban township belt.

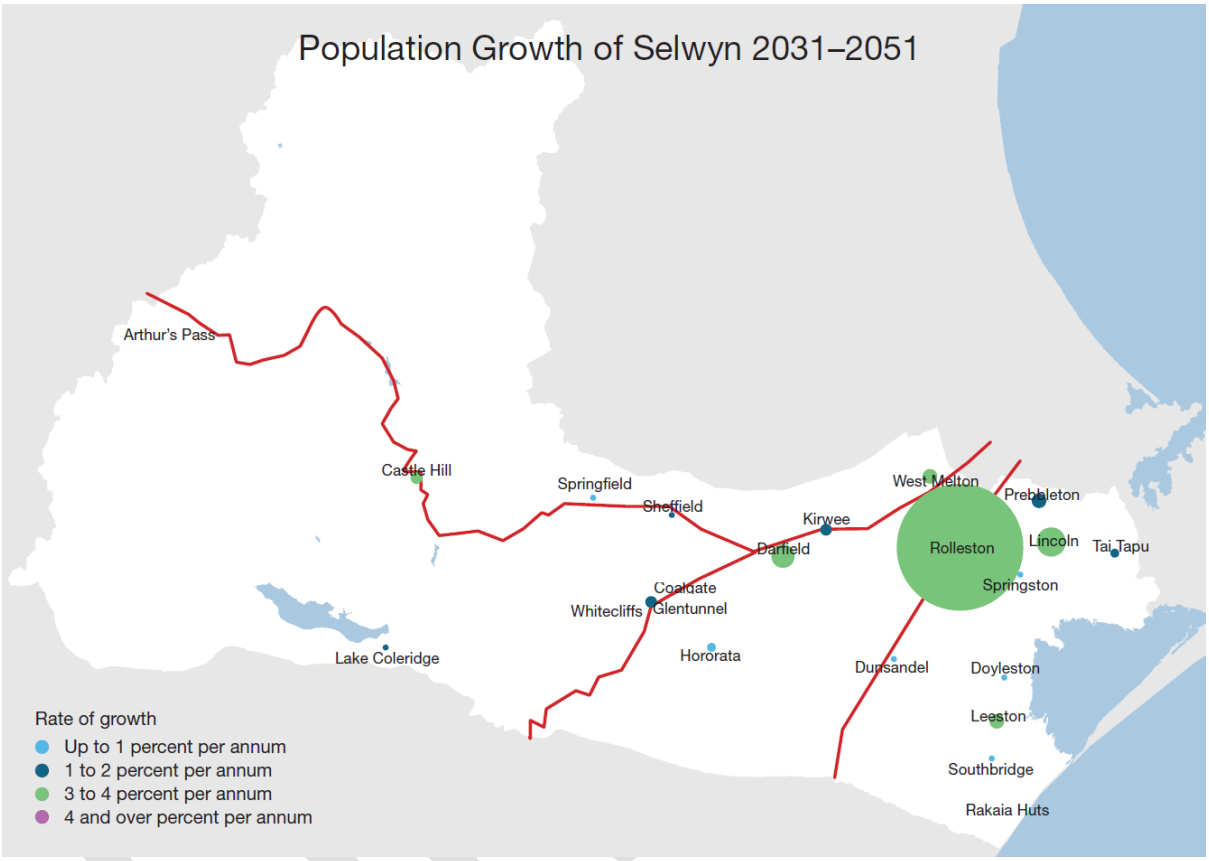

Figure 7-4: *Population Growth for Selwyn 2031-51*[2]

This is reflected in the majority of the planned council investment being concentrated around these centres, particularly town centre upgrades and arterial route safety improvements. Much of the infrastructure required to service the growing outer townships, especially in Darfield and Castle Hill, is created during private development and then vested in Council, and only minor connectivity or safety upgrades are required from Council investment.

The 10-year and 30-year projections for individual townships show that the growth is strongest in Rolleston across both the 10 and 30 year periods. Growth is generally stronger in the first 10 years of the projections for most of the other townships with the rates generally levelling in the latter 20 years. These trends are addressed in the long term plan, and the details of the individual projects that address the new and emerging demand for transport services are found in section 7.5.3 (Growth-Related Works).

[2] Source: Jackson, N.O. (2020). Selwyn – 2020 Review of Demographics Report (Part A).

7.2.3 COVID-19 Implication of Growth Projections[3]

In the wake of the COVID-19 pandemic, economies across the country are expecting to slow. The New Zealand economy is forecast to shrink by 8% with unemployment reaching 9%. The Selwyn economy is expected to weather the impact slightly more optimistically than the national average, suffering only a 5.4% contraction in the economy and a 7.1% unemployment rate.

This slightly more positive outlook can be attributed in part to the resilience afforded by the diversity of the Selwyn economy. Exports of food products remain strong and some commodities exports are increasing. Selwyn's largest industry is the agricultural forestry and fishing sector, and continues primary export strength is likely to support the district's economy. The strength of the dairy sector in the district further bolster's the district's position, as food production is continuing at a similar rate.

Selwyn's relative resilience can also be attributed to the comparatively low exposure to international tourism. Only 32% of the normal tourism spend in the district is from foreign tourists, and domestic tourism spending is expected to hold up much better than international. Domestic tourism is forecast to drop by only 21%, compared with a 91% drop expected in international tourism.

The construction sector will take the largest hit of the industries in Selwyn, with a forecast decline of 27%. Increases in unemployment and decreases in house prices along with tighter bank lending conditions are expected to slow the demand for new home builds in the district. Infrastructure builds however are expected to have slightly higher resilience, with the government's shovel ready project scheme signalling the government's desire to use this channel to try and stimulate the economy's recovery. Strong growth in the population up until COVID-19 and increases to building stock has increased the baseline level of maintenance work required which may further mitigate some amount of downturn for parts of the industry that tend to be less cyclical.

The financial impacts of COVID-19 in the district, while less than some other areas of New Zealand, will none the less also tighten budgets in Selwyn for at least the next year or two. It is likely that these reductions to Selwyn's economy will reduce the Council's revenue and in the wake of this, it becomes vitally important to ensure investments are targeted to return maximum value.

[3] As summarised in the Strategic Business Case, from the report *Economic Impacts of COVID-19 on the Selwyn Economy – Early Estimates*, Infometrics, April 2020

7.3 Population Growth Drivers

Although Selwyn's accelerated growth arch originates before the 2010 Canterbury and 2011 Christchurch earthquakes, the growth accelerated especially quickly after the earthquakes and again after the official red-zoning of many of the eastern suburbs. Even without the impetus of the red-zone to accelerate demand for land in Christchurch's neighbouring districts, both Selwyn and Waimakariri would have expected to cater for the continuing growth of the city. With the sea preventing the city expanding to the east and the port hills slowing expansion to the south due to the comparative extra cost of developing hillside land, the city would expect to naturally grow much more quickly across the plains to the north and west.

The growing demand for new builds to expand the first home and rental markets coupled with the demand for good bearing soils upon which to establish, have created a perfect storm of growth in Selwyn that has continued well after the original earthquakes and will likely carry on long into the future. Particularly in Rolleston where the land is almost entirely TC1[4], the Selwyn district is able to attract homeowners away from the city by virtue of requiring only standard foundations and minimal additional engineering, a cost saving over building particularly in the TC2 and TC3 zones in the city.

With the increasing financial advantages of opting for a new build over an existing property for first home buyers, the demand for new titles is high. Selwyn has significant amounts of land available to open up for residential development, so the demand for properties in the district has stayed consistently high even a decade after the original earthquake events.

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[4]Building.govt.nz, *"Understanding the Technical Categories"* https://www.building.govt.nz/building-code-compliance/canterbury-rebuild/understanding-the-technical-categories/

7.4 Transportation Growth

Selwyn has seen almost unprecedented levels of growth in the last 10 years. There has been almost 65% growth in transportation in the last 10 years, with traffic growing from a low of 304 million vehicle kilometres travelled (VKT) in the 2011/12 financial year to nearly 497 million VKT in 2019/20.

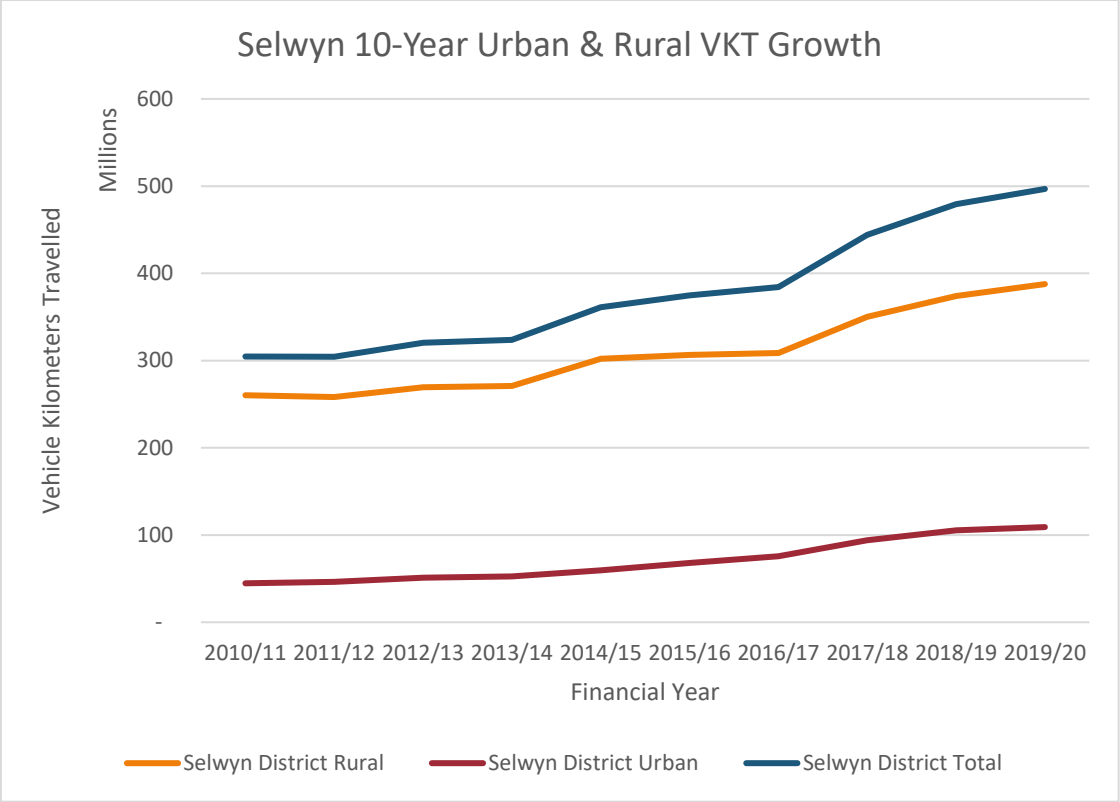

Figure 7-5: *10-year VKT growth (NZTA)*

The high rural VKT growth is accounted for by the main collector and arterial routes connecting the townships within Selwyn together and the Selwyn District to the Christchurch City network are classified as rural where they carry the most traffic between town centres rather than through them.

The main driver for VKT growth in Selwyn has been population growth. Year-on-year increases in network length have also impacted the apparent VKT growth, and the link between the two quantities is important. Generally the network length increases have outpaced VKT growth, allowing the network to have capacity to absorb future growth in trips on existing routes.

Table 7-1: *Comparison of VKT and Asset Growth (TO BE UPDATED FOR 2021 TRAFFIC COUNTS)*

	VKT					
Township	**2006**	**2009**	**2012**	**2015**	**2017**	**% Increase**
LINCOLN	11029056	12818730	14172894	15322707	15394175	40%
PREBBLETON	6396282	6874006	7762256	8956329	9095393	42%
ROLLESTON INDUSTRIAL	2566759	3007166	4000442	7128968	7864125	206%
ROLLESTON RESIDENTIAL	15294868	16000842	20001428	24708917	25747351	68%
WEST MELTON	457503	725391	1089014	1564909	1756098	284%

	Length					
Township	2006	2009	2012	2015	2017	% Increase
LINCOLN	18540	19754	23479	36012	37485	102%
PREBBLETON	14994	23484	24087	29446	31510	110%
ROLLESTON INDUSTRIAL ROLLESTON RESIDENTIAL	50982	56240	60455	89950	99771	96%
WEST MELTON	2090	5253	10980	14362	18131	768%
TOTAL	86606	104731	119001	169770	186897	

Growth in demand and utilisation of the transportation network is driven by a number of physical and social factors. Growth and change in the types of utilisation within the system is also an important consideration in the long term planning and management of transportation networks, so understanding and anticipating the drivers of growth and change are vital to ensuring that transportation investment will meet demand. The amount of employment, the nature of the industries, the relative affluence and access to different transportation modes and the legislative environment all impact the patterns of growth and demand within the transportation network.

7.4.1 Employment

The continuing growth in demand on the transportation system is underpinned by the strong economy in the district, the Selwyn economy generated around $2.7b in 2019 with around 22,500 people employed. GDP and employment have grown steadily faster than the national average in the decade 2009 – 2019, improving productivity and household incomes in the district. Selwyn's economy is still less diverse than the rest of the country and relies on just a few key industries still. The agricultural sector is the largest employment sector in the district, but as the district continues to urbanise increases are being seen in the service and retail sectors and much of the growth in employment is focussed in the peri-urban centres.

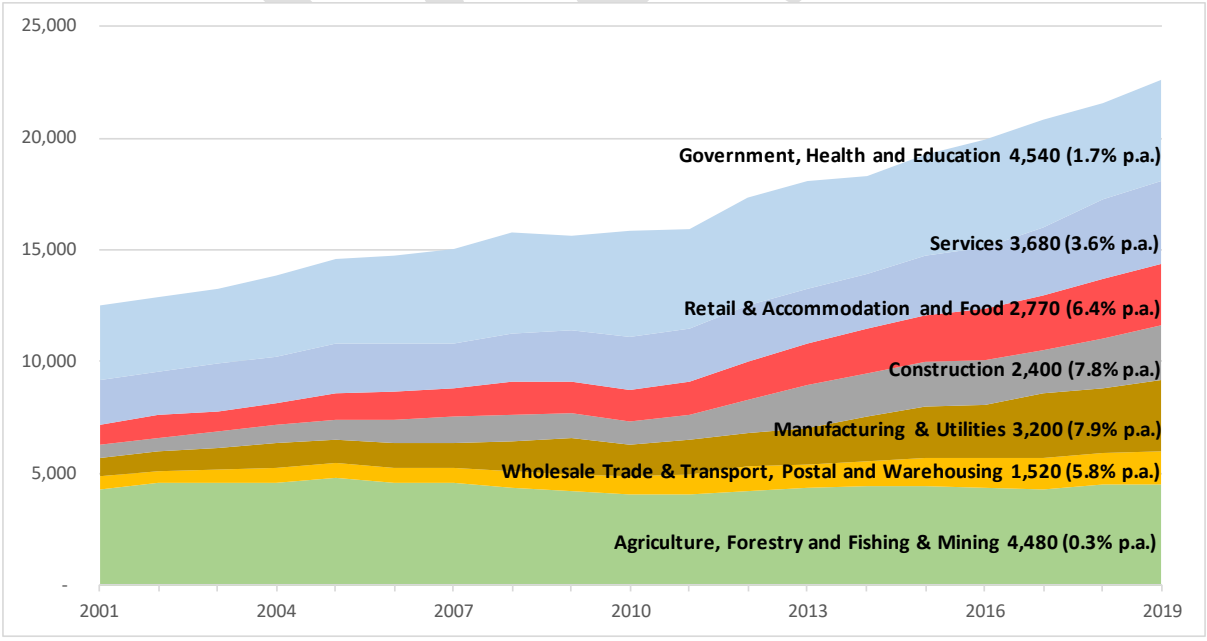

Figure 7-6: *Employment composition of the Selwyn District (Market Economics)*

7.4.2 Agriculture

Agriculture is still the largest employment sector in the Selwyn district. The growth in this employment sector is modest, as the current trends are generally for larger commercial farms favouring machinery

over labour, but the sector generates demand for support services and contributes to the diversification of the economy through stimulating other industries and sectors.

The dairy industry has seen steady increase in recent years, while beef and sheep farms have begun to subside. The Central Plains Water scheme facilitated the provision of water to an irrigable area of 60,000Ha and increased the productive capacity of Selwyn land, assisting with the on-going intensification of dairy farming in the region. In 2008 Synlait opened a new dairy factory outside Dunsandel, in 2015 Westland Milk Products increased its Canterbury presence by building a $40 million plant to make “long life” milk at Rolleston, and in 2012 Fonterra opened a new milk processing plant west of Darfield. Herd sizes and production have remained generally steady year-on-year as domestic and international demand remain high.

These three developments have both changed and increased the patterns of use and demand within the district of heavy commercial traffic, including the freight burdens of moving raw material from farms to plant, and carting the processed milk to retail hubs within New Zealand and to export depots.

7.4.3 Industry

The Rolleston Industrial Area development began in 2000 with the establishment of the Izone development. It has grown to one of the largest industrial park in New Zealand, and is now made up to two parts; the original 188 Ha Izone development and the later 122 ha Iport development. The Rolleston Industrial Area’s key tenants are the Lyttelton Port of Christchurch’s Midland Port inland port facility and the Port of Tauranga’s MetroPort Christchurch facility.

Manufacturing and utilities is the fastest growing employment sector in the district, growing by almost 8% in the last decade, facilitated by the establishment and rapid uptake in opportunities in the Rolleston Industrial area. This had lead to increases in traffic demand within the district, both from increases in light commuter traffic from increased employment opportunities, and from heavy vehicles from increased freight opportunities fromm the new industry.

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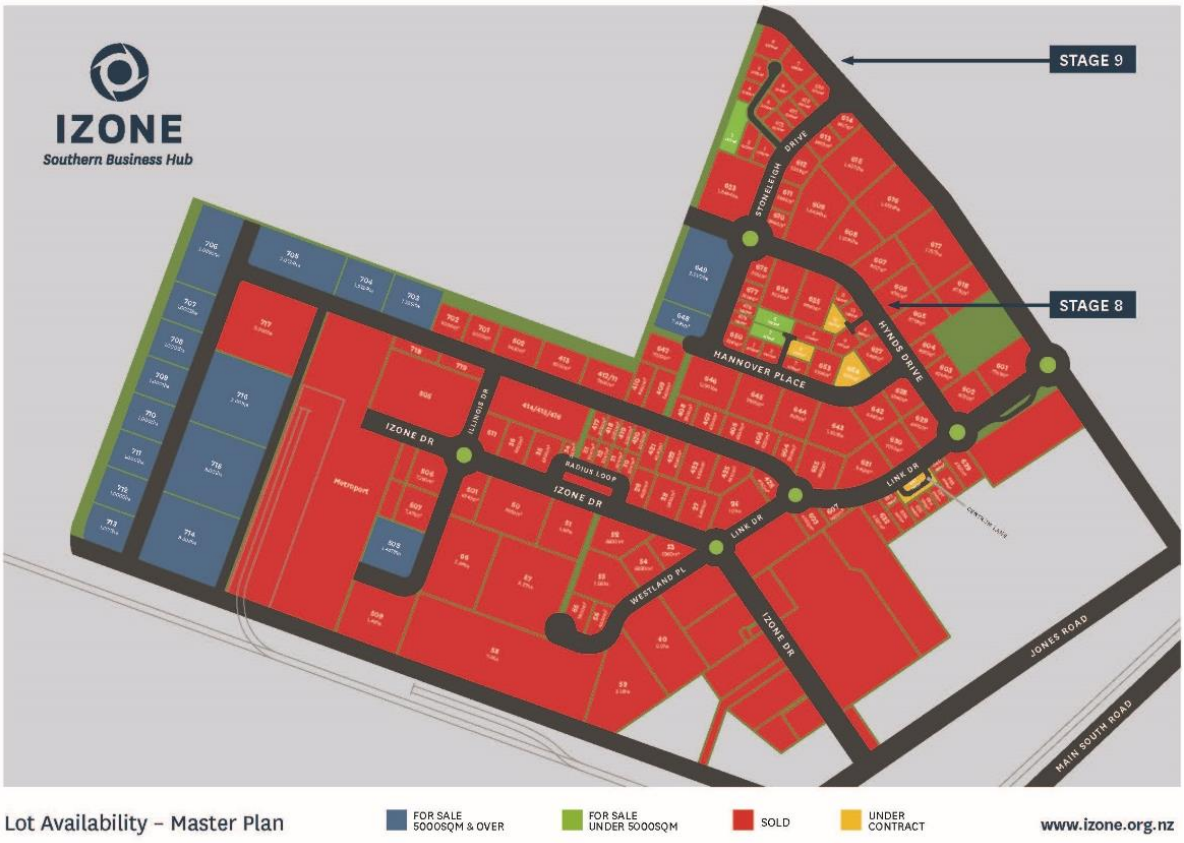

Figure 7-7: *Izone Industrial Park Masterplan (Source: https://www.izone.org.nz/the-development/master-plan/)*

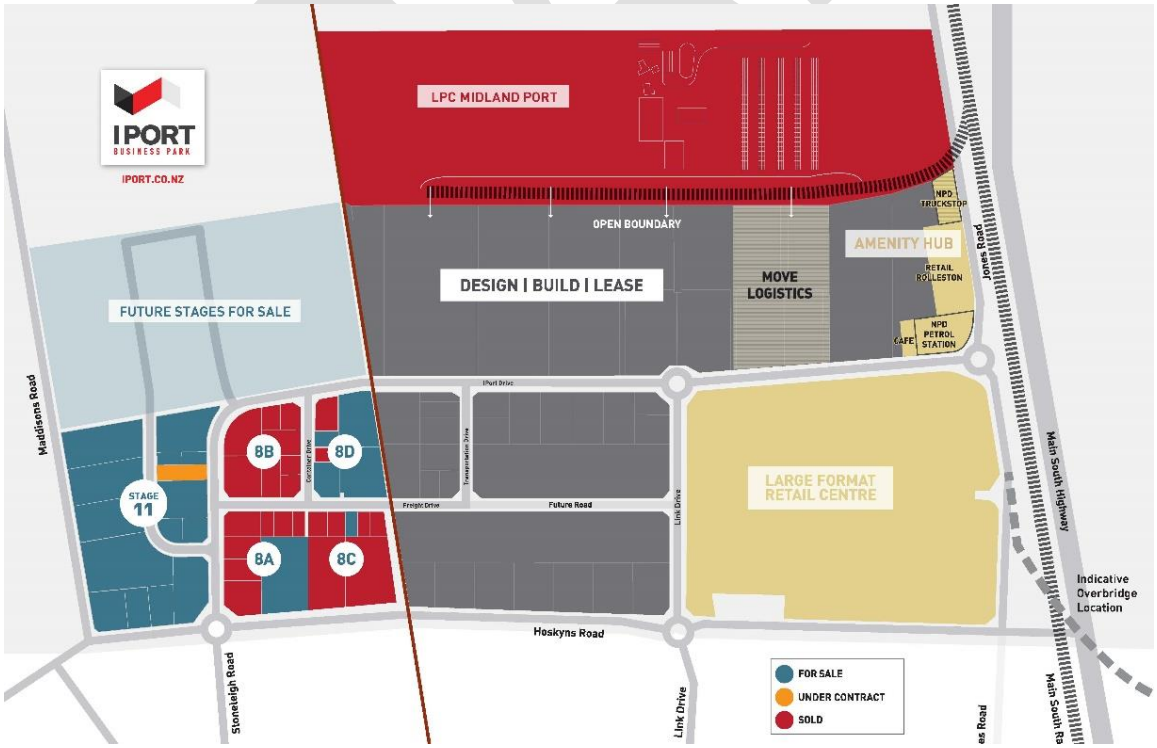

Figure 7-8: *Iport Industrial Park Masterplan (Source: https://www.iport.co.nz/for-lease-and-sale/)*

7.4.4 Tourism

Tourism is an important sector, supported and encouraged by the Council. Under normal conditions tourist numbers had continued to grow nationally, and within the Canterbury region. A number of the small settlements such as Arthurs Pass, Castle Hill, and Lake Coleridge are popular places for holiday homes and recreational facilities. These settlements also provide services and facilities to long-distance traffic. The district plays host to destinations for both summer and winter sports.

Traffic from tourism travels both within and through the district. The majority of throughout tourist traffic is carried on the State Highway Network, though the Inland Scenic Route (Route 72) provides an inter-district connection between tourism and recreational facilities in Selwyn and those in the adjoining Ashburton and Waimakariri Districts and beyond to the Mackenzie Basin, Mt Cook, Hanmer Springs, and Kaikoura areas. Fortunately the network wear-and-tear attributed to tourism traffic represents a relatively small proportion of the total network usage.

7.4.5 Higher Education and Research

Lincoln University is located on the outskirts of Lincoln Township and is widely regarded as a centre of excellence in agricultural and land-use research and development. A number of crown research facilities are located around the university campus; AgResearch, Landcare Research, and Plant & Food research are all located within a kilometre of the campus.

The University facility attracts almost three times as many people to work and study in west Lincoln than those who commute within the meshblock. The majority of daily commuters to the university precinct come from Lincoln East and Springston, the meshblocks immediately next to the campus, however there are measurable arrivals from suburbs within the city as well as these. The main area in Christchurch city that generates trips to the university is Riccarton, which is a popular area for student flats, and indeed that entire trip generation is for education trips.

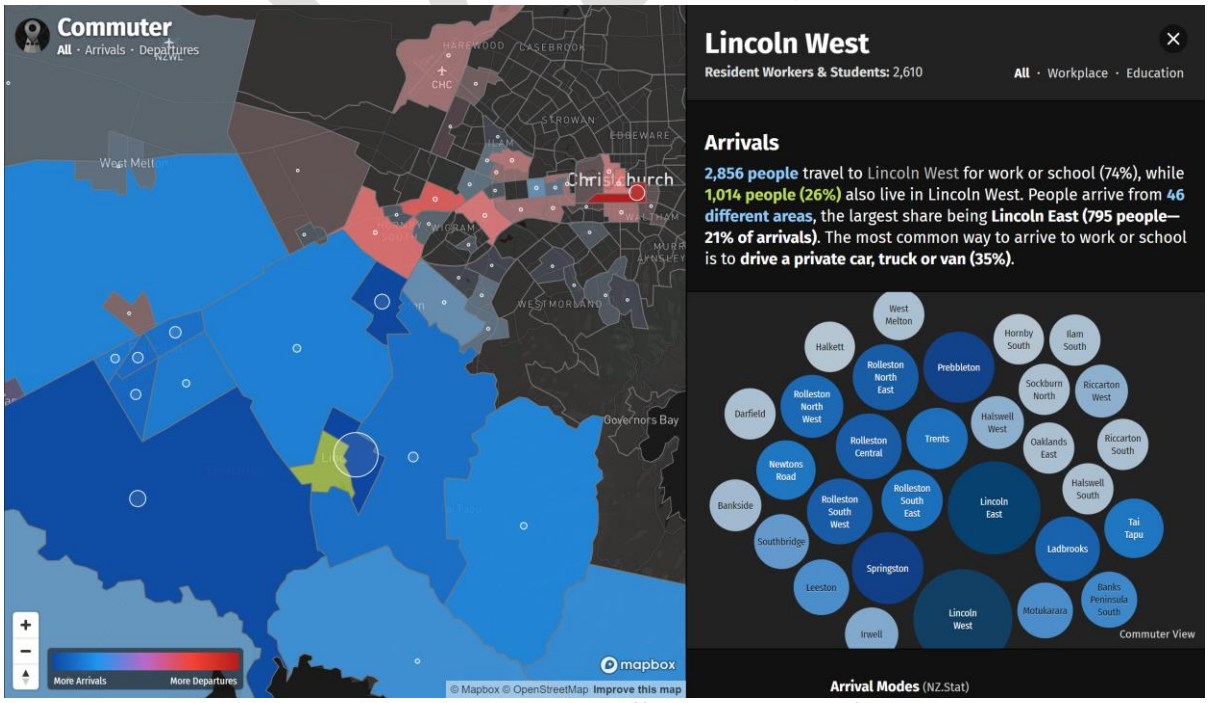

Figure 7-9: *Lincoln West Meshblock commuting statistics (https://commuter.waka.app/)*

7.4.6 Access to Vehicles

Access to vehicles also plays a distinct role in the growth in traffic demand. Vehicle accessibility tends to increase in stronger economic settings. Selwyn has one of the highest vehicle accessibility rates in New Zealand as a result of the strong agricultural and industrial economy in the region. Higher rates of vehicle access lead to increased trip making and subsequent increases in traffic volumes, which can result in increased congestion and travel delays on busy routes and safety risks.

The District is following the national trends towards smaller households, and greater access of each household to motor vehicles. The number of vehicles in the District is therefore expected to continue to increase at a faster rate than the population growth-rate.

The major influences on the level of car ownership and vehicle access include:

- General level of economic activity,
- Real cost of motoring,
- Public transport availability,
- Household structure,
- Population demographics,
- Legal driving age, and
- Road-user preferences.

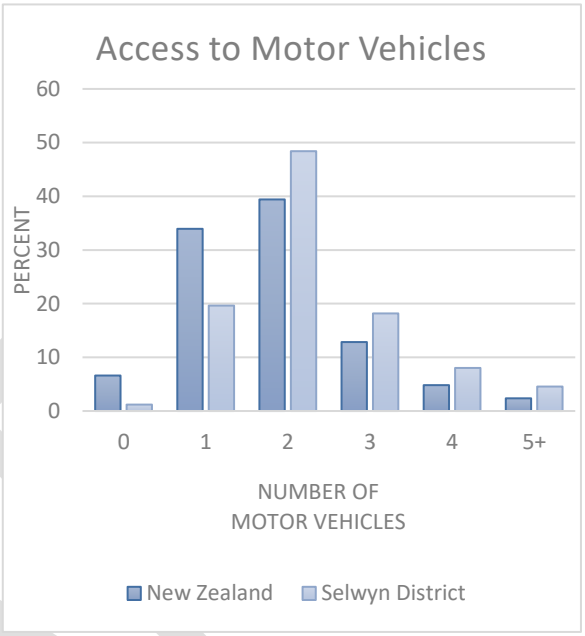

Figure 7-10: Access to Motor Vehicles at 2018 Census (Stats NZ)

These factors will have different effects in urban and rural areas, given the changing demographic patterns in each.

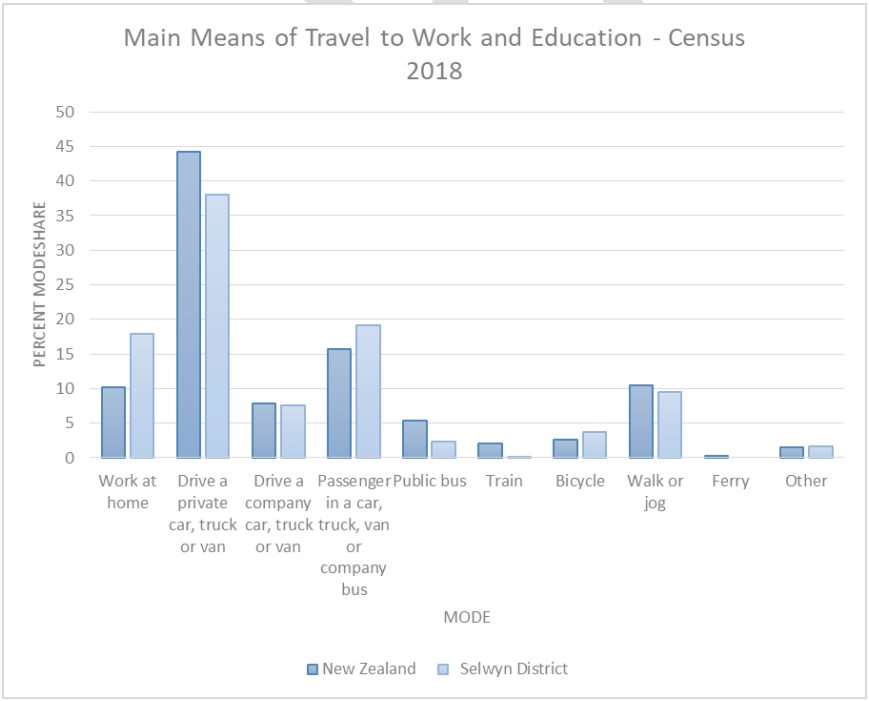

Figure 7-11: Means of Travel for Commuting Purposes – Census 2018 (Stats NZ)

Private and commercial light vehicles remain the most popular choice for commuters to both work and education nationwide. In past Census and household travel surveys Selwyn has skewed more heavily than the national average for this mode choice but in the 2018 census Selwyn sits much closer to the national distribution for light and commercial vehicle modeshare, as people increasingly opt for active modes or working from home. VKT growth in Selwyn is exacerbated by higher than average rates of vehicle access and use.

7.4.7 Mode Choice

Mode choice increasingly has an observable impact on traffic volumes, and plays a key role in travel demand management strategies employed to control traffic demand and growth.

In 2008 agreement was made between ECan, Christchurch City, Selwyn District and Waimakariri District Council to jointly fund the Ministry of Transport Household Travel Survey. The survey is a well-established national travel survey, and additional sampling was undertaken to allow annual sub-regional analysis of travel mode behaviour and mode choice. The household travel survey information is helpful in helping create targets for walking and cycling modeshift that are realistic and achievable.

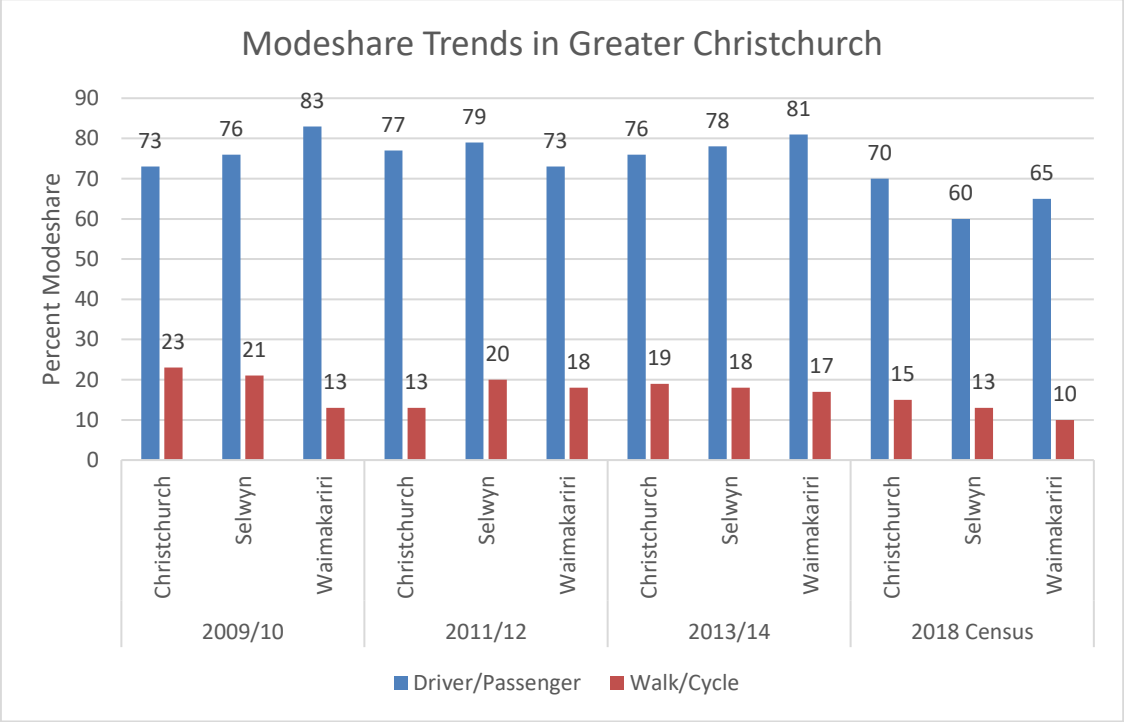

Figure 7-12: *Modeshare comparison between Selwyn, Waimakariri, and Christchurch City (Household Travel Survey & 2018 Census)*

7.4.8 Legislative Change

Changes to legislation can introduce changes to the demand for transport services. Typically such changes will affect the characteristics of the traffic (e.g. truck weight limits) or the management of the transportation activity (e.g. Government Policy Statement). Changes in government tend to lead to changes to transport policies, to match the new governments' over-arching priorities. At the time this AMP was prepared there is no future legislation changes expected that will have a significant impact on the transportation activity. It is accepted that legislative change can occur at any time and that the impacts of such changes can be broad or specific. Council's assumptions for strategic planning accepts the legislative framework that is in place at the time of planning.

7.5 Planning for Growth and Demand

The main impacts of known future growth and demand trends on Council's roading assets are:

- Increased trip making resulting in demand for better pavements, signage, delineation and footpaths.
- Increasing customer expectations and levels of service – resulting in a demand for better surfaces (especially unsealed – e.g., grading frequency of unsealed roads to reduce dust.
- Growth in the dairy farming sector significantly increasing the frequency of heavy loads on pavements along dairy routes, resulting in faster pavement deterioration, increasing maintenance costs, and increasing the demand for more seal.
- Significant heavy traffic associated with the development of the two inland ports in the Rolleston Industrial Zone.
- Growth in tourism is creating pressure for the sealing of more unsealed roads, enhancement of signage for navigation purposes (e.g., information signs), a "no surprises" driver environment, and increased safety.
- Maintenance costs increasing due to the assets acquired by Council from subdivisions.

7.5.1 Asset Capacity

The capacity of roading assets refers to both the ability to carry traffic through a physical space, and their ability to physically resist the destructive forces of carrying traffic. Under prevailing conditions, most of the principal rural two-lane roads can be expected to carry up to 4,800 vehicles/day without a significant decrease in the level of service or physical condition. Many of the District's roads are operating far below capacity and are unlikely to exceed it in the near future. Figure 7-13 breaks up the length of the districts roading network by the amount of traffic it carries (Average Daily Traffic, ADT), and the largest proportion of the network carries less than 100 vehicles per day.

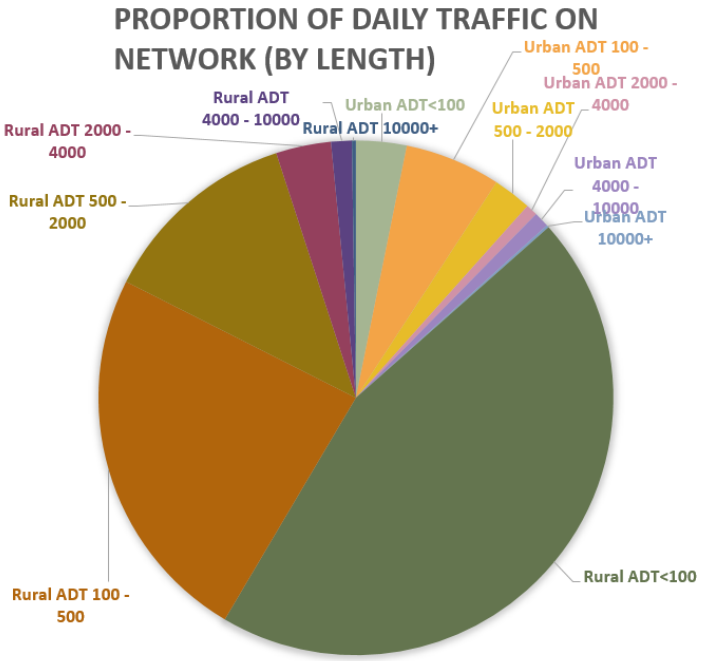

Figure 7-13: *Proportion of Daily Traffic on the Selwyn Network (RAMM)*

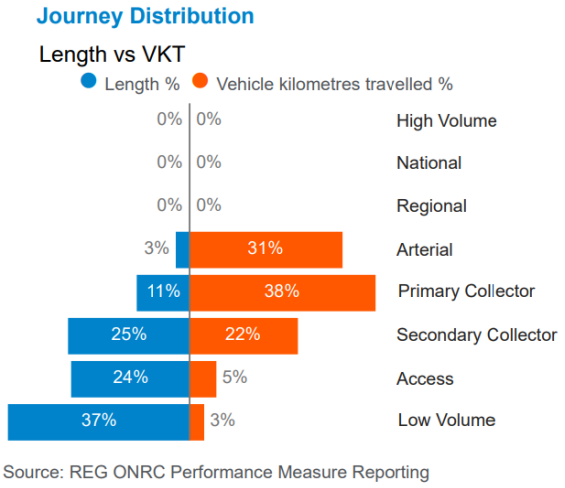

Figure 7-14: *Selwyn District network journey distribution (REG RCA Review)*

they serve.

However there are some key routes on which the roads are having difficulty meeting the demand, and where growth will continue to put increased strain. VKT will naturally distribute with the majority of trips being made on the highest volume routes, and Selwyn's high volume arterial and collector routes are feeling the greatest pressure from use and exhibiting the greatest deterioration in condition and levels of service from growth in utilisation.

The pressure on the high volume arterial and collector routes places additional pressure on intersections. Changes of intersection controls are increasingly required to respond where the capacity of intersections has been exceeded due to growth in demand on one of more of the roads

7.5.2 Transportation Models

In order to understand the impacts of growth on the transportation network and when Council should respond with road improvements, Abley Transportation Consultants have been engaged to develop and maintain transportation models for the rapidly growing Eastern Selwyn townships. The traffic model is used to estimate the impacts of development and land use change on the transportation system, and to evaluate the effectiveness of mitigations and improvements. The models have been regularly updated since establishment with the latest land use and traffic count information for calibration and to ensure that they remain relevant and accurate. The information sheets below provide an overview of how the Selwyn Traffic models work.

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ConnectBetter

SELWYN TRAFFIC MODEL INFORMATION SHEET

Prepared for: Selwyn District Council
Job Number: 4494-00
Issue Date: 6 March 2015
Prepared by: Jared White, Senior Transportation Engineer

1. INTRODUCTION

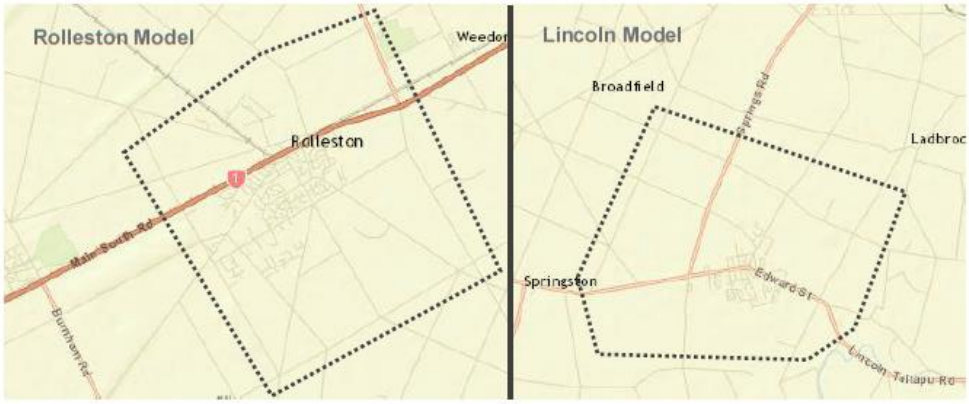
The Selwyn District Council (SDC) has commissioned Abley Transportation Consultants (Abley) to prepare this short note to provide a summary of the inputs to the two sParamics Microsimulation (Paramics) models of Rolleston and Lincoln and how the models have been used to support traffic planning in the District.

Paramics is widely used throughout New Zealand and across the globe to provide a visual assessment of intersections, road corridors or entire road networks. It is known as a microsimulation tool because it simulates actual driver behaviour and interactions on a true to scale road network. Drivers in this virtual network have to find gaps in opposing traffic streams on their journey from A to B in the model and will come across queues at pinch points and intersections, much like a typical journey in real life such as driving from home to work.

2. MODEL INPUTS

The geographical area that represents each model is shown in Figure 2.1 and the model includes all roads within the areas that are highlighted.

Figure 2.1
Paramics Model Extents



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All of the existing households and jobs within the areas in Figure 2.1 are grouped based on Stats NZ meshblock boundaries and these areas, known as zones, form the origin or destination of vehicle trips in the model. The number of trips to and from each zone depends on the amount and type of activity and are informed by industry standard rates. Each model was validated to observed traffic counts so that the model's closely replicate turning movements at intersections and traffic flows on major roads.

After validating the base models the future models were created by including expected growth in household, commercial and industrial activities. The vehicle generation rates calibrated in the validation process are applied to the growth areas creating a future traffic demand. In each of the future models any committed infrastructure was included such as the improvements along the State Highway as part of the Christchurch Southern Motorway projects. New roads in the residential areas are based on the proposed road networks in the ODP areas.

For Rolleston the future growth included the following as advised by Council:

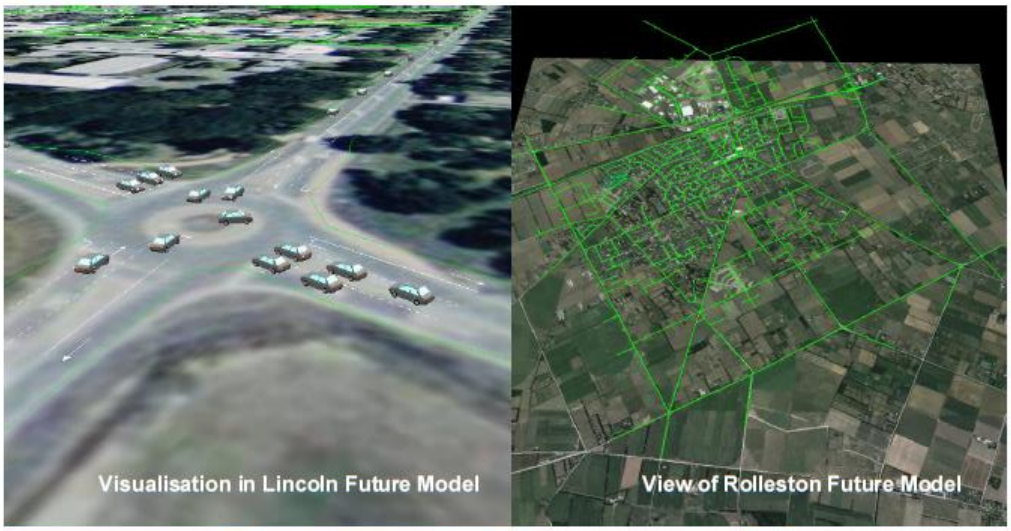
- Household growth in the ODP areas set out by the District Plan (Approx. 5625 HHs);
- Approximately 72,000m^2 GFA in the Town Centre informed by the Rolleston Town Centre Master Plan;
- Industrial land near IZONE included:
  - Completion of all IZONE stages;
  - 32Ha in Cockburn Block (Priority Business Area under the LURP);
  - 122Ha in Carters Block (Priority Business Area under the LURP).

For Lincoln the future growth included the following as advised by Council:

- Household growth in the ODP areas set out by the District Plan (Approx. 4100 HHs);
- Increased activity in the town centre and transitional commercial area between the town centre and New World supermarket;
- Commercial development in Business 2B/Living Z land south of the University;
- Increased activity at the University and Agriculture Research Centres.

Some visual outputs of the future models are shown in Figure 2.2 including the Springs Road / Gerald Street roundabout upgraded to signals and an aerial view of the Rolleston future model

Figure 2.2
Paramics Model Examples



Our Ref: 4494 SDC Traffic Model Information Sheet.docx
Date: 6 March 2015
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7.5.3 Growth-related work

The transportation system provides the fundamental access function between and within housing areas, and is therefore directly affected by changes in land use and development in subdivision areas. Some of these effects may be very minor local effects, and others can be significant at a network level.

Growth demands are addressed in the following ways:

Subdivision Commitments	The attributable effects of new developments on the adjacent sections of the network
Greater Christchurch Urban Development Strategy (UDS)	How growth will be managed over the wider greater Christchurch area and how transport networks are expected to accommodate this growth. Transport networks can include the roading, walking and cycling and public transport networks

Council often co-funds the roading upgrade works undertaken to facilitate development to attract developers by reducing the burden of improvement placed on them. The shorter turn-around time for subdivision development means that the planning windows are generally much shorter and the corresponding needs for subdivision commitment expenditure can be difficult to define and predict over a 10-year programme period. Prebbleton, Lincoln and Rolleston are the main high growth centres and under the Greater Christchurch Urban Development Stretegy are planned to continue to keep growing to 2041. The District's townships outside the greater Christchurch area will have more restrained and steady growth reflecting their individual characteristics.

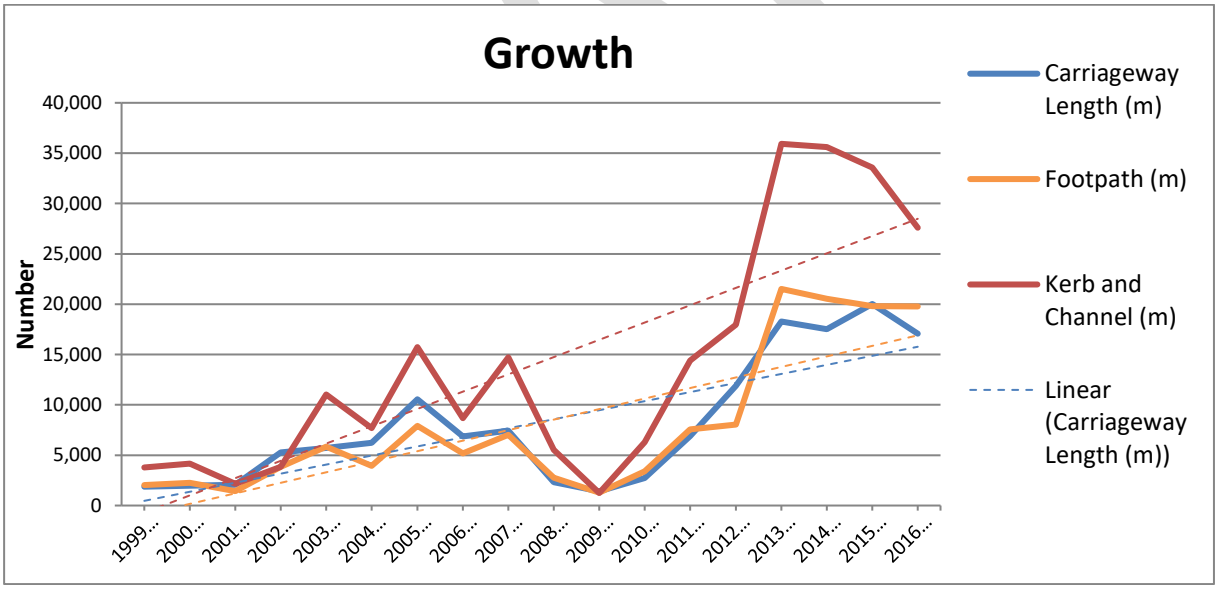

Figure 7-15: *1999 to 2020 Growth in vested asset lengths (Transportation Vested Assets Summary – 3 Year Average at 2017 TO BE UPDATED)*

Where a new development fronts an existing legal road, improvements will often need to be made to it; sometimes improvements are required to other parts of the wider network, separated from the subdivision. These improvements can include footpaths, kerb and channel, access improvements, increased seal width, and improved sight lines and improvements to adjacent intersections. Existing roads are also upgraded as a result of new subdivisions or changes in land use if the additional traffic generated is significant enough to warrant a contribution being imposed on the developer to mitigate its adverse effects on the network.

7.6 Development Contributions

Development contributions are contributions required from developers to help offset the effects of growth they have induced on the network. They are levied under the Local Government Act 2002. Financial contributions (or subdivision charges) are costs required of developers to avoid, remedy or mitigate the adverse effects of their developments on the environment, built or natural. They are levied under the Resource Management Act 1991

Works that include a growth component can be considered for a development contribution – based on the cost of providing additional capacity for growth. Providing additional capacity for an enhanced level of service as well, shown here as the higher of the two sloping lines, may still attract a growth component but it will be of a lesser proportion.

The Council prefers to utilise its development contribution policy for establishing upgrade contributions for any improvements remote from the subdivision. The roads over which such contributions are sought generally have to be adjacent to the development in urban areas. Development contributions can also be applied on a wider network-level basis for infrastructure needed to support the resulting wider traffic growth.

Subdivision charges are levied for specific works that need to be carried out on roads adjacent to new developments, where the standard of the road is inadequate for the development. Improvements will often be made to the existing road network in association with subdivision, for example new footpaths and kerbs and channels, access improvements, increased seal width, improved sight lines, etc. The costs of these works are shared by the Council, based on projected traffic volumes.

7.6.1 Subdivision Commitments

Existing roads are upgraded as a result of new subdivisions or changes in land use if the additional traffic generated is significant enough to warrant a contribution being imposed on the developer to mitigate its adverse effects on the network.

When a developer contributes to any upgrading there is then an obligation on the Council that the work will be completed in a reasonable time. Such works are considered for inclusion in the Long Term Council Community Plan, and any subsequent Annual Budgets, following receipt of payment. Alternatively, a developer may suggest carrying out the upgrading work in conjunction with the construction of the subdivision. The Council only approves of this practice on a case-by-case basis; the developer then pays the full cost at time of construction, and the Council's share is reimbursed following approval of the Annual Budget at the commencement of the appropriate financial year. Usually there are is practical and economic efficiency with this approach for both the Council and the Developer.

Until recently, the nature of subdivision development gave Council little, if any, control over the timing and implementation of development projects. Recent strategic planning initiatives, such as the greater Christchurch Urban Design Strategy, are attempting to control the amount and staging of growth ensure that it and the supply of supporting infrastructure is sustainable and achievable. The development of Structure Plans have provide greater certainty in the urban form likely to develop and deemed appropriate. This enables coordinated planning to occur and opportunities for lead infrastructure to be provided by Council and funded by development contributions.

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Figure 7-16*: New Traffic Lights at Rolleston and State Highway 1 (partially paid by Developer Contributions)*

In some instances, it is possible for the Council to refuse consent for developments requiring extensive upgrade work where the investment does not represent value-for-money for ratepayers, but such circumstances are relatively rare and the burden of justification lies with the Council.

7.6.2 Subdivision Development

Developers pay the full cost of development within new subdivisions, with new assets being vested in Council upon completion and the issuing of subdivision titles. The on-going maintenance and renewal of the new roads and associated assets built in these developments is the responsibility of the Council.

The policy for development contributions that may be charged for future subdivisions is established at a Council level, as provided for under the Local Government Act 2002. This Policy identifies those works that are known to be growth related and sets appropriate charges for development contributions under this policy.

Significant development is proposed around Lincoln and Rolleston. This was signalled in the Greater Christchurch Urban Development Strategy and its effects on wider road network were considered in the CRETS Study. However the local amenity needs, such as the need for new footpaths on the existing roads bounding these developments, were not. New commercial and industrial development also result in further new roads being vested in the Council. Maintenance and renewal costs will increase as new developments are completed and vested in Council.

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Figure 7-17: *Vested Assets – by Length at 2017 (TO BE UPDATED)*

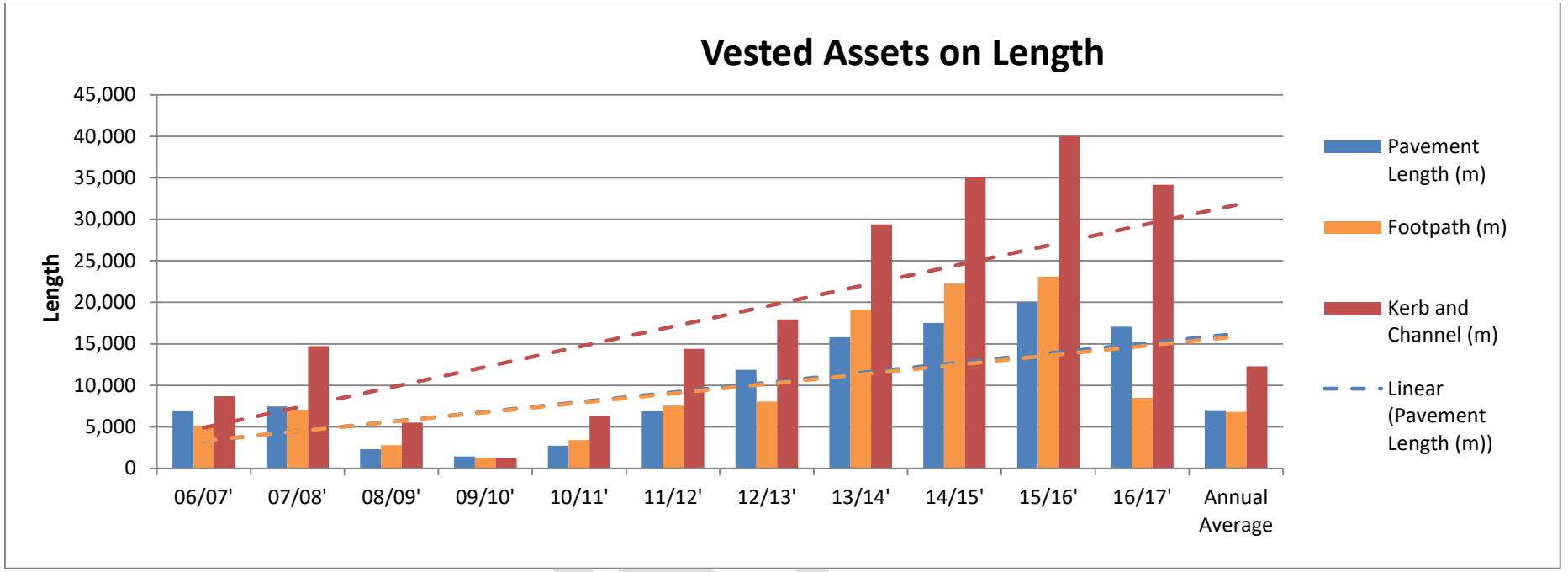

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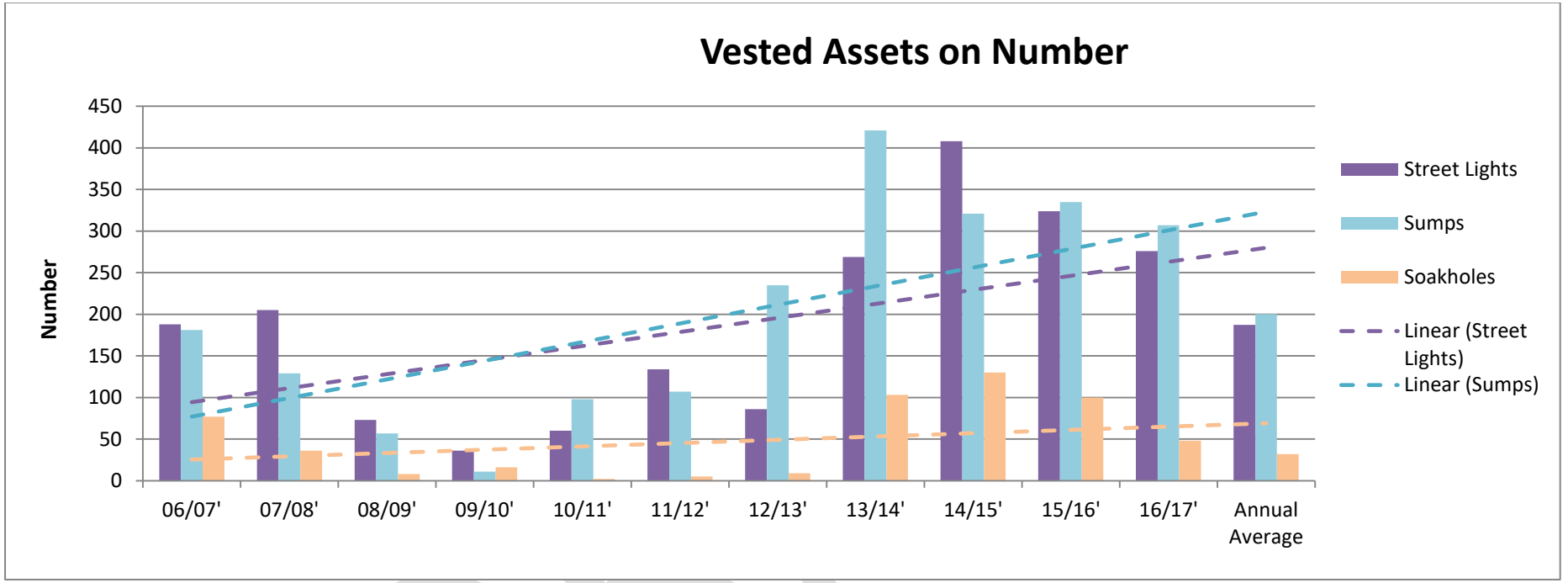
Figure 7-18: *Vested Assets — by Number at 2017 (TO BE UPDATED)*



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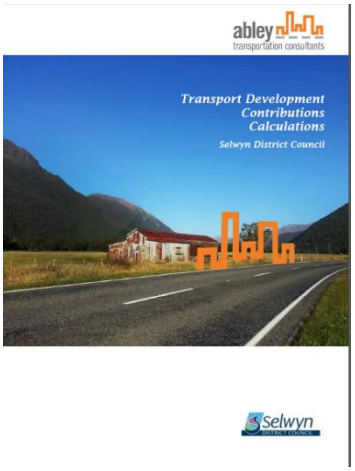
7.6.3 Transport Development Contributions Calculations



In late 2014, Council commissioned Ableys Transportation Consultants (Abley) to develop a methodology to calculate development contributions to support the various transport related infrastructure projects included in the 2015 update to Council's LTP.

This is contained in the 2015 report titled "Transport Development Contributions Calculations Selwyn District Council". This report is currently being refreshed for the 2018 LTP and is currently in draft format.

Extracts from the 2015 report follow.

The transport infrastructure requirements are required to support the significant growth in residential, commercial and industrial activities within the district especially in and around Rolleston, Lincoln and Prebbleton. The transport infrastructure projects have been identified through prior traffic modelling exercises within Paramics in the Rolleston and Lincoln townships and the Christchurch Rolleston and Environs Transport Study (CRETS) for strategic and district wide analysis

This report provides details on how the various inputs have been utilised to develop the methodology to calculate development contributions within the District. The report contents are divided into the following sections:

- *Section 2 describes the growth projections for residential, commercial and industrial activities;*
- *Section 3 details the methods for allocation project growth costs to activities and addresses development contribution catchments;*
- *Section 4 presents the details on the calculated development contribution rates; and,*
- *Section 5 provides a brief summary.*

The methodology focusses on outputs of the Rolleston and Lincoln Township Paramics models which have been used to isolate traffic demands associated with growth. The demands are assessed on a project by project basis and apportioned to residential, commercial and industrial activities. The projects in Prebbleton are informed by an origin-destination survey which also helps determine the treatment of traffic interactions between the three main townships.

The SDC support a two catchment system to collect development contributions within the District. The main catchment is the Eastern Selwyn Development Area that is the Selwyn District portion of the UDS boundary surrounding the western fringe of Christchurch. This catchment contains most growth and related infrastructure. The remaining part of the district is referred to as Western Selwyn which takes in mainly rural areas of the district but some towns such as Darfield and Leeston.

An analysis of the Statistics New Zealand 2013 Census Journey-to-Work data revealed that the travel patterns outside of the main urban areas within the ESDA are very similar to those inside the ESDA so there is some rationale for applying one rate for the whole ESDA catchment. While there was variability in the household based development contribution rates between the three main townships a summary of the growth related costs and development contributions is shown in Table 5.1 assuming a weighted average rate for households within the ESDA catchment. It is anticipated that approximately 33% of the growth component of the transport infrastructure costs will be recoverable through development contributions.

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Table 5.1 is an extract from the latest Development Contribution Report.

Table 5.1 Development Contributions Summary

Item	Value	$/HH	$/100 sqm	$/Hectare
Total SDC Infrastructure Cost	$88,801,933			
Total SDC Growth Cost	$66,915,692			
DCs within ESDA	$15,692,121	$1,354		
DCs outside ESDA	$2,594,834	$529		
Commercial DCs	$4,951,004		$7,034	
Industrial DCs	$2,752,754			$17,238
Total Recovered	$25,990,713			
%age recovered	39%			

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7.7 Growth Related Projects

Selwyn has a huge amount of growth-related work to undertake in the next 3, 10, and 30 years, both to catch up on the previous historical growth and to pre-empt the expected growth in the future.

7.7.1 Prebbleton Arterial Intersection Projects

Improvements are needed to the surrounding Prebbleton roading network to cater for the increased and changing traffic movements to access the motorway interchange at Shands and Marshs Rd. This includes installing roundabouts and widening roads along a number of key roads connecting to the new motorway, as traffic volumes along these roads are expected to increase significantly as once the motorway opens. This is described further below.

Prebbleton has been experiencing an increase in traffic volumes following the construction of the Christchurch Southern Motorway. The key rural intersections around Prebbleton are not designed for current traffic volumes. The projects below were worked out with NZTA via the Prebbleton Arterial Intersection Business Case and all projects below are expected to attract NZTA subsidy. The timing of these projects have been worked out with NZTA.

Prebbleton projects:

- Springs/Hamptons Rd Roundabout (2024/25) - $3,500,000
- Hamptons Rd Widening (2024/25) - $500,000
- Shands/Hamptons Rd Roundabout (2023/24) - $5,000,000
- Trents Rd widening (2022/23) - $385,000.
- Shands/Trents Rd Roundabout (2022/23) - $4,500,000

7.7.2 Cycleways

Council is continuing to expand our main cycleway networks. The aim is to provide a network of safe off road cycleways along increasingly busier roads that will connect our main townships together, particularly in Eastern Selwyn. This builds off the success of what has been achieved with the "Rail Trail" linking Hornby to Lincoln. However the rate of expansion of the network will be influenced by the more pressing funding priorities relating to the need to respond to the rapid growth in traffic and supporting roading improvements at Rolleston and Prebbleton to create connections to the Southern Motorway. Cycleways that are likely to attract NZTA funding assistance are *italicised.*

New cycleways determined to be a high priority by Council are planned for:

- Darfield to Kirwee Cycleway (2032/33) - $2,400,000.
- *Templeton to Prebbleton Cycleway (2023/24) - $1,200,000.*
- *Springston to Rolleston Cycleway (2040/41) - $1,200,000.*
- *Springs Road to Lincoln Cycleway (2046/47) - $444,000.*
- Leeston to Southbridge Cycleway (2036/37) - $3,250,000.
- *Glentunnel to Whitecliffs Cycleway (2021/22) - $360,000*
- Darfield to Sheffield Cycleway (2038/39) - $3,840,000.
- Sheffield to Springfield Cycleway (2043/44) - $2,940,000.
- West Melton to Kirwee Cycleway (2047/48) - $3,960,000.
- West Melton to Waimakariri Cycleway (2050/51) - $3,300,000.
- Mountains to Sea Cycleway (Feasibility Study) (2022/23) - $150,000
- *Prebbleton to CSM1 Cycleway (2031/32) - $500,000*

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7.7.3 Seal Widening

Seal widenings have a benefits that can be realise through safety improvements, capacity increases, and positive lifecycle management outcomes. Seal widenings increase the physical width of the road environment, allowing traffic to travel more quickly by increasing the perceived space on the road. Widening also provides additional recovery margin for added safety benefit, and moves the physical edge away from the wheelpaths of vehicles which reduces the deterioration of the pavement from edgebreak.
Projects that are likely to attract NZTA funding assistance are *italicised.*

- Weedons Road widening (2032/33) - $1,475,000.
- Hoskyns Road widening (2022/23) - $1,600,000.
- *Ellesmere Road widening (2024/25). $1,950,000.*
- Wards Seal widening (2046/47) - $4,550,000.
- Weedons Road widening (2030/31). $1,000,000.
- Leaches Road widening (2036/37) - $4,500,000.
- Two Chain Road widening – Stage 2 (2040/41) - $850,000.
- Alyesbury Road (2044/45) - $2,325,000.
- Burnham School Road (2034/35). $450,000.

7.7.4 Seal Extensions

Seal Extensions gradually increase the footprint of the sealed road network by progressive sealing unsealed sections of road across the district.

- Coaltrack Road extension Stage 1 (2026/27) - $612,500.
- Coatrack Road extension Stage 2 (2033/34) - $490,000.
- Coaltrack Road extension Stage 3 (2033/34) - $420,000.
- Tancreds Road extension (2022/23) - $245,000.
- Kerrs Road extension (2032/33) - $280,000.
- Brookside Road extension (2030/31) - $700,000.
- Kings Road extension (2037/38) - $262,500.
- Creyke Road extension (2033/34). $332,500.
- Clintons Road (Bangor). (2035/36) - $245,000.
- Kynvetts Road (2039/40) - $630,000.
- East Maddisons Road Extension (2032/33) - $210,000
- Clintons Road (2041/42) - $525,000.

7.7.5 Te Ara Ātea and Rolleston Town Centre projects

Rolleston's population is expected to increase to almost 26,000 in 2030. It is important for Rolleston as Selwyn's largest town, continues to be seen as a desirable place to live, work and play. Work on the new and improved Rolleston Town Centre development began in November of 2019, centred on the Te Ara Ātea library and community centre anchor project. A number of roading improvements for the development will be carried out as the development continues. Project stages that are likely to attract NZTA funding assistance are *italicised.*

Rolleston Town Centre Project Stages:

- Wordsworth Street Extension (2021/22) - $740,000
- Wordsworth Street South (2021/22) - $1,750,000

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- Moore St Extension (2026/27). $1,435,000
- Rolleston Drive Access Upgrade (2021/22) - $1,980,000
- Traffic Signals at Rolleston Dr/Tennyson St (2021/22) - $3,000,000
- Tennyson/Moore St Roundabout (2026/27) - $1,105,075
- *Markham Way Traffic Calming (2022/23) - $300,000*
- Town Centre Service Lane (2023/24) - $570,000
- Town Centre Signage (2023/24) - $13,578

A number of public car parking facilities will be established in order to service the development. Council is taking the lead on funding the car park development to create fully public parking facilities that are not restricted to patrons of the commercial development. This helps to provide a level of connection with the outer district as well as with the local residents and creates a space with a much wider appeal.

Rolleston Town Centre Car Parking Project Stages:

- Carpark 3 accessed from Tennyson Street (2021/22) - $894,772
- Carpark 6 accessed from Rolleston Drive (2021/22) - $946,196
- Carpark 4 (2021/22), Carpark 5 (2023/24), and Carpark 7 (2025/26) accessed from the Wordsworth Street Extension - $2,468,337

7.7.6 CSM2 Rolleston Access

CSM2 will make it easier for people to work and live in Rolleston and visit Christchurch City for shopping, business and recreation. Investment in local roads, community facilities and parks are necessary to meet the needs of Rolleston's growing population. These improvements will ensure Rolleston continues to be Selwyn's employment and business hub. It is expected that most or all of the CSM2 Access upgrades will attract NZTA co-funding.

CSM2 Access Improvement Projects:

- Weedons Ross Rd Widening (2021/22) - $1,525,000
- Railway Rd Izone Upgrade (2022/23) - $500,000
- Brookside Road/Rolleston Dr Roundabout (2024/25) - $600,000
- Hoskyns Rd Widening Stage 1 (2024/25) - $1,865,000
- Rolleston Pedestrian Rail upgrades (2025/26) - $165,000
- Lowes Rd/Levi Dr/Masefield Dr Roundabout (2025/26) - $3,500,000
- Jones Rd Cycleway (2027/28) - $670,000
- Two Chain Rd Widening Stage 1 (2028/29) - $500,000
- Walkers Rd/Two Chain Rd Roundabout (2028/29) - $1,200,000
- Jones Rd/Two Chain Road Realignment (2028/29) - $3,000,000
- Rolleston to Burnham Cycleway (2029/30) - $2,700,000
- Hoskyns Rd Widening Stage 2 (2030/31) - $700,000
- Burnham School Rd/Dunns Crossing Rd Traffic Signals (2032/33) - $3,000,000
- Rolleston South to Rolleston Industrial Zone Cycleway (2033/34) - $654,000
- West Melton to Rolleston Cycleway (2034/35) - $1,800,000
- Lowes Rd/Dunns Crossing Rd Roundabout (2035/36) - $2,500,000

- Burnham School Rd Widening (2042/43) - $850,000

7.7.7 Lincoln Town Centre

Lincoln's residential population is also expected to increase strongly by 2030. In addition the Lincoln University and Crown Research Institutes are planning to create an "Innovation Hub" that will combine and expand existing teaching and research facilities which will have a significant impact on the western end of the township and place further demands on the key arterial roads and intersections such as on Springs Road and Gerald Street. Gerald Street will need to cater for a number of different functions such as catering for active modes, more retail activities and freight traffic as part of its role in the wider route that connects SH1 at Burnham and SH75 at Tai Tapu together. To meet the growing traffic demand within Lincoln, the following improvement projects are planned over the next 20 years. Projects that are likely to attract NZTA funding assistance are *italicised.*

Lincoln Town Centre Projects:

- Gerald St Upgrade Eastern End (2027/28) - $4,000,000
- Gerald St Upgrade Transitional Section (2029/30) - $3,500,000
- Gerald St Upgrade Western End (2033/34) - $2,500,000
- *Gerald St/West Belt Traffic Signals (2027/28) - $2,000,000*
- *Gerald/Veron Dr Traffic Signals (2029/30) - $2,500,000*
- *Gerald/James/Edward Traffic Signals (2034/35) - $2,000,000*
- Springs/Gerald/Ellesmere Junction Rd Traffic Signals (2033/34) - $3,500,000
- Lyttelton St Parking Precinct (2025/26) - $703,000
- Gerald Street Parking Precinct (2028/29) - $720,000

7.7.8 Project Integration

Council has a 30 Year GIS layer for Water and Transport Projects. This will identify the locations where Water and Transport project are planned and provide the opportunity to align their timeframes. From a Transport perspective, this may mean that newly constructed Assets will not be excavated to allow for a pipe upgrade.

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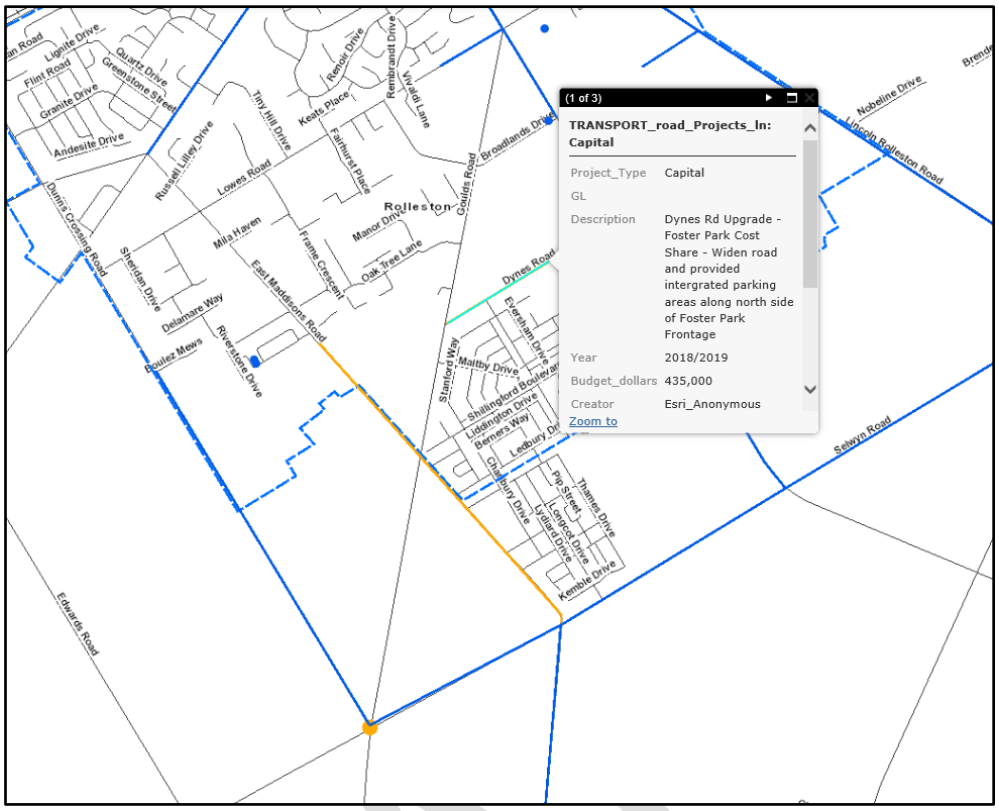

Figure 7-39: *30 Year Water and Transport GIS Layer (at 2018)*

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7.8 Improvement Plan Items

TO BE UPDATED TO REFLECT PROGRESS AND NEW 2021 IMPROVEMENT ITEMS AT COMPLETION

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