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PALMERSTON
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CITY

PALMERSTON NORTH CITY COUNCIL

AGENDA

ECONOMIC GROWTH COMMITTEE

9AM, WEDNESDAY 22 FEBRUARY 2023

COUNCIL CHAMBER, FIRST FLOOR
CIVIC ADMINISTRATION BUILDING
32 THE SQUARE, PALMERSTON NORTH

MEMBERS

Leonie Hapeta (Chair)
William Wood (Deputy Chair)
Grant Smith (The Mayor)
Mark Arnott
Brent Barrett
Rachel Bowen
Vaughan Dennison
Roly Fitzgerald
Lorna Johnson
Debi Marshall-Lobb
Billy Meehan
Orphée Mickalad

AGENDA ITEMS, IF NOT ATTACHED, CAN BE VIEWED AT

pncc.govt.nz | Civic Administration Building, 32 The Square
City Library | Ashhurst Community Library | Linton Library

Waid Crockett

Chief Executive | PALMERSTON NORTH CITY COUNCIL

Te Marae o Hine | 32 The Square
Private Bag 11034 | Palmerston North 4442 | New Zealand
pncc.govt.nz

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ECONOMIC GROWTH COMMITTEE MEETING

22 February 2023

ORDER OF BUSINESS

1. Apologies

2. Notification of Additional Items

Pursuant to Sections 46A(7) and 46A(7A) of the Local Government Official Information and Meetings Act 1987, to receive the Chairperson's explanation that specified item(s), which do not appear on the Agenda of this meeting and/or the meeting to be held with the public excluded, will be discussed.

Any additions in accordance with Section 46A(7) must be approved by resolution with an explanation as to why they cannot be delayed until a future meeting.

Any additions in accordance with Section 46A(7A) may be received or referred to a subsequent meeting for further discussion. No resolution, decision or recommendation can be made in respect of a minor item.

3. Declarations of Interest (if any)

Members are reminded of their duty to give a general notice of any interest of items to be considered on this agenda and the need to declare these interests.

4. Public Comment

To receive comments from members of the public on matters specified on this Agenda or, if time permits, on other Committee matters.

(NOTE: If the Committee wishes to consider or discuss any issue raised that is not specified on the Agenda, other than to receive the comment made or refer it to the Chief Executive, then a resolution will need to be made in accordance with clause 2 above.)

5. Presentation - Central Economic Development Agency Page 7

REPORTS

6. Summary report on the Palmerston North economic structure Page 7

Memorandum, presented by Stacey Bell - City Economist.

7. Palmerston North Strategic Transport Networks Page 25

Memorandum, presented by David Murphy, Chief Planning Officer

8. Process and options to establish and enforce heavy vehicle routes Page 187

Memorandum, presented by David Murphy, Chief Planning Officer; Peter Ridge, Senior Policy Analyst.

9. Main Street Cycleway - Permanent Solution Decision Page 199

Report, presented by Hamish Featonby - Group Manager Transport and Development.

10. Work Schedule - February 2023 Page 209

11. Exclusion of Public

To be moved:

"That the public be excluded from the following parts of the proceedings of this meeting listed in the table below.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

General subject of each matter to be considered		Reason for passing this resolution in relation to each matter	Ground(s) under Section 48(1) for passing this resolution

This resolution is made in reliance on Section 48(1)(a) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by Section 6 or Section 7 of that Act which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public as stated in the above table.

Also that the persons listed below be permitted to remain after the public has been excluded for the reasons stated.

[Add Third Parties], because of their knowledge and ability to assist the meeting in speaking to their report/s [or other matters as specified] and answering questions, noting that such person/s will be present at the meeting only for the items that relate to their respective report/s [or matters as specified].

PRESENTATION

TO: **Economic Growth Committee**

MEETING DATE: **22 February 2023**

TITLE: **Presentation - Central Economic Development Agency**

RECOMMENDATIONTO ECONOMIC GROWTH COMMITTEE

1. That the Economic Growth Committee receive the presentation for information.

SUMMARY

Jerry Sherman, Chief Executive, Central Economic Development Agency (CEDA) will update the Committee on various CEDA projects.

ATTACHMENTS

Nil

MEMORANDUM

TO: **Economic Growth Committee**

MEETING DATE: **22 February 2023**

TITLE: **Summary report on the Palmerston North economic structure**

PRESENTED BY: **Stacey Bell - City Economist**

APPROVED BY: **David Murphy, Chief Planning Officer**

RECOMMENDATION TO ECONOMIC GROWTH COMMITTEE

1. **That the Committee receive the report titled 'Summary report on the Palmerston North economic structure' of 22 February 2023 presented to the Economic Growth Committee.**

---

1. INTRODUCTION

1.1 This memorandum presents a summary of the key themes from the Palmerston North Economic Structure Summary Report 2023 (attached).

1.2 The analysis of the structure of the Palmerston North economy is based on detailed economic data from Infometrics and Statistics New Zealand over the period March 2002 to March 2022. This data is the most robust information available on the structure of local economies across New Zealand.

1.3 The report summarises the performance of the Palmerston North economy over the period when COVID-19 was impacting on economic activity.

1.4 Analysis of the structure of the economy focuses on the sectors which provide employment to the community. Gross Domestic Product (GDP), employment, and skill level and employment by occupation, are included within the analysis.

1.4 The report also summarises annual growth by GDP, employment, and employment by occupation, as well as 10-year and 20-year growth by sector.

2. THE ECONOMIC STRUCTURE OF THE PALMERSTON NORTH ECONOMY

2.1 The Palmerston North economy performed well relative to the national economy, growing by 7.2 percent from April 2020 to September 2021. This compares with 5.1 percent growth for New Zealand.

2.2 The relatively strong performance of the city has been supported by the diverse mix of public and private sector activity and employment across the

economy, alongside fewer impacts from lockdowns and economic restrictions than the upper half of the North Island.

2.3 Palmerston North GDP was estimated at $6.2 billion for the year ended March 2022. This is an additional $300.2m (+5.1 percent) from the year ended March 2021.

2.4 The employing sectors of the Palmerston North economy directly generated $5.2b in GDP (84.6 percent of total GDP) to the Palmerston North economy. A further 7.9 percent of GDP was generated from owner-occupied property operation and 7.5 percent from taxes and duties. The analysis of GDP in this report is based on the GDP generated from employing sectors of the economy.

2.5 The key findings in the report are:

a. The city economy is buffered by a large and diverse government, health and education sector, contributing 32.5 percent of GDP and 37.4 percent of total employment.

b. One of the largest growth sectors in the economy in the March 2022 year was professional, scientific and technical services, adding an additional $49.3m to GDP and generating a further 113 jobs. Scientific research services were the highest growth subsector, adding an additional $14.3m to GDP and adding 51 jobs.

c. The construction sector also contributed strongly to growth over the March 2022 year, adding $40.0m to GDP and generating 364 new jobs.

d. Health care and social assistance are the largest employers in the city while Public Administration generates the largest share of GDP.

e. Health care and social assistance was also the largest growth sector over the 20-years with GDP growing by 293.6m (96.7 percent) and employment by 3,491 jobs (66.8 percent).

f. There were 8,396 businesses in the city in March 2022, up by 324 compared with the previous year (+4.0 percent). Of total workers, 36.2 percent were employed in businesses with 100+ employees. In contrast, small to medium enterprises (<20 employees) make up 94.2 percent of businesses and create 38.4 percent of jobs.

g. Of the total employees in the city, 33.0 percent are employed in knowledge-intensive industries, compared with 32.8 percent of the New Zealand workforce. The Palmerston North workforce also has a slightly higher proportion of highly skilled and skilled workers than New Zealand; 53.3 percent versus 51.5 percent respectively.

h. Professionals are the largest occupation group in the city, making up 27.3 percent of total employees. Managers are the second largest group, with 15.7 percent of the workforce working in management occupations.

i. The largest growth occupations over the year to March 2022 were professionals (+376), Technicians and trade workers (+240) and managers (+183).

j. Professional roles in the city were by far the largest growth occupation over all periods, adding 3,079 roles over 10-years, and 5,992 over the 20-years to March 2022.

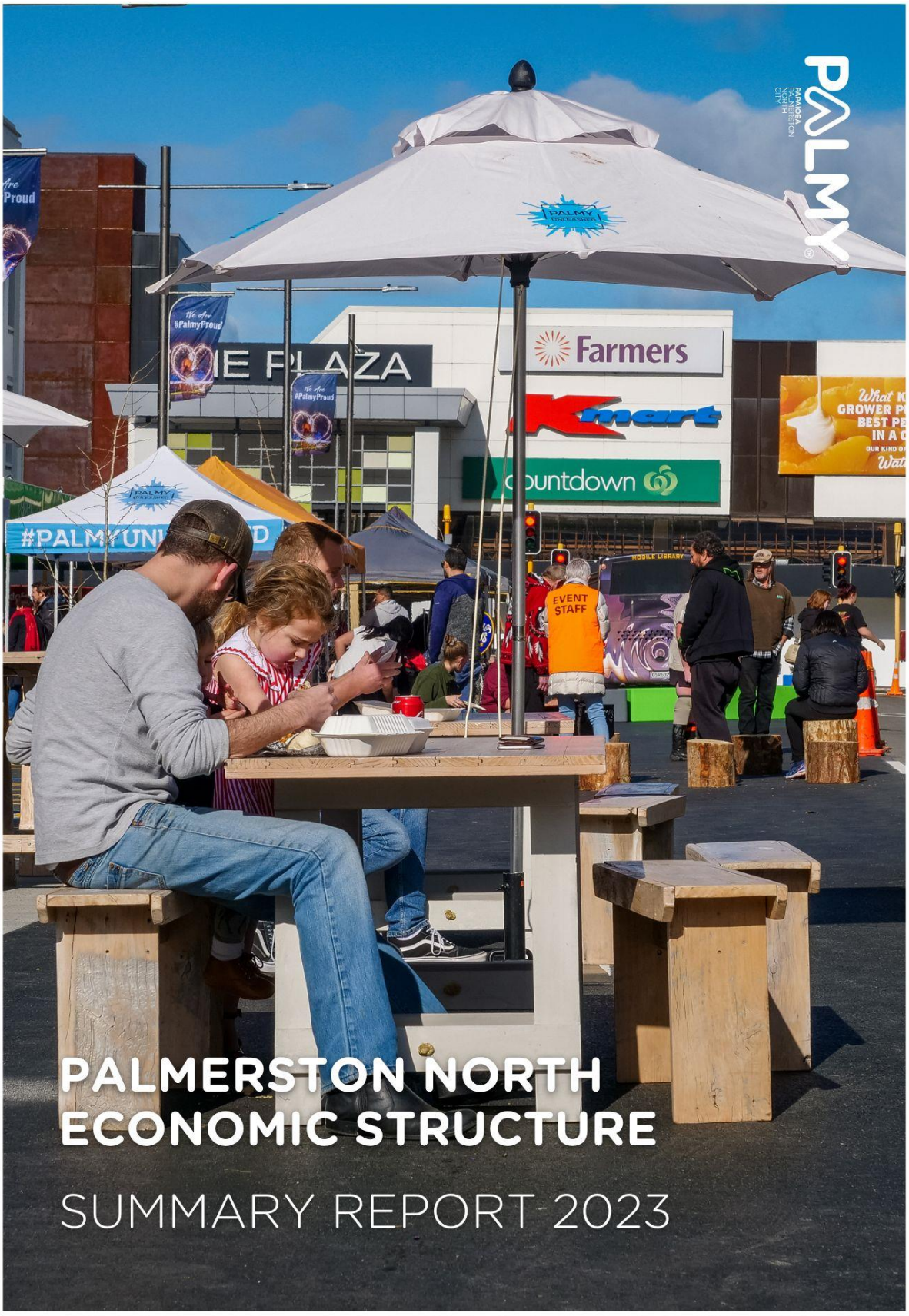
2.6 The Palmerston North economy has proven resilient through the challenges of the last few years. The diverse economic base with a solid foundation in high-value public and private industry, has driven growth in professional and knowledge-based occupations, supporting jobs and incomes across all layers of the economy.

3. COMPLIANCE AND ADMINISTRATION

Does the Committee have delegated authority to decide? If Yes quote relevant clause(s) from Delegations Manual	**Yes**
Are the decisions significant?	**No**
If they are significant do they affect land or a body of water?	**No**
Can this decision only be made through a 10 Year Plan?	**No**
Does this decision require consultation through the Special Consultative procedure?	**No**
Is there funding in the current Annual Plan for these actions?	**Yes**
Are the recommendations inconsistent with any of Council's policies or plans?	**No**
The recommendations contribute to Goal 5: A Driven & Enabling Council	
The recommendations contribute to the achievement of action/actions in Governance and Active Citizenship The action is: Council decision-makers are provided with quality and timely advice.	
Contribution to strategic direction and to social, economic, environmental and cultural well-being	A sound understanding of the make-up and contributions of the Palmerston North economy will assist elected members to make well-informed decisions.

ATTACHMENTS

1. Palmerston North economic structure - summary report ⇩



PALMERSTON NORTH ECONOMIC STRUCTURE

SUMMARY REPORT 2023

Report structure

This report provides a summary of the structure of the Palmerston North economy based on the Infometrics economic profile and the annual release of the Linked Employer-Employee Datasets (LEED) from Statistics New Zealand[1].

The report includes a summary of:

1. Performance of the Palmerston North economy over the COVID-19 period
2. Economic structure by:
    a. Gross Domestic Product (GDP)
    b. Employment
    c. Skill level and occupations

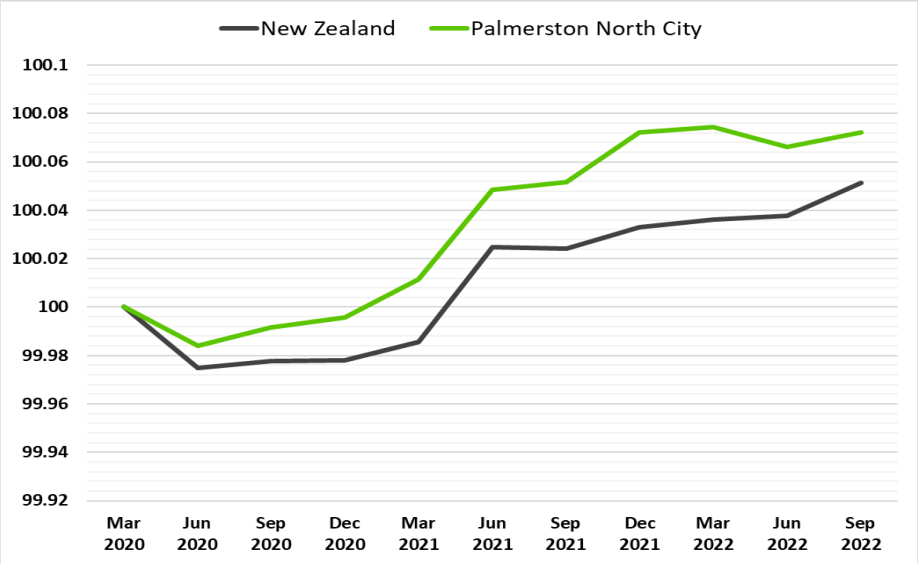
Further analysis of the Palmerston North economy will be presented within the Palmerston North economic structure research and sector snapshots. These reports will be published on the PNCC website.

Economic performance - COVID-19

The Palmerston North City economy has grown by 7.2 percent[2] over the period April 2020 to September 2022. This compares with 5.1 percent growth nationally.

The Palmerston North economy has benefited from the diverse mix of public and private sector activity over the COVID-19 period. This mix of industries has buffered the city from the impacts observed in areas of the country with greater exposure to border closures and lockdown restrictions.

Figure 1: GDP Index March 2020 to September 2022 – NZ and Palmerston North City



[1] LEED data is sourced via Infometrics. Employment by business size is sourced directly from Statistics NZ.
[2] GDP is measured by calculating the net value of final goods and services produced in an economy over a specific period. GDP is not the same thing as revenue. GDP measures the value added to intermediate goods and services used to produce final goods and services, including salaries and wages paid to households.

Economic structure

Palmerston North GDP was estimated at $6.2b for the year ended March 2022. This is growth of 5.1 percent (+$300.2m) from the previous year ended March 2021.

GDP is made up of employing sectors across the economy, as well as contributions from non-employing sectors such as owner-occupied property operation[3] and GDP generated from taxes, duties and levies across sectors.

This report focuses on the employing sectors of the Palmerston North economy.

The employing sectors of the economy are primary production, manufacturing, services, and government, education and health. These sectors added $5,221.9 million (84.6 percent of total GDP) to the Palmerston North economy in 2022, growing by 5.3 percent (+$262 million) compared with the year ended March 2021. A further 7.9 percent of GDP in the city was generated from owner-occupied property operation and 7.5 percent from taxes and duties in 2022.

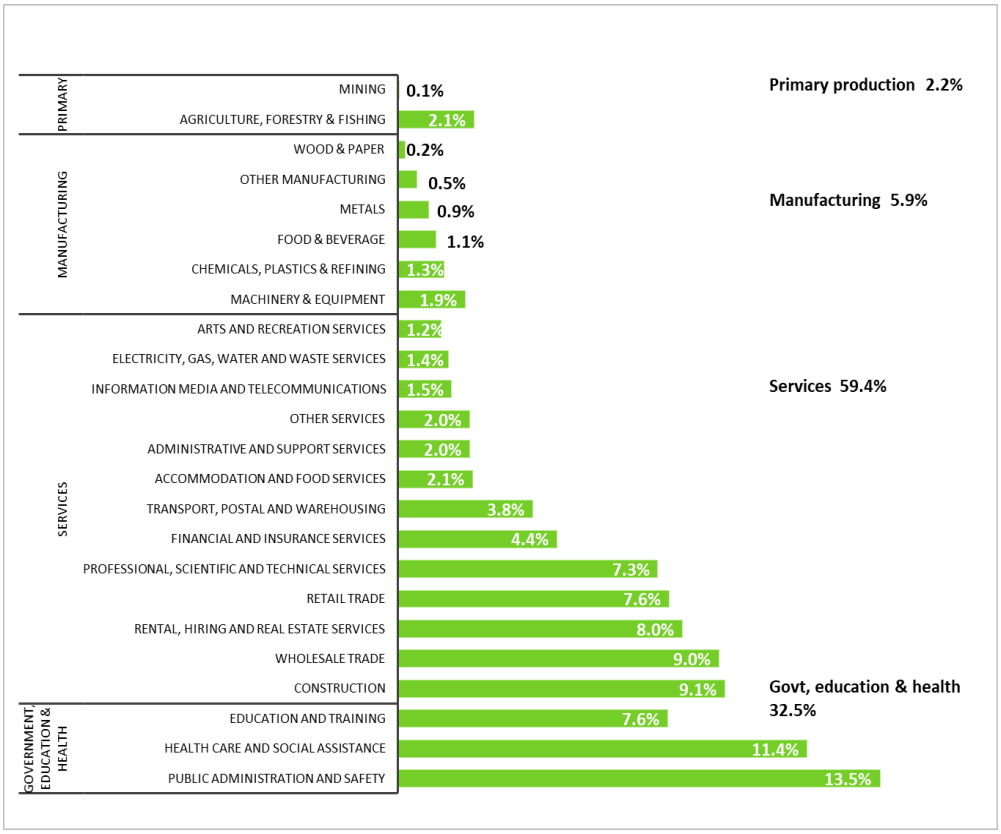
GDP by sector

The Palmerston North economy is dominated by service sector activity, which contributed 59.4 percent of GDP in 2022. This is typical of most advanced economies, but lower than for New Zealand, where 66.0 percent of national GDP was generated from the service sector in the March 2022 year.

Palmerston North also has a large and diverse government, education and health sector contributing 32.5 percent to city GDP. This compares with 17.0 percent of total New Zealand GDP.

[3] Owner-occupied property operation is the value that households create from the provision of housing to themselves.

Figure 2: Palmerston North economic structure by GDP (year ended March 2022)

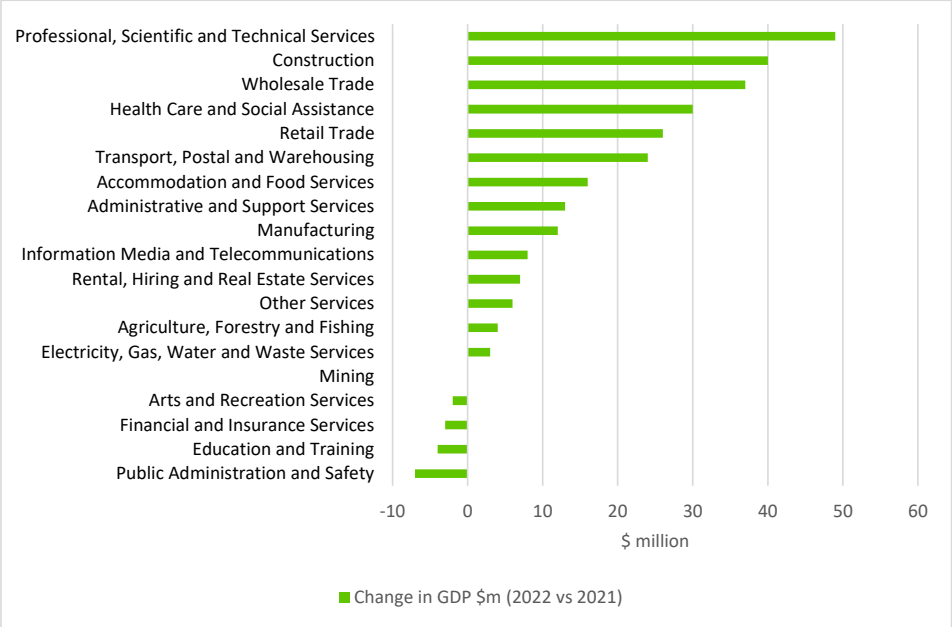


Growth industries

The Palmerston North economy grew by $300.2m (+5.1%) over the year to March 2022.

The year to March 2022 saw growth in most sectors across the city economy, while some of our largest sectors saw a dip in economic activity imposed by external conditions. Education and training GDP fell by $4m due to the ongoing impacts of COVID-19 restrictions on international education. The public administration and safety sector contracted by $7m, driven by a fall in central government administration activity. Our defence sector continued to expand, up $4.4m over the year and growing by a substantial $106.5m over the twenty-years to 2022.

Figure 3: Industry sector contribution to GDP growth (year ended March 2022)



The following table summarises growth across sectors that contributed the most to GDP growth in the city. Industries are ranked by GDP growth over the year to March 2022. The table also summarises growth in GDP over the ten-years and twenty-years to March 2022.

Table 1: Top-five growth industries - GDP

	Industry	One-year growth	10-year growth	20-year growth
1	**Professional, scientific & technical services**	+$49.3m +14.9%	+$102m +36.8%	+$133m +54.0%
	Professional, scientific & technical services contributed $379.4m to the Palmerston North economy in the March year 2022. Scientific research services was the highest growth subsector, up by $14.3m (+17.0%) annually and $23.5m (+31.4%) over the 20-years to 2022.			
2	**Construction**	+$40.0m +9.2%	+$170.7m +55.8%	+$253.8m +113.8%
	The construction sector contributed $263.3m to the city economy in the March year 2022. Construction services (which includes construction trades) was the highest growing subsector, expanding by $27.9m (+14.7%) over the year.			
3	**Wholesale trade**	+$37.5m +8.7%	+$131.4m +39.0%	+$213.4m +83.7%
	Wholesale trade generated $468.4m in GDP for the city in 2022. Grocery, car, electronic and electrical goods, hardware goods, and professional and scientific goods wholesaling were the largest growth subsectors, contributing $23.1m (61.6%) of GDP growth over the year.			
4	**Health care and social assistance**	+$29.8m +5.3%	+$169.5m +39.6%	+$293.6m +96.7%
	Health care and social assistance contributed $597.2m to GDP in the March year 2022. Hospitals were the highest growth subsector, expanding by $14.2m (+8.7%). Hospitals are the largest subsector in Palmerston North, contributing $177.1m to GDP in 2022.			

5	**Retail trade**	+26.1m +7.1%	+115.1m +40.9%	+$194.6m +96.5%
	Retail trade contributed $396.2m to city GDP over the March year. Supermarket and grocery stores are the largest subsector, adding $83.5m to city GDP. They were also the second largest growth sector in 2022, expanding by $3.6m (+4.5%). The hardware and building supply retail sector posted the highest growth, up by $5.2m (+14.6%).			

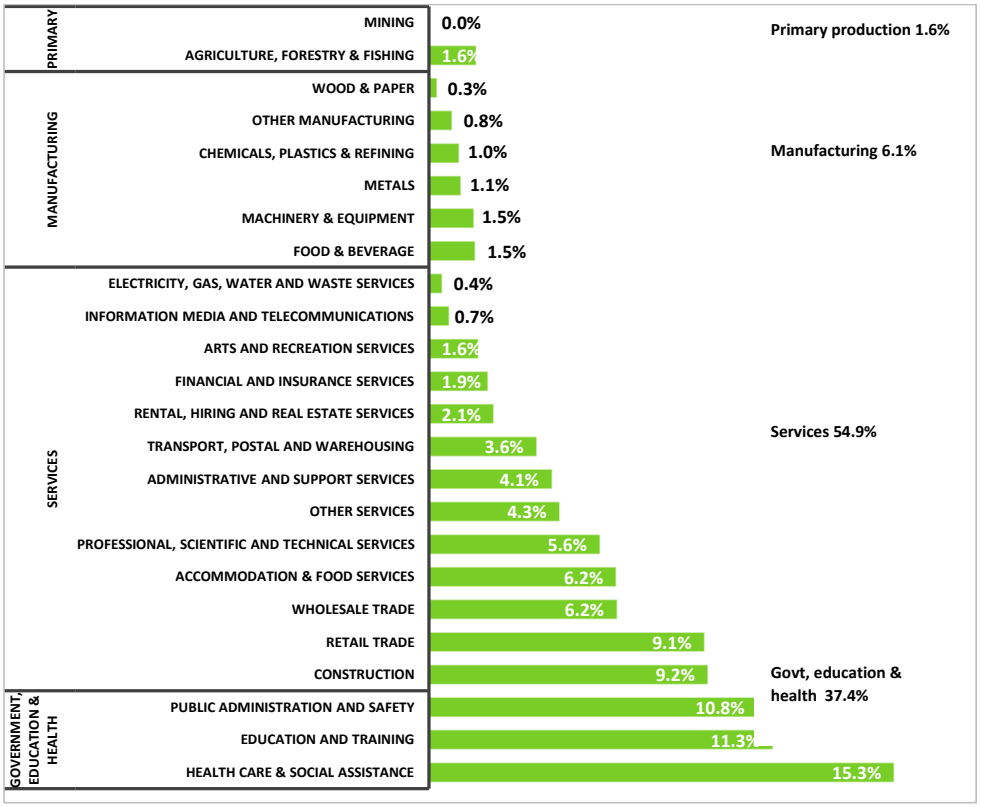
Employment by sector

There were 56,956 people employed in the Palmerston North economy in March 2022.

The employment structure across the city is largely consistent with GDP structure. Service sector employment is less than at the national level where 61.9 percent of workers are employed in the service sector compared with 54.9 percent in Palmerston North.

The combined scale of the government, education and health sectors is clear with 37.4 percent of jobs in Palmerston North generated from these sectors, compared with 23.3 percent of employment across the country.

Figure 4: Palmerston North employment structure by sector (year ended March 2022)



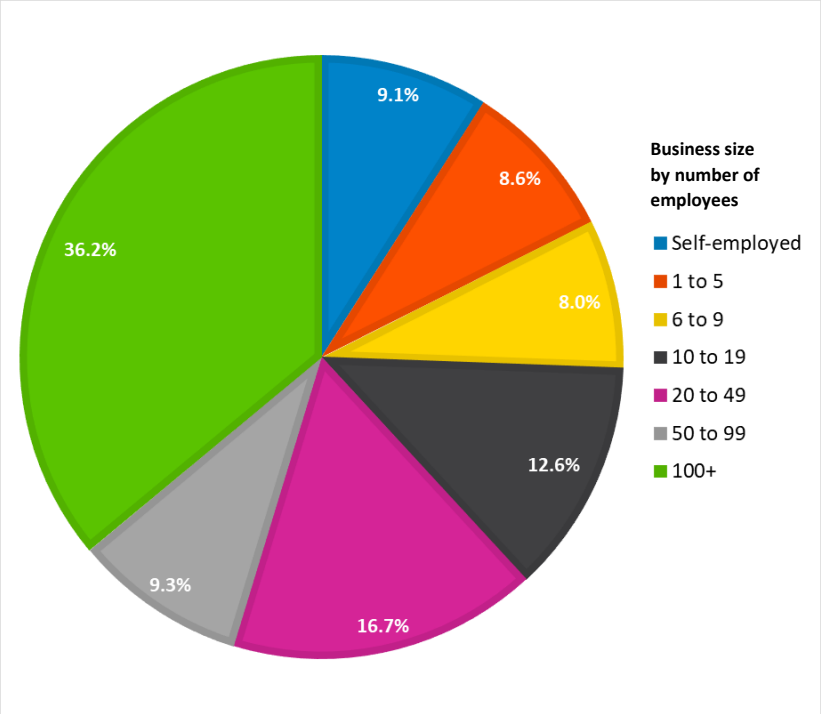
Employment by business size

There were 8,397 businesses in Palmerston North in March 2022; an increase of 324 firms (+4.0%) from the previous year. Businesses are defined as legal entities established for the purpose of generating a profit.

The average size of businesses in Palmerston North is 6.8 employees, compared with 4.3 employees nationally. This indicates that Palmerston North has a greater proportion of workers employed within large businesses, with 36.2 percent of the city workforce employed in businesses with 100 or more employees.

Small to medium enterprises (businesses with <20 or employees) continue to be extremely important to the city economy, making up 94.2 percent of businesses and creating 38.4 percent of total jobs.

Figure 5: Percentage of filled jobs by business size

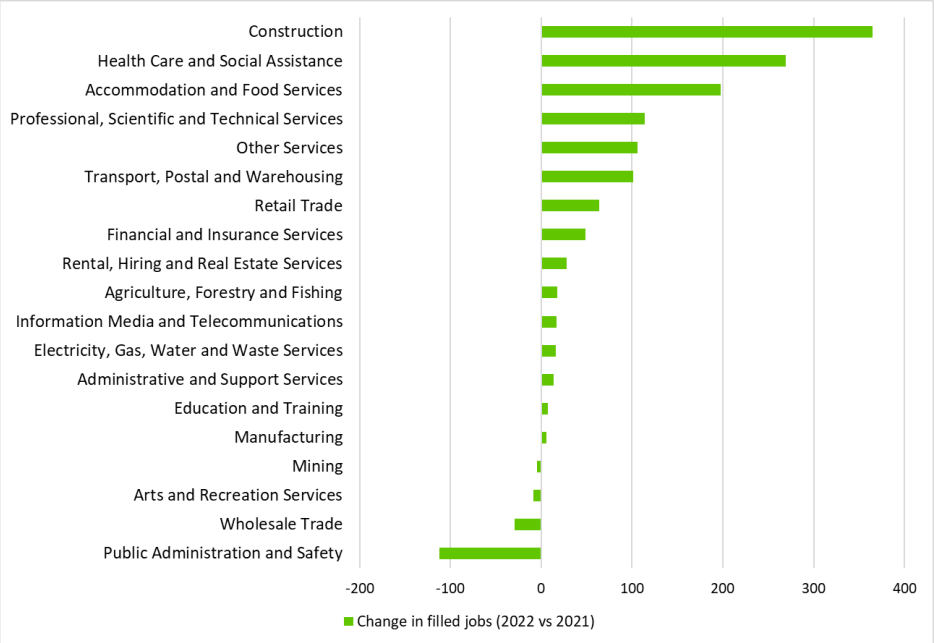


Employment growth by industry sector

The number of people employed in the city increased by 1,216 over the year to March 2022, up 2.2 percent compared with the previous year.

Most sectors posted strong jobs growth, with just four industries shedding a total of 156 jobs over the year. The remaining industries created an additional 1,370 jobs across the city economy.

Figure 6: Contribution to employment growth by sector (year ended March 2022)



The following table summarises the five sectors in Palmerston North that created the most jobs in 2022. Industries are ranked by annual employment growth to March 2022. The table also summarises growth in GDP over the ten-years and twenty-years to March 2022.

Table 2: Top-five growth industries – Employment

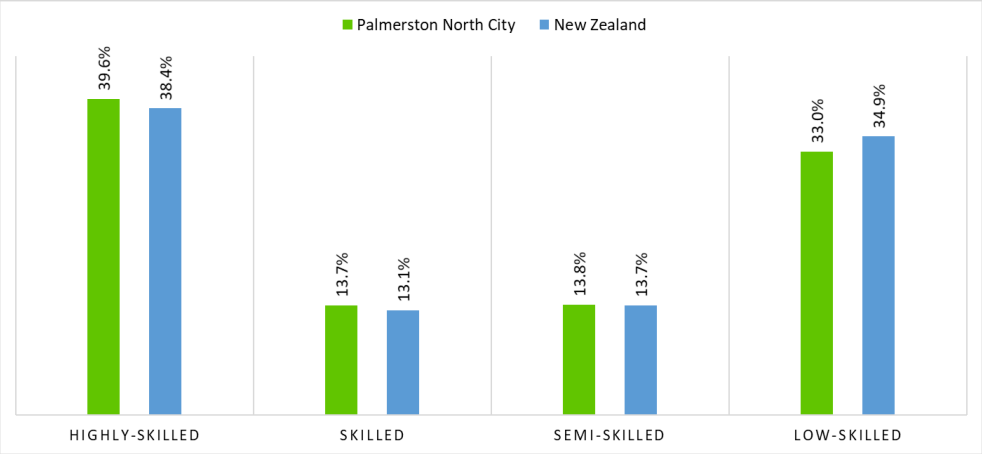
	Industry	One-year growth	10-year growth	20-year growth
1	**Construction**	+364 jobs +7.5%	+1,552 jobs +42.3%	+2,416 +86.0%
	The construction sector employed a total of 5,225 workers in 2022. Construction services was the highest growth subsector adding 273 jobs (+10.7%) over the year. There were 2,835 people employed in construction services in the city in March 2022.			
2	**Health care and social assistance**	+268 jobs +3.2%	+1,918 +28.2%	+3,491 +66.8%
	The health care and social assistance sector employed 8,716 people in March 2022. The hospital sub-sector had the highest employment growth, adding 157 jobs over the year (+6.4%). There was a total of 2,593 people employed in the hospital sector in 2022.			
3	**Accommodation and food services**	+198 jobs +6.0%	+574 jobs +19.6%	+851 jobs +32.0%
	The accommodation and food services sector employed a total of 3,509 people in 2022. Reflecting the recovery of the hospitality sector, an additional 126 workers were employed in cafés and restaurants and catering services compared with March 2021 (+6.4%). A total of 1,964 people were employed in cafés, restaurants and catering in the city as at March 2022.			

4	**Professional, scientific and technical services**	+113 jobs +3.7%	+154 jobs +5.0%	+562 jobs +21.3%
	The professional, scientific and technical services sector employed 3,206 people in 2022. Reflecting the strength of our research capability, scientific research services was the highest growth subsector, creating an additional 51 jobs over the year (+6.4%). There were 843 people employed in scientific research in the city in 2022.			
5	**Other services**[4]	+107 jobs +4.6%	+477 jobs +24.2%	+703 jobs +40.3%
	There were 2,448 workers employed in other services as at March 2022. Reflecting the recovery in supply of personal services, hairdressing and beauty services (including diet services) was the highest, growth subsector adding 29 employees over the year (+6.6% compared with March 2021). There were 442 people employed in personal services in 2022.			

Skill level

In 2022, 53.3 percent of the Palmerston North workforce were employed in highly skilled and skilled roles, compared with 51.5 percent of the New Zealand workforce.

Figure 7: Employment by skill level



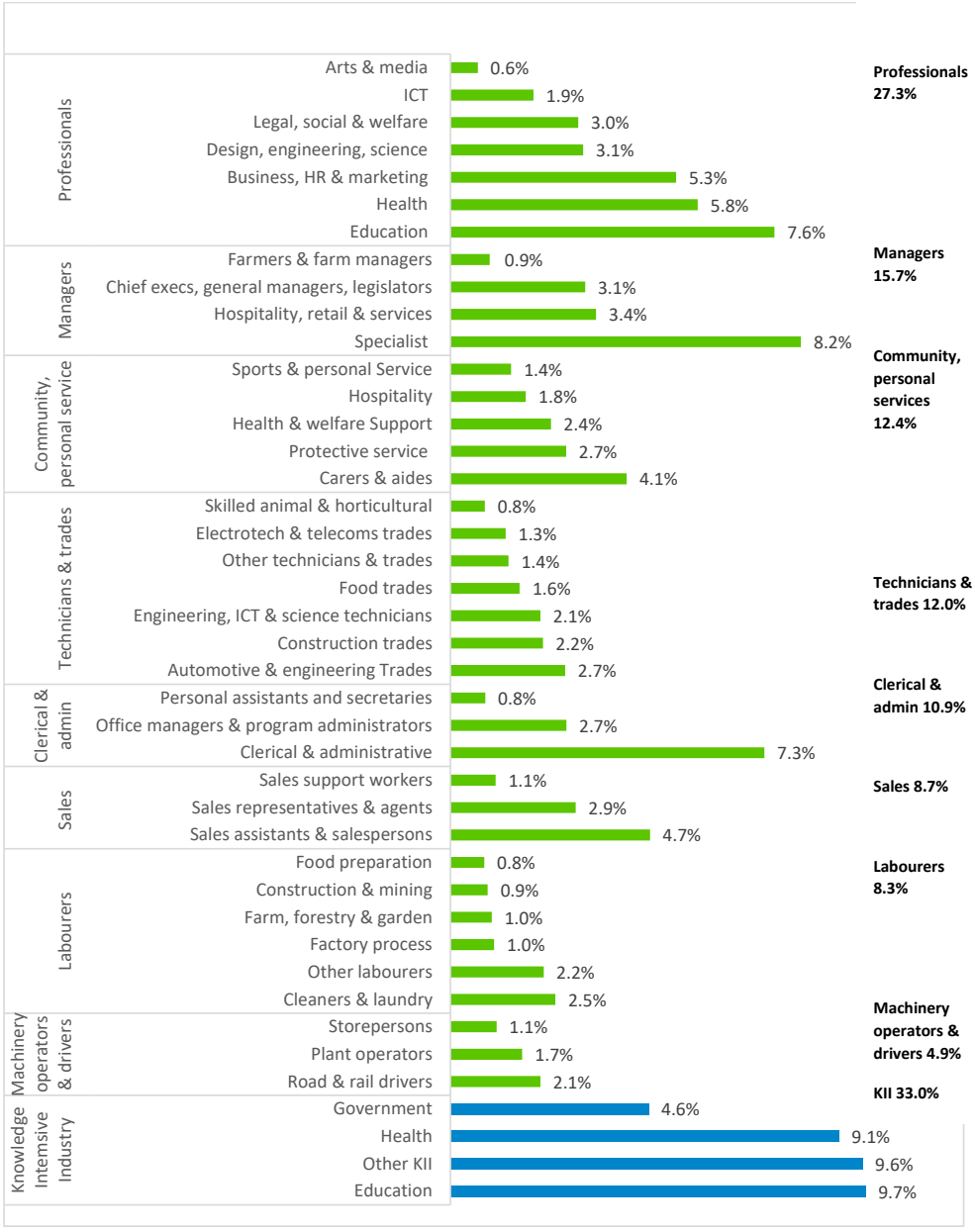
Employment by occupation

The following graph provides a breakdown of employment across occupations in the city in 2022. Professionals were the largest group with 27.3 percent of the Palmerston North workforce employed in professional occupations and a further 15.7 percent in management roles.

[4] Other services include automotive, repair, cleaning, laundry, personal, religious and photographic services

Across the city, 18,820 people were employed in Knowledge Intensive Industry (KII) occupations[5]. This is equal to 33.0 percent of the total Palmerston North workforce and slightly above the national proportion of 32.8 percent.

Figure 8: Palmerston North employment by occupation



[5] KII's include education, specialised health care, professional, scientific and technical services, government administration, financial and banking services, electricity and engineering services, pharmaceutical and technological manufacturing, information, media and telecommunications services.

Growth across occupations

There was a total of 1,216 jobs created in the city over the year to March 2022. The following table summarises employment growth across occupations, ranked by growth over the March 2022 year. The table also summarises growth in occupations over ten-year and twenty-year timeframes.

Table 3: Growth in employment by occupation

	Occupation	One-year growth	10-year growth	20-year growth
1	**Professionals**	+376 jobs +2.2%	+3,079 +28.7%	+5,992 +62.7%
	There were 15,552 people employed in professional roles in the city in 2022. Health, education and business, HR and marketing occupations experienced the strongest growth. Across these occupations, 236 new roles were added in the March 2022 year; 1,897 over the 10-years to March 2022 and 3,914 over the 20-yrs to March 2022.			
2	**Technicians & trade workers**	+240 jobs +3.6%	+1,145 +20.1%	+1,117 +19.5%
	There were 6,846 people employed as technicians and trades workers in the city in 2022. Construction trades was the highest growth occupation, increasing by 91 over the year and 307 over the 10-years to 2022.			
3	**Managers**	+183 jobs +2.1%	+1,276 +16.7%	+2,294 +34.6%
	There were 8,923 managers employed in the city in 2022. Construction management was the highest growth occupation, with 59 new roles over the 2022 year and 350 over the 10-years.			
4	**Labourers**	+134 jobs +2.9%	+172 +3.8%	+401 +9.3%
	There were 4,716 labourers were employed in the city in 2022. Construction labourers were the highest growth occupation, up 29 over the year and 126 over the previous 10-years.			
5	**Community & personal service workers**	+108 +1.6%	+1,570 +28.7%	+2,512 +55.5%
	There were 7,038 community & personal service workers employed in the city in 2022. Carers & aides were the highest growth occupation, adding 68 over the year and 381 over the 10-years.			
6	**Machinery operators & drivers**	+71 +2.6%	+175 +6.8%	+394 +16.6%
	There were 2,767 machinery operators & drivers were employed in the city in 2022. Road & rail drivers were the highest growth occupation, adding 50 over the year. There were 361 additional people employed in the occupation in the city in 2022 compared with 2002.			
7	**Sales workers**	+57 +1.2%	+281 +6.0%	+582 +13.4%
	There were 4,927 people were employed as sales workers in 2022. Sales representatives and agents were responsible for much of the growth, adding 35 over the year, 276 over 10-years and 653 over the 20-years to 2022.			
8	**Clerical & administration workers**	+47 +0.8%	+396 +6.8%	+7 +0.1%
	There were 6,186 people were employed as clerical & administration workers in 2022. Office managers, and program administrators were the largest growth occupation, adding 40 over the year, 375 over the 10-years, and 874 over the 20-years to March 2022.			

Conclusion

The Palmerston North economy has proven resilient through the challenges of the last few years. The diverse economic base with a solid foundation in high-value public and private industry, has driven growth in professional and knowledge-based occupations, supporting jobs and incomes across all layers of the economy.

Growth in the economic contribution of high value sectors to the city economy alongside skilled and highly skilled occupations highlights the fundamental strength of the Palmerston North economy. High levels of investment flowing into the city and wider region will help to build on these core economic strengths.

The next couple of years will continue to challenge businesses and households. The recovery of sectors such as tertiary education and tourism, high levels of public investment, and the economic structure of the Palmerston North economy, will support economic activity and protect jobs in the city.

ITEM 6 - ATTACHMENT 1

MEMORANDUM

TO: **Economic Growth Committee**

MEETING DATE: **22 February 2023**

TITLE: **Palmerston North Strategic Transport Networks**

PRESENTED BY: **Vinuka Nanayakkara, Senior Transport Planner**

APPROVED BY: **David Murphy, Chief Planning Officer**

RECOMMENDATION TO COUNCIL

1. **That Council adopt the Palmerston North Strategic Networks 2023, as detailed in attachments 1-3, as a key strategic document to guide future decision making and investment prioritisation.**

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1. PURPOSE

Managing Palmerston North's transport system requires a complex and intricate balancing exercise with many competing demands and users to cater for simultaneously.

As the city's population grows and existing congestion, road safety issues and maintenance deficits become more significant, there's a need to adopt a more proactive and planned approach to managing the network in the future – one that reflects agreed strategic goals and helps resolve competing demands for the limited space that is available.

While there will always be a need to provide high quality roads and maintain capacity, there is increasingly a need to make better use of our existing assets. Adopting an approach to build out of transport issues by increasing capacity – i.e. widened/more traffic lanes and more carparking – is expensive, challenging, exacerbates current road safety and emissions issues, and only provides short-term benefits due to induced demand.

In contrast, adopting an approach to maximise the use of existing transport infrastructure by providing quality travel choices across the city is a much cheaper, more feasible and more effective approach. It also leads to reduced maintenance costs, decreased transport emissions, fewer deaths & serious injuries and a better urban realm.

To do this, Council needs to have a clear strategy on how the transport network should function, how road space is allocated for certain uses, and how certain uses/modes are prioritised across certain corridors. In addition, Council needs to

optimise the resources available to achieve the biggest return on investment for the Palmerston North community by targeting investments and resource where the largest benefits can be achieved, otherwise existing resources will be spread thinly across the wider network for minimal benefit.

The Palmerston North Strategic Networks presents a simple, integrated, evidence-based and endorsed view of where modes are prioritised across the transport network across both current and future states.

The Strategic Networks have been developed using Waka Kotahi's Network Operating Plan (NOP) process – a nationally consistent technical framework that assists in better management and planning of transport networks, explicitly links transport to the adjacent land-use, and directly assists in co-funding and co-investment decision-making.

Elsewhere, NOPs are traditionally highly operational documents that tend to remain hidden behind councils' work programmes and generally have not been accessible to elected members or the general public. Officers believe there are significant opportunities to be more transparent and proactive by allowing full access to Palmerston North's key strategic transport planning documents – especially where they present the case for investment for many interfacing and interdependent projects.

The Palmerston North Strategic Networks incorporate the immediate planning actions within the Palmerston North Integrated Transport Initiative (PNITI). PNITI has been endorsed by Palmerston North City Council and the Waka Kotahi board, and the highest priority project across the Horizons Region as stated in the Regional Land Transport Plan (RLTP) 2021-31.

2. CONTEXT

With its central location and connections to several state highways and rail lines, Palmerston North is unique in providing a transition between north-south and east-west road and rail movements for New Zealand.

As such, Palmerston North has a critical function in being a national distribution hub for many freight journeys within the North Island and particularly the lower and central North Island logistic supply chains. In addition, Palmerston North has a well-defined city and retail centre which is supported by significant primary and educational industries.

Palmerston North is an important regional service centre for the wider Manawatū-Whanganui region with many of the primary industries located within the peri-urban and rural surrounds of Palmerston North, Horowhenua, and Manawatū districts. This means the city's transport system needs to cater for more than just the people who reside and work in Palmerston North.

Palmerston North's population has been steadily increasing, with further ongoing growth expected. The effect of growth is starting to be felt across the city's transport network through increased maintenance, higher traffic volumes and reduced customer levels of service, particularly during peak periods when people travel to and from work/study.

With significant transport investments planned throughout Palmerston North and the Manawatū-Whanganui region over the next 10 years under PNITI, planning for growth is necessary to help maintain reliable and effective transport connections to and within the city. Integrating our land-use and transport planning will be critical to ensure Palmerston North continues to deliver on its vision for the city and aspirations of its communities.

Approximately 22,000 traffic movements per day occur into and through the city. These movements are to access jobs, education facilities, and other social opportunities such as retail, health services, recreation, and community facilities, along with the several industrial areas located within and on the outskirts of the city. All these journeys and different modes need to be considered when planning the transport system.

Based on Council's 2018 freight demand study, heavy vehicles permeate through the city's urban and rural streets to find the easiest and most convenient route to reach their destinations. Deaths and serious injuries between active modes and vehicles have been increasing, and several roads are seeing a lifetime of use within the span of a few years. All these issues collectively suggest Palmerston North's roading hierarchy is not well defined, and conflicts between different modes of travel are abundant across the city with major consequences to safety, travel choices and road maintenance expenditure.

The Strategic Networks help clarify the street hierarchy to better support the movements for all modes across Palmerston North. It also supports the work of our partners at Horizons Regional Council with the ongoing work to implement a refreshed public transport system, and Waka Kotahi's co-funding and co-investment programme.

3. STRATEGIC DIRECTION

The Long Term Plan 2021-31 seeks to consolidate existing "small city benefits" such as quality of life and affordability, while simultaneously achieving "big city benefits" such as the lifestyle, education, and economic opportunities available in larger cities across the country.

Therefore, Council intends to be ambitious, agile, and innovative in actively capitalising on growth opportunities available while retaining the strengths and values that give Palmerston North its character and regional appeal. These strategic aims are further refined and outlined across five strategies and fifteen plans.

The way Palmerston North's transport network is designed, maintained, renewed and managed corresponds directly to Council's ability to achieve the targets set out in these plans. For example, achieving a 30% reduction in emissions by 2031 will be challenging and is likely to require a notable change in how people and goods move about the city and their communities.

Incentivising "*more people [to choose] modes of transport other than motor vehicles*" for more trips also requires both fundamental shifts in the community psyche and transformational and explicit changes to the physical network.

Nationally, central government guidance and direction in this space is clear. Road Controlling Authorities are required to clearly demonstrate that their activities align with the Government Policy Statement on Land Transport (GPS) – prioritising safety, access, value for money and reducing climate change effects. Furthermore, capital new investment is increasingly seen as a last resort when all other options such as those outlined in Waka Kotahi's Intervention Hierarchy (Figure 1) are exhausted. As the Palmerston North Strategic Networks sets out the prioritisation of certain modes and functions across existing transport corridors, it also informs and ensures that integrated planning, demand management interventions are implemented prior to the development of new infrastructure.

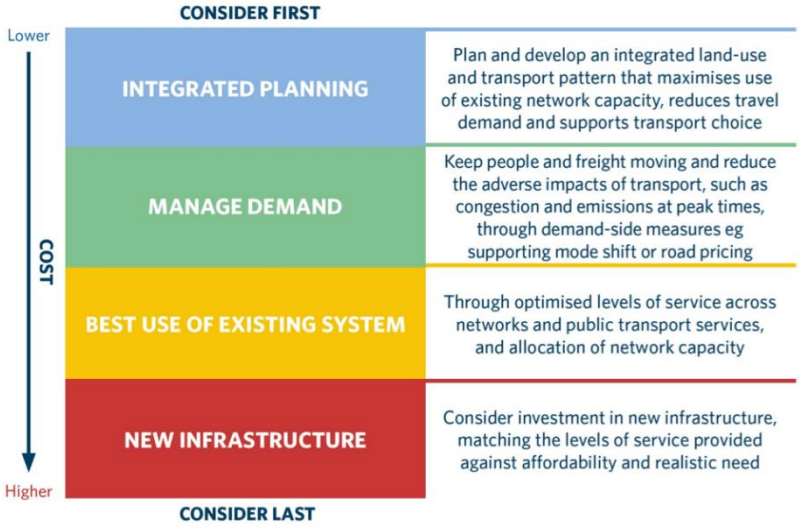


Figure 1 - Waka Kotahi Intervention Hierarchy

PNCC Long Term Plan 2021-31

The Palmerston North City Council vision is He iti rā, he iti pounamu Small city benefits, big city ambition. The Transport plan primarily contributes to the Palmerston North City Council's goal of an Innovative and growing city. The 10-Year Plan level of service for this plan is:

"Provide an integrated multi-modal transport network that connects people and goods with destinations in a safe, efficient and sustainable manner and evolves to meet new transport demands with less reliance on private motor vehicles."

The measures of success associated with the Transport Plan are:

- Less freight traffic using the urban transport network
- Fewer deaths and injuries related to use of the transport network
- Increasing walking and cycling
- Increasing bus passenger numbers and service satisfaction
- Decreasing carbon emissions
- Decreasing reliance on private motor vehicles

PNCC's Transport Asset Management Plan 2020

Locally, our Transport Asset Management Plan 2020 (AMP) identifies a critical need to better balance movement and place functions across Palmerston North's roads. This means ensuring the corridors prioritised for movement are efficient and reliable while those prioritised for place functions are safe, appealing and serve the needs of people first.

Our AMP highlights the following "strategic responses" – actions needed to address the problems identified and realise the benefits sought from investment. All of these actions will be guided by the Strategic Networks:

Safety

Reducing deaths and serious injuries on the transport network will be achieved through:

- Speed management. Lower speeds can mitigate the severity of crashes when they do occur. Target high-risk locations such as around schools
- Deliver the Safe Network Programme in Palmerston North in conjunction with Waka Kotahi
- Continuously target safety improvements be it through maintenance interventions or minor safety upgrades to the transport network

Asset Condition and Performance

Ensuring the transport network condition continues to meet the desired levels of service will be achieved through:

- Timely maintenance and renewal investment that considers the whole of life implications for the transport assets
- Optimising road maintenance and renewal activities across the network to achieve the right balance of investment when assessed against the adopted levels of service, asset risk, and asset criticality. This may mean increases to existing funding levels
- Reviewing levels of service where under or over-delivery may be occurring;
- Ensure that heavy vehicles are travelling on roads built to carry them

Liveability and Accessibility

Improving liveability and accessibility through changes to the transport network will be achieved through:

- Delivering the Roads and Streets Framework. Use this and the One Network Framework (a nationally consistent road classification standard) to inform the management of the transport network

- Recognise the importance of Place on the Transport network. Ensure that investment supports this
- Multi-modal network optimisation to identify and make improvements to walking, cycling and public transport networks
- Disincentivise private vehicle use by prioritising active and public transport modes over vehicles and car parking
- Make it more difficult for certain vehicles to travel certain routes through the city. Encourage the right vehicles onto the right roads

Where This Fits

Figure 2 outlines the strategic links between this piece of work and interrelated strategic documents and plans. The Strategic Networks is an accumulation of a number of upstream works, including the PTSIP (1st action in PNITI) and the NOP (Waka Kotahi requirement). The Strategic Networks also seek to daylight traditionally internal-facing technical documents in the interests of transparency and accountability.

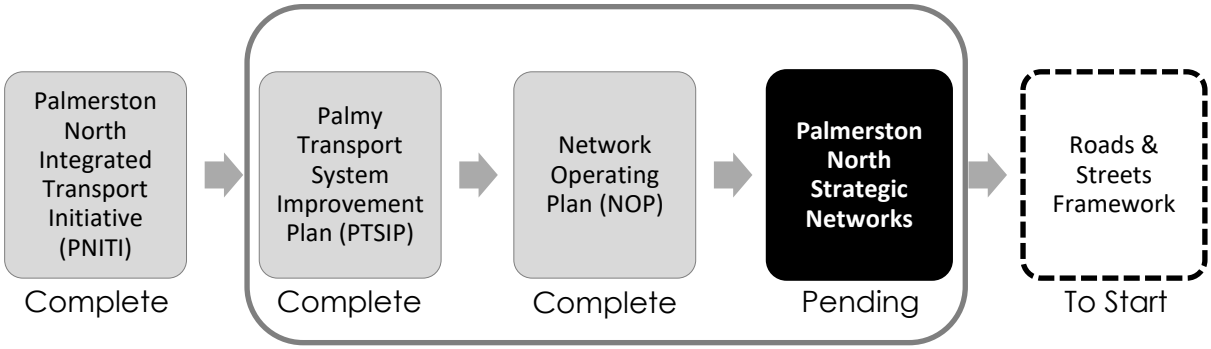


Figure 2 - Where the Strategic Networks fit within council's work programme

The Strategic Networks will be a primary input into the development of the Roads and Streets Framework – an action within the Strategic Transport Chapter of the current Long Term Plan which directly responds to the LTP goals of achieving "*an integrated transport network with clear priorities for all users based around place and movement principles*", a "*network [that] supports amenity outcomes, prioritises active and public transport, and directs freight to the Regional Freight Ring Road*" and to ensure that "*street design is responsive to land-use, place and movement*" across Palmerston North.

4. DISCUSSION

All transport modes have key roles to play in the movement of people and goods across Palmerston North, and it's essential that the function of each mode is

integrated with other modes in a pragmatic, cohesive and safe manner to unlock their full potential.

Palmerston North's highly permeable grid-based roading network provides many route choices for general traffic and vehicles, but does so at the expense of safe, reliable and connected routes for those walking, cycling and using public transport. Heavy freight vehicles past schools, private vehicles rat-running to avoid busy intersections and buses stopping in cycle lanes are all examples of how the management of the city's transport network has enabled the wrong vehicles to travel on the wrong roads, sometimes at the wrong times.

Therefore, Council's vision, goals and targets along with those from regional and central government have been strongly reflected across the development of the Strategic Networks with a particular focus on the following objectives:

1. Enabling more travel choices by providing safe, easy to access and well-connected networks for all modes.

2. Encouraging uptake of sustainable travel options to reduce transport emissions by making public transport, walking and cycling appealing, safe, accessible and enjoyable.

3. Developing a transport system where no-one is killed or seriously injured in road crashes by prioritising routes on corridors where high-quality infrastructure is in place and reducing intermodal conflicts by separating priority routes for the highest risk modes.

4. Matching modal priorities with place functions by prioritising general traffic and freights movement where, while prioritising active modes and public transport in place-based areas.

These objectives are strongly aligned to the central government transport outcomes set out in the GPS and the Ministry of Transport Outcomes Framework – both of which set the direction for central government investment prioritisation via the National Land Transport Fund (NLTF).

The Palmerston North Strategic Networks are a summarisation of existing plans and strategies – at central, regional and local levels – into a single and simple network plan as outlined in Figure 3.

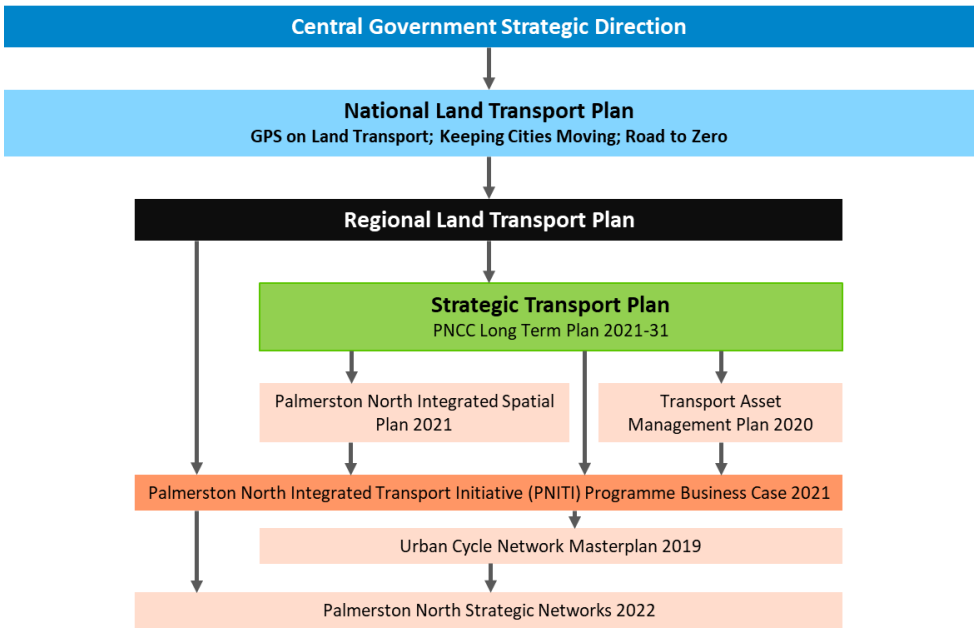


Figure 2 - Palmerston North Strategic Transport Plan Summary

The Strategic Networks outline the most important (i.e. priority) uses/modes along certain corridors across the city for the following modes:

1. Freight
2. Cycling
3. Public Transport
4. Walking
5. General Traffic

The identification of a priority route for a particular mode does not mean that the route will exclusively cater for that mode, and neither does it mean that said mode cannot use other routes if required. However, it does mean that the priority modes along a route will take precedence over other modes, and the design and operation of the route will reflect this.

For example, where a route is identified as a public transport priority route, all other modes of transport will likely be able to use the route. However, priority will be given to public transport through the use of location-specific treatments such as bus lanes, bus priority traffic lights and/or in-lane bus stops (most recently seen within the Cuba Street redevelopment), meaning the level of service for other modes will likely reduce. Conversely, public transport services may also operate on routes prioritised for other modes and will therefore experience a deliberately lower level of service than the modes prioritised along that route.

Some routes will be identified as priority routes for multiple modes. In some cases, the existing form and function of these routes may have engineering constraints that inhibit council to be able to safely accommodate and provide a high level of service for all the defined priority modes. Wherever this issue arises across the network, the Strategic Networks will enable these conflicts to be identified and provides a basis for further detailed analysis to take place alongside further engagement between council partners, stakeholders and the wider community.

The Strategic Networks has been developed using a quantitative, data-driven and nationally consistent approach. However, it does not replace context-specific and project-specific thinking and analysis, and neither does it replace public engagement and consultation on specific projects and interventions. It merely highlights how Council's strategic transport context – in addition to the regional and central government transport priorities – are reflected across Palmerston North. All projects and interventions for which the Strategic Networks provides guidance for will have their own technical design, council approval and public engagement processes.

5. METHODOLOGY UNDERTAKEN

The development of the Palmerston North Strategic Networks has followed Waka Kotahi's nationally consistent Network Operating Plan (NOP) process to draw links between strategic intent and operational/planning decisions.

NOPs follow an integrated process that helps councils across New Zealand better manage and plan the use of their transport networks. It is currently difficult to provide a consensus view on Palmerston North's transport strategy over the long term, and to articulate why a certain mode or use is prioritised over others, and how certain decisions can have wider network impacts.

The NOP also allows for a more holistic vision of transport systems that focuses on:

- Moving people and goods, not vehicles
- Seeing transport as supporting broader city & community goals
- Balancing the competing demands for limited road space
- Considering the 'network' rather than sites or routes

The methodology employed also sought to consolidate the city's existing transport planning and land-use planning context rather than introduce/propose new interventions and projects.

Upon completion of the PNITI Network Options Report – and subsequent Waka Kotahi board endorsement – in early 2021, officers from PNCC, Waka Kotahi and Horizons undertook the jointly funded Palmy Transport System Improvement Plan (PTSIP) which aimed to consolidate Palmerston North's existing transport plans to form an integrated multi-modal view of place and movement priorities to best support the city's transport system. The PTSIP also looked to provide a consistent plan to help PNCC and Waka Kotahi collaboratively develop and deliver interventions necessary to support sustainable growth management, improve multi-modal accessibility, and support the medium to long-term delivery of the PNITI programme. The outputs of PTSIP are presented in Attachment 4.

The outputs of PTSIP were directly fed into the NOP process as per the immediate recommended action in PTSIP. This allowed for a quantitative and evidence-based 'audit' of Palmerston North's existing transport plans to ensure alignment was clear across all aspects of both council and the Waka Kotahi work programme.

Many sources of information and guidance were used to ensure the outputs of the NOP – and in turn Palmerston North's Strategic Networks – were fit-for-purpose and aligned with the best possible national and international technical standards.

The final outputs are therefore supported by substantial evidence used to justify the documents, plans and strategies further upstream (i.e. PNITI Network Options Report, Urban Cycle Network Masterplan etc.) and the additional sources below used to develop the Strategic Networks:

- Average annual daily traffic (AADT) estimates from RAMM
- Collective and Personal Risk measurements from MegaMaps
- 2017-2021 crash history for cyclists, pedestrians and buses from the Waka Kotahi Crash Analysis System (CAS)
- Level of Service scores for each mode from AUSTROADS
- Waka Kotahi's Pedestrian Network Guidance (PNG)
- Waka Kotahi's Cycling Network Guidance (CNG)

6. PALMERSTON NORTH STRATEGIC NETWORKS

The Strategic Networks are presented in Attachment 2 for five different modes, and outline how modal priorities will shift across Palmerston North's transport network over three time increments – short, medium and long term. The increments align with those set out in the PNITI programme, with further work (i.e. project specific planning) required to provide a more accurate representation of when tangible changes are likely to occur.

The Strategic Networks also consolidates the city's existing transport planning and land-use planning context rather than introducing new interventions and projects. As they are effectively a summarisation and clearer articulation of the strategic intent of existing projects, there is no need to undertake public consultation on the

networks. Projects undertaken either by PNCC or partners Horizons Regional Council and Waka Kotahi to give effect to the Strategic Networks will undergo their own engagement and consultation processes.

The Strategic Networks also highlights where immediate planning work is required to fill in existing gaps in the city's transport planning – for example, progressing the Indicative Business Case for the Freight Ring Route to confirm the exact locations, alignment and timing of the future Manawatu River Crossing, Bunnythorpe bypass and Ashhurst Bypass.

The Strategic Networks will be viewable on the Council website via an interactive Geographic Information System (GIS) webmap, where our partners and members of the public will be able to easily view the application of council's strategic transport direction as it pertains to specific roads and streets across the city.

A beta version of the webmap is viewable via this web address: https://arcg.is/1XqnTS0. Supporting the webmap will be a short summary document (Attachment 1) in addition to the full technical report (Attachment 3) all available on the website.

NOPs are intended as live documents that are consistently updated as further planning, analysis and public engagement is undertaken, hence the Strategic Networks will be refined and updated as council's land-use and transport planning work programmes are progressed. Furthermore, new features may be added to the webmap in the interests of transparency and more effective and meaningful communication, such as the programme of minor works (i.e. pedestrian islands, raised pedestrian crossings etc.) in addition to more significant works (i.e. cycle lanes, intersection upgrades, reseals etc.).

7. NEXT STEPS

Upon the adoption of the Strategic Networks, the following actions will be undertaken:

- Mayor/Chief Executive/Chief Planning Officer to provide the foreword for the Strategic Networks Summary Document
- The webmap, Summary Document and Technical Report to be uploaded onto the Council Website
- Council officers to work with Waka Kotahi to align work programmes and investment proposals with the Strategic Networks, and maximise co-funding opportunities in the short-term through the currently ongoing Regional Land Transport Plan development
- Council to progress with numerous transport planning projects to supplement the information contained in the webmap
- Officers and partners to continually update the Strategic Networks to ensure all information is up-to-date, transparently presented and utilised to maximise future co-funding opportunities

8. COMPLIANCE AND ADMINISTRATION

Does the Committee have delegated authority to decide? If Yes quote relevant clause(s) from Delegations Manual	**No**
Are the decisions significant?	**No**
If they are significant do they affect land or a body of water?	**No**
Can this decision only be made through a 10 Year Plan?	**No**
Does this decision require consultation through the Special Consultative procedure?	**No**
Is there funding in the current Annual Plan for these actions?	**Yes**
Are the recommendations inconsistent with any of Council's policies or plans?	**No**
The recommendations contribute to Goal 1: An Innovative and Growing City	
The recommendations contribute to the achievement of action/actions in Transport Adoption of the Palmerston North Strategic Networks 2023 gives effect to all the actions within the Transport Plan, and is a key element in future co-funding decision-making with Waka Kotahi/	
Contribution to strategic direction and to social, economic, environmental and cultural well-being	The Palmerston North Strategic Networks 2023 have been developed in order to: 1. Enable more travel choices by providing safe, easy to access and well-connected networks for all modes. 2. Encourage uptake of sustainable travel options to reduce transport emissions by making public transport, walking and cycling appealing, safe, accessible and enjoyable. 3. Develop a transport system where no-one is killed or seriously injured in road crashes by prioritising routes on corridors where high-quality infrastructure is in place and reducing intermodal conflicts by separating priority routes for the highest risk modes. 4. Match modal priorities with place functions by prioritising general traffic and freights movement where, while prioritising active modes and public transport in place-based areas.

ATTACHMENTS

1. Strategic Networks 2023 - Summary Document ⇩
2. Strategic Networks 2023 - Maps ⇩
3. Strategic Networks 2023 - Technical Report ⇩
4. Palmy System Transport Improvement Plan 2022 ⇩

Strategic Networks 2023

PAPAIOEA
PALMERSTON NORTH CITY

ITEM 7 - ATTACHMENT 1

FOREWORD

TBC MAYOR / CEO / CPO

Our approach

Managing Palmerston North's transport system is a complicated process, with many competing demands and users to balance and cater for. As the city's population grows and existing congestion, road safety issues and maintenance deficits become more significant, there's a need to adopt a more proactive and planned approach to managing our transport network.

We need to balance competing demands within the limited available space

While we will always strive to provide high quality roads and enough transport capacity for the needs of our city, there is increasingly a need to achieve the best use and value for money of our existing assets. Opting to build our way out of our transport issues by increasing capacity for vehicles – such as building more traffic lanes or providing more city centre carparking without understanding the wider network – is expensive, technically challenging, aggravates our current road safety and emissions issues, and with induced demand[1], will only provide benefits for a very short period of time.

Induced demand[1] is the phenomenon that describes how increasing the supply of an item actually leads to higher demand of said item. In transport terms, providing more capacity than required – either through more lanes, reduced travel time or cheap/free carparking – directly leads to more congestion.

Getting the most out of our transport assets is the only way for Palmerston North to grow sustainably and efficiently

In contrast, adopting an approach to maximise the use of existing transport infrastructure by providing quality travel choices across the city is a much cheaper, more feasible and more effective approach. It will also lead to reduced maintenance costs, transport emissions, deathsand serious injuries and a higher quality urban realm.

To do this, PNCC needs to have a clear strategy on how the transport network should function, how road space is allocated for certain uses, and how certain uses/modes are prioritised across certain corridors. The Palmerston North Strategic Networks presents a simple, integrated, evidence-based view of where modes are prioritised across the transport network now and in the future.

The right mode for the right road

The Palmerston North Strategic Networks include some of the immediate planning actions within the Palmerston North Integrated Transport Initiative (PNITI) – endorsed by Palmerston North City Council and the Waka Kotahi board. PNITI is the highest priority project across the Horizons Region as stated in the Regional Land Transport Plan (RLTP) 2021-31[2].

[1] Adapted from Building Bigger Roads Actually Makes Traffic Worse, wired.com
[2] Horizons Regional Council

Context

Palmerston North's unique central location and regionally significant road, rail and air connections acts as a critical gateway and hub to the wider Horizons Region. The city generates 13.5[1] million tonnes of freight across 8% of New Zealand's total land area. Palmerston North itself contributed around $5.5bn to the national economy in the year to September 2021[1]. With $8billion of infrastructure investment planned and underway in and around our city, we need to find the right balance between catering for regionally significant freight activities while ensuring Palmerston North is a safe, inviting and accessible city for the 90,500 people that call it home.

Integrating our land use planning and transport planning is critical

Our Long Term Plan 2021-31 seeks to strengthen our existing "small city benefits" such as quality of life while simultaneously striving for "big city ambition" such as the education and economic opportunities available in larger cities. How we will do this over the next 10 years is presented across the fifteen Council plans and strategies shown opposite.

The way Palmerston North's transport network is designed, maintained, renewed and managed will be determined by Council's ability to achieve the targets set out in these plans. For example, reducing our city's emissions by 30%[2] within the next 10 years will be challenging and require major changes in how our people and goods move about our city. Ensuring our community has a range of legitimate, feasible and safe choices in how they move across the city will require fundamental changes to our city's physical transport network.

[1] Infometrics
[2] Horizons Regional Council
[3] PNCC Long Term Plan 2021-31

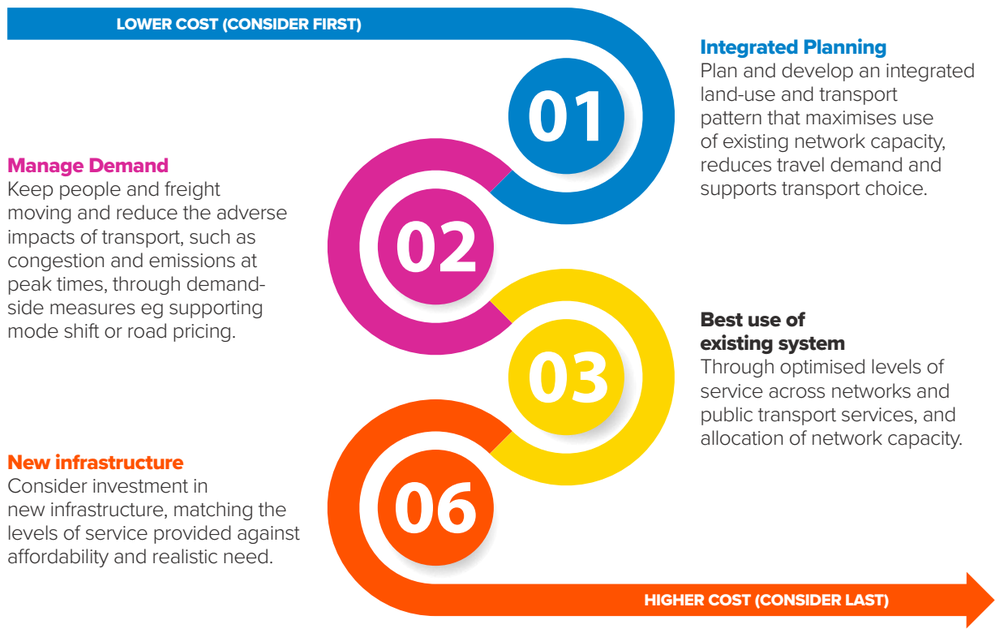
Council plans and strategies

Our national priorities

Central government guidance and direction in this space is clear. Councils are required to clearly demonstrate that their activities align with the Government Policy Statement on Land Transport (GPS) – prioritising safety, access, value for money and reducing climate change effects.

Making the best of use of what we've got before building our way out

Also, building new capital infrastructure to accommodate future transport demand is increasingly seen as the last – and most expensive – resort only to be chosen when all other options such as those outlined in Waka Kotahi's Intervention Hierarchy are exhausted. Using Palmerston North Strategic Networks to outline how we prioritise certain modes and functions across our existing transport network, will ensure that more cost-effective, environmentally friendly and adaptable interventions are implemented before the development of new infrastructure.



Integrated Planning
Plan and develop an integrated land-use and transport pattern that maximises use of existing network capacity, reduces travel demand and supports transport choice.

Manage Demand
Keep people and freight moving and reduce the adverse impacts of transport, such as congestion and emissions at peak times, through demand-side measures eg supporting mode shift or road pricing.

Best use of existing system
Through optimised levels of service across networks and public transport services, and allocation of network capacity.

New infrastructure
Consider investment in new infrastructure, matching the levels of service provided against affordability and realistic need.

Our local priorities

Locally, PNCC's Transport Asset Management Plan 2020 identifies a critical need to better balance movement and place functions across Palmerston North's roads. This means ensuring corridors prioritised for movement are efficient and reliable while those prioritised for place functions are safe, appealing and serve the needs of people first.

Movement
The function of a road acting as a conduit for the passage of people and goods

Place
The function of a road and roadside activities acting as a destination in its own right

Our issues

The effects of our city's growth are starting to be felt across Palmerston North, with more people (1.0% average growth per annum[1]) making more trips and therefore competing for limited space and capacity across our roads, carparks and public spaces.

The number of crashes involving freight traffic on roads not intended to carry freight increased by nearly 70% between 2015 and 2019[2]. Palmerston North boasted the highest proportion of trips to work by walking or cycling in the country every census till 1996 but our place has fallen significantly in every subsequent census.

Around 250 people have died or been seriously injured on our roads over the past decade, with the annual rate increasing – particularly at intersections and for those using active modes. Around 65% of our road pavements are over 40 years old[3] compared with a typical design life of 25 years[4] and the number of customer requests related to potholes has more than doubled across the last 10 years[3].

In 2021 41% of our total city-wide carbon emissions were attributed to transport activities.

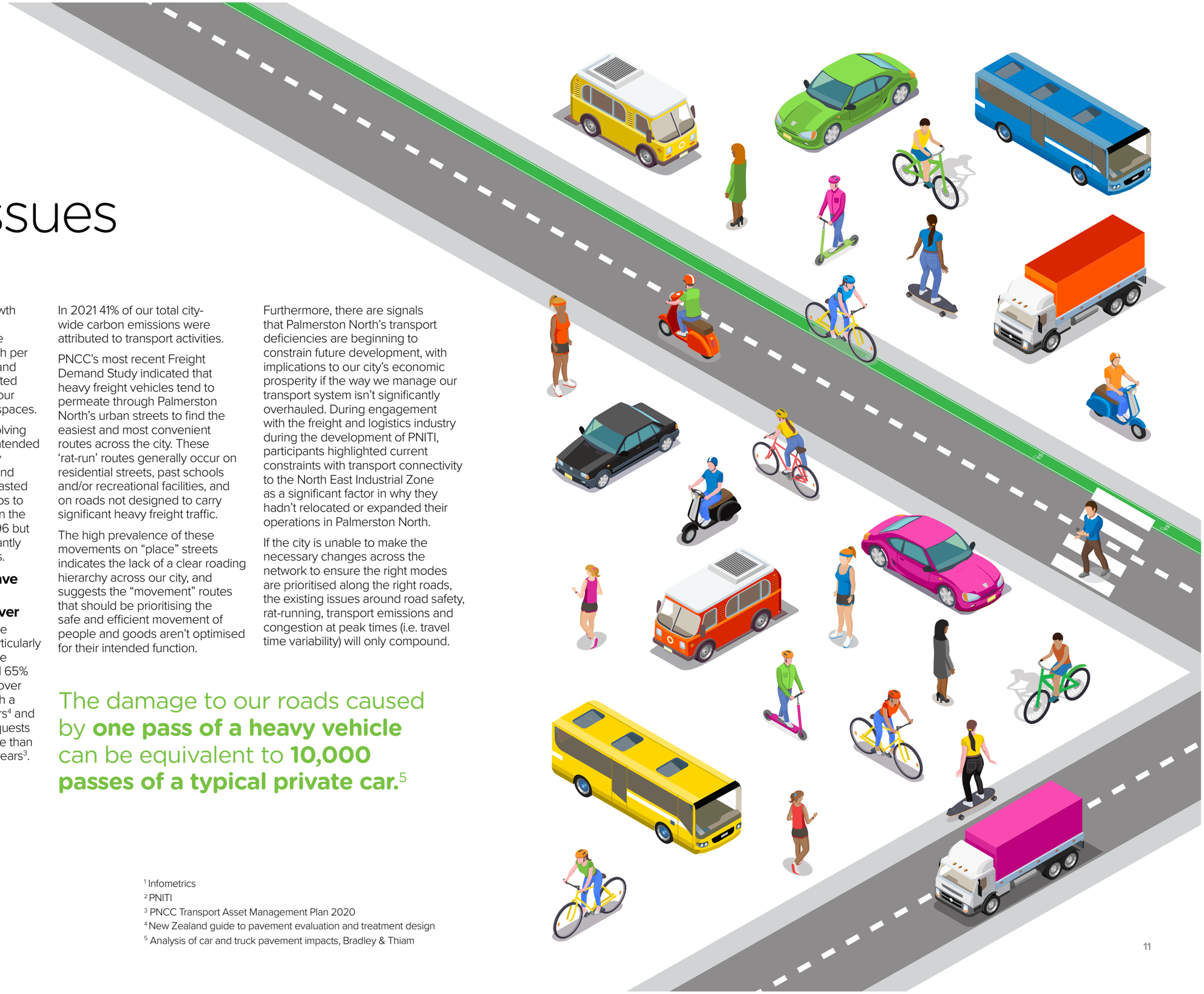
PNCC's most recent Freight Demand Study indicated that heavy freight vehicles tend to permeate through Palmerston North's urban streets to find the easiest and most convenient routes across the city. These 'rat-run' routes generally occur on residential streets, past schools and/or recreational facilities, and on roads not designed to carry significant heavy freight traffic.

The high prevalence of these movements on "place" streets indicates the lack of a clear roading hierarchy across our city, and suggests the "movement" routes that should be prioritising the safe and efficient movement of people and goods aren't optimised for their intended function.

Furthermore, there are signals that Palmerston North's transport deficiencies are beginning to constrain future development, with implications to our city's economic prosperity if the way we manage our transport system isn't significantly overhauled. During engagement with the freight and logistics industry during the development of PNITI, participants highlighted current constraints with transport connectivity to the North East Industrial Zone as a significant factor in why they hadn't relocated or expanded their operations in Palmerston North.

If the city is unable to make the necessary changes across the network to ensure the right modes are prioritised along the right roads, the existing issues around road safety, rat-running, transport emissions and congestion at peak times (i.e. travel time variability) will only compound.

The damage to our roads caused by **one pass of a heavy vehicle** can be equivalent to **10,000 passes of a typical private car.**[5]



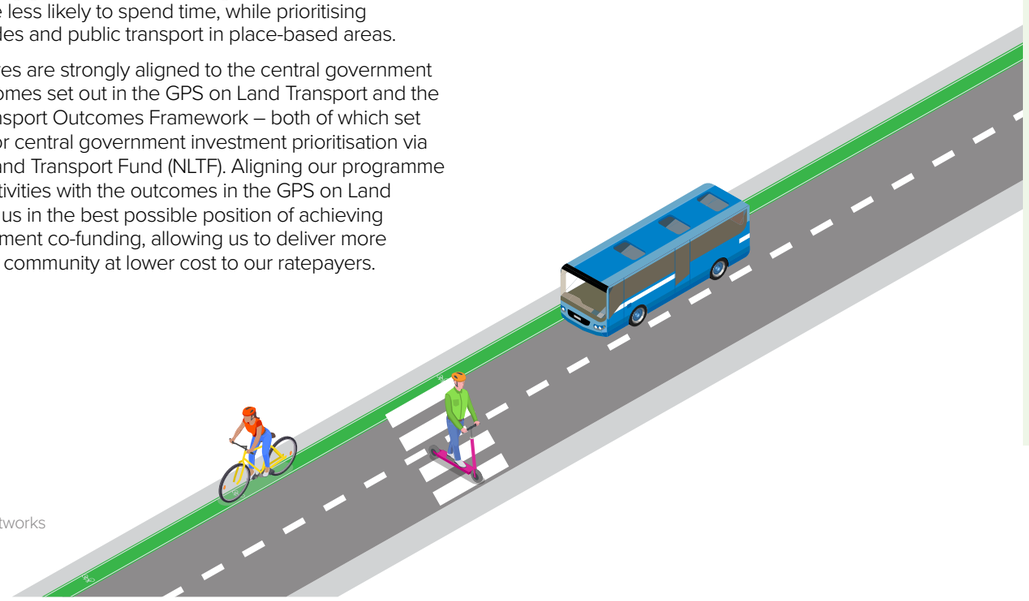
[1] Infometrics
[2] PNITI
[3] PNCC Transport Asset Management Plan 2020
[4] New Zealand guide to pavement evaluation and treatment design
[5] Analysis of car and truck pavement impacts, Bradley & Thiam

Our aims

Our vision, goals and targets, along with those from regional and central government, have been strongly reflected across the development of the Strategic Networks with a particular focus on:

1. **Enabling more travel choices** by providing safe, easy to access and well-connected networks for all modes.
2. **Encouraging uptake of sustainable travel options to reduce transport emissions** by making public transport, walking and cycling appealing, safe, accessible and enjoyable.
3. **Developing a transport system where no-one is killed or seriously injured** by prioritising routes on corridors where high-quality infrastructure is in place, and separating priority routes for the highest risk modes to reduce conflicts.
4. **Matching modal priorities with movement/place functions** by prioritising general traffic and freight movements where people are less likely to spend time, while prioritising active modes and public transport in place-based areas.

These objectives are strongly aligned to the central government transport outcomes set out in the GPS on Land Transport and the Ministry of Transport Outcomes Framework – both of which set the direction for central government investment prioritisation via the National Land Transport Fund (NLTF). Aligning our programme of transport activities with the outcomes in the GPS on Land Transport puts us in the best possible position of achieving central government co-funding, allowing us to deliver more benefits to our community at lower cost to our ratepayers.



The Strategic Networks

The Palmerston North Strategic Networks combine several existing plans and strategies – at national, regional and local levels – into a single and simple network plan.

They outline the most important (i.e. priority) uses/modes along certain corridors across Palmerston North and inform where and how all five modes are balanced against each other along our movement corridors.

Freight

Cycling

Public Transport

Walking

General Traffic

All five modes collectively contribute to the safe and efficient movement of people and goods across our city, so it's essential that the function of each mode is carefully integrated with others in a pragmatic, cohesive and safe manner to unlock their full potential.

If a corridor is identified as a priority route for a certain mode, it doesn't mean the route will exclusively cater for that mode, nor does it mean that the selected mode can't use other routes if required. However, it does mean that the priority modes along a route will take precedence over other non-priority modes, and the design/operation of the route will reflect this.

For example, though all modes of transport will likely be able to use a public transport priority route, priority will be given to public transport through specific treatments such as bus lanes, bus priority traffic lights and/or in-lane bus stops. On the other hand, public transport services may also operate on routes prioritised for another mode but will experience a deliberately lower level/quality of service than the mode prioritised along that route.

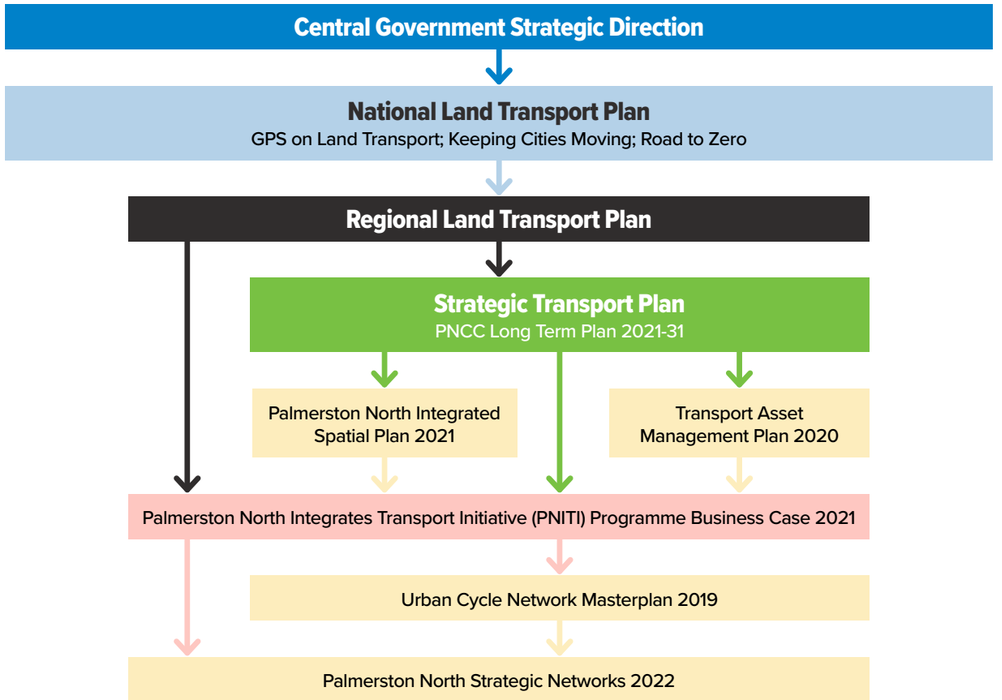
The Strategic Networks are presented in a web-based platform to outline how the priority routes for each mode may change over time as a result of changing land-use, city growth, policy decisions and the continued implementation of our city's infrastructure programme.

How did we develop our Strategic Networks?

The Palmerston North Strategic Networks are a simplified and more accessible version of our Network Operating Plan 2022 – a Waka Kotahi and AUSTROADS approved methodology to link strategic intent with operational and planning decisions across a city's transport network. It promotes proactive and objective decision-making on the prioritisation of transport corridors for particular functions and evaluates the trade-offs and opportunity costs of these decisions.

The Network Operating Plan provides an integrated approach to managing congestion, safety and competing demands for limited road space across our city. It also supports future planning and development of transport and travel choices by establishing the future networks with modal priority attached to deliver our agreed strategic goals.

The Palmerston North Network Operating Plan 2022 – just like the Strategic Networks 2022 it informs – is a summary and collation of several upstream strategic documents that set out how Palmerston North's transport system will be designed, managed and operated. Therefore, the outputs of both the Strategic Networks 2022 and the Network Operating Plan 2022 are consistent with the outputs of the plans and strategies further upstream.



The evidence base used to develop the Strategic Networks 2022 is substantial as it includes the evidence used to justify the documents, plans and decisions made further upstream. In addition, we also evaluated the following information to develop the Network Operating Plan 2022:

- Average annual daily traffic (AADT) estimates from RAMM
- Collective and Personal Risk measurements from MegaMaps
- Crash history for cyclists, pedestrians and buses over the five years 2017-2021 from the Crash Analysis System (CAS)
- Level of Service scores for each modes from AUSTROADS
- Waka Kotahi's Pedestrian Network Guidance (PNG) and Cycling Network Guidance (CNG)

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NORTH
CITY

Te Kaunihera o Papaioea
Palmerston North City Council

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06 356 8199

Strategic Networks 2023 – Maps

Walking

Palmerston North Strategic Networks

Walking Priority Routes

Short Term

Medium Term

Long Term

Walking Short Term

Walking Medium Term

Walking Long Term

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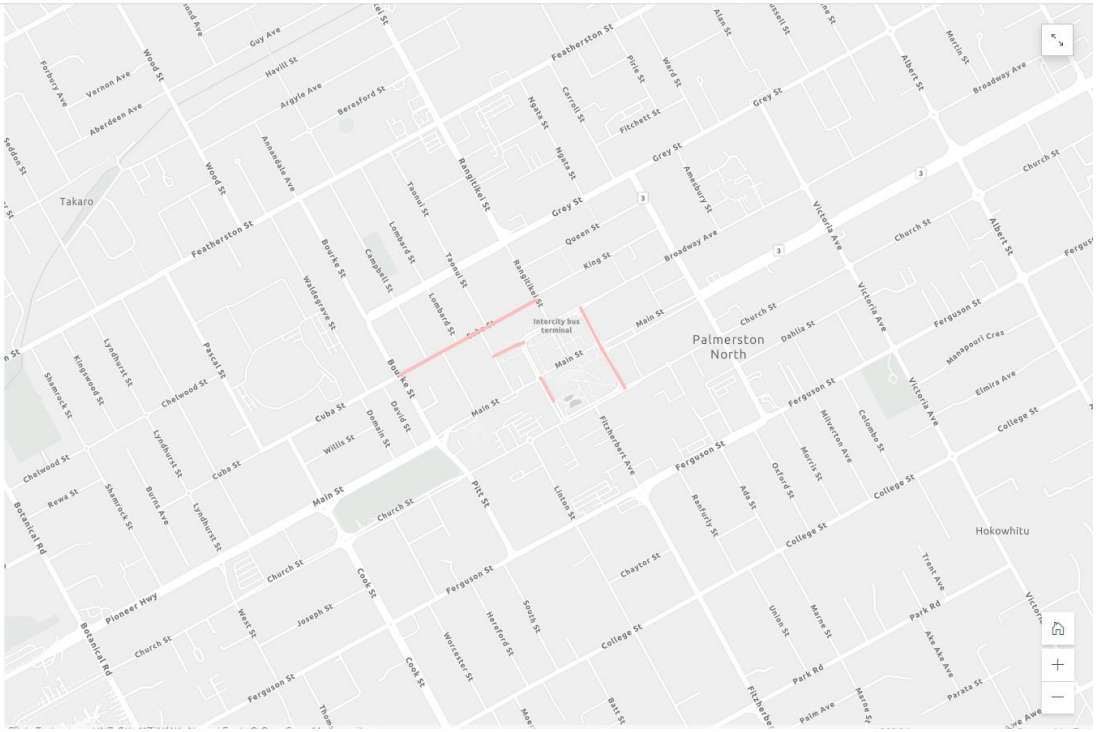
/
08



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Palmerston North Strategic Networks

Walking Priority Routes

Short Term

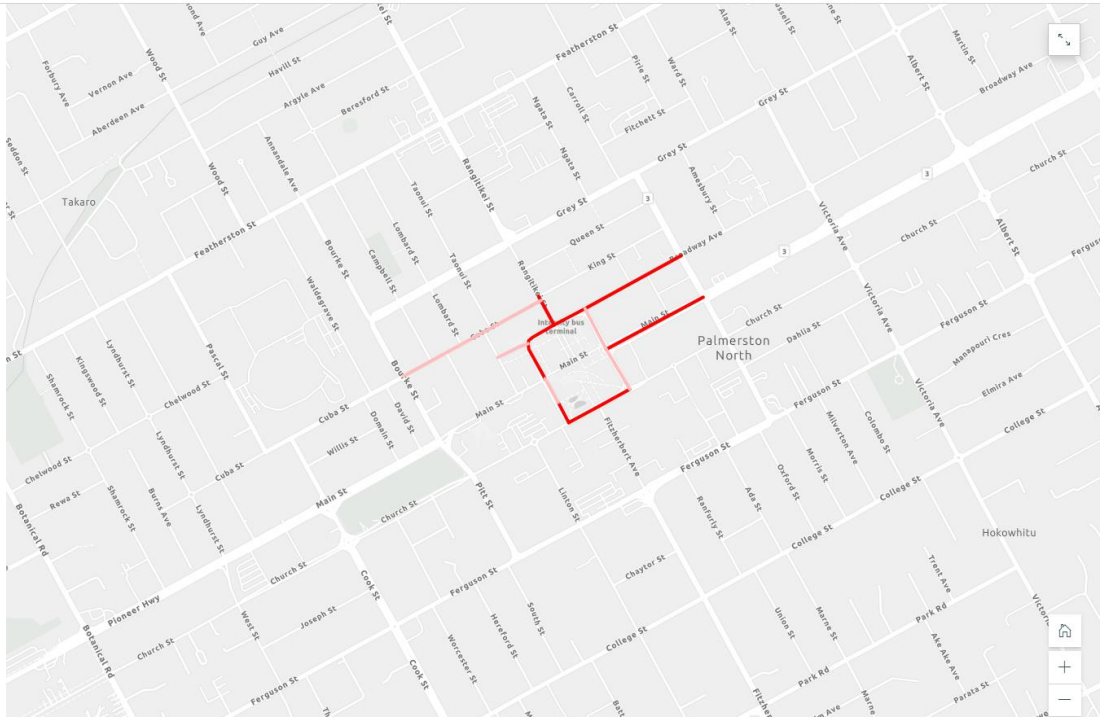
Medium Term

Long Term

Walking Short Term

Walking Medium Term

Walking Long Term



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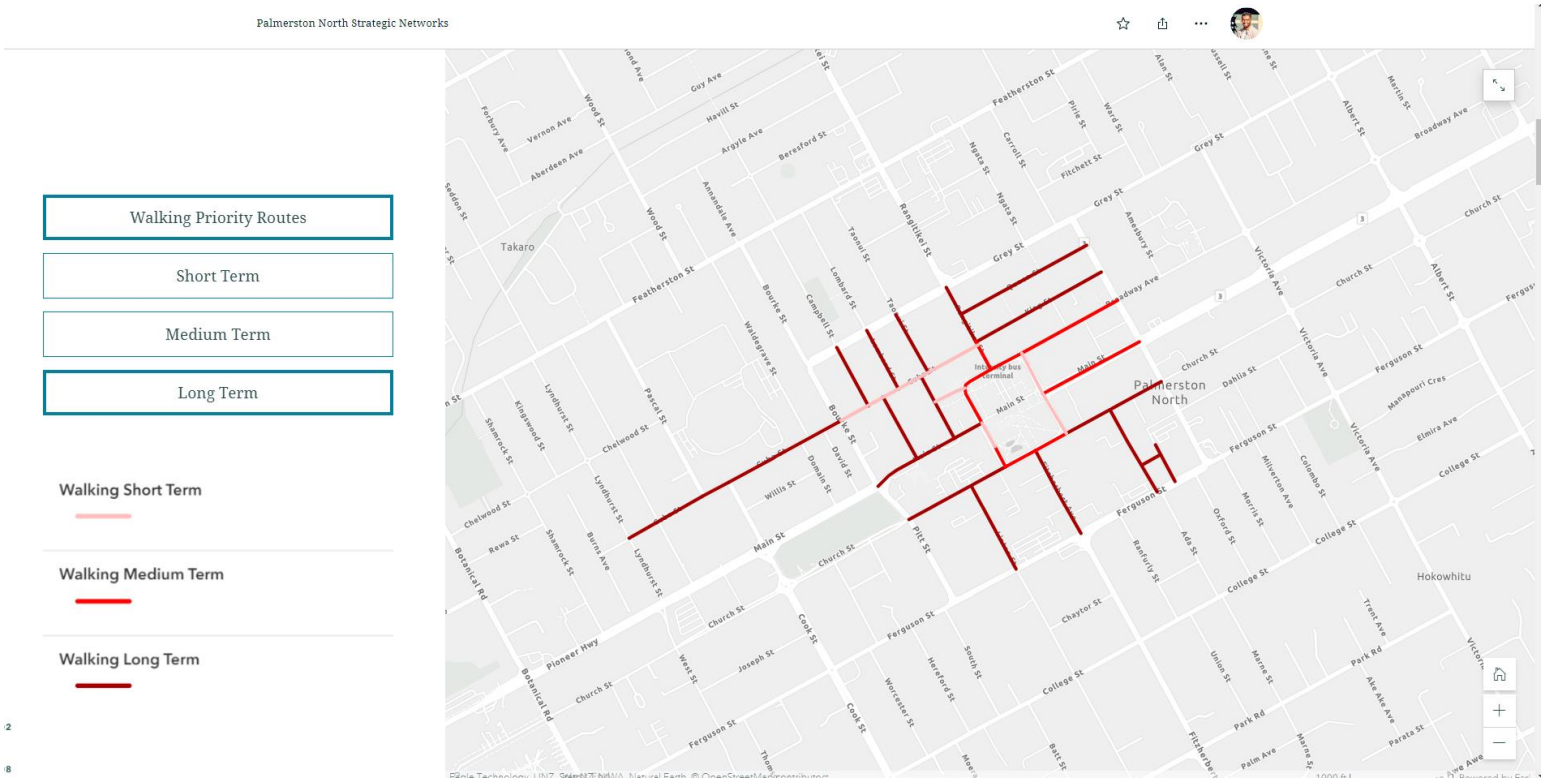

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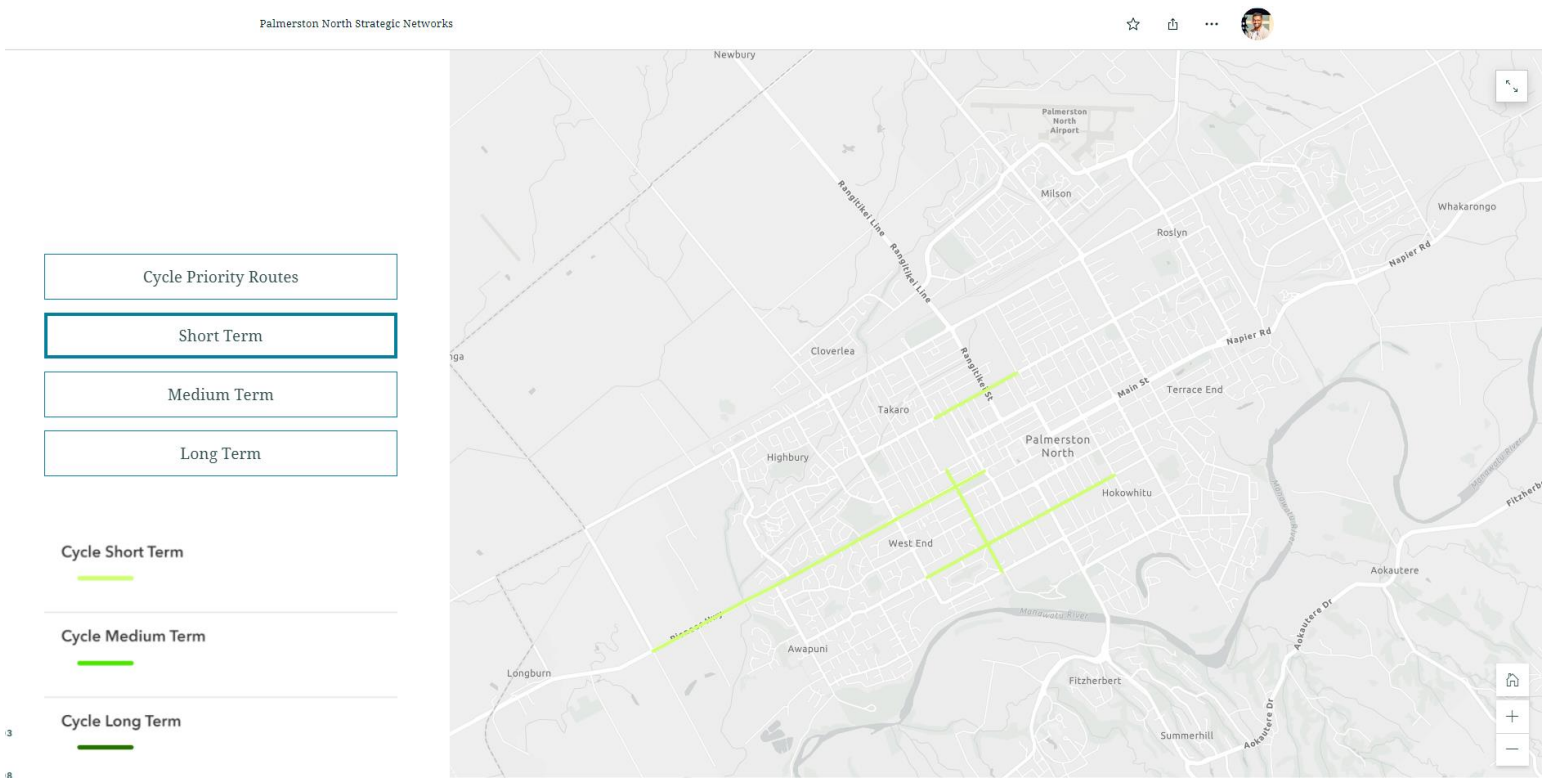
Cycling



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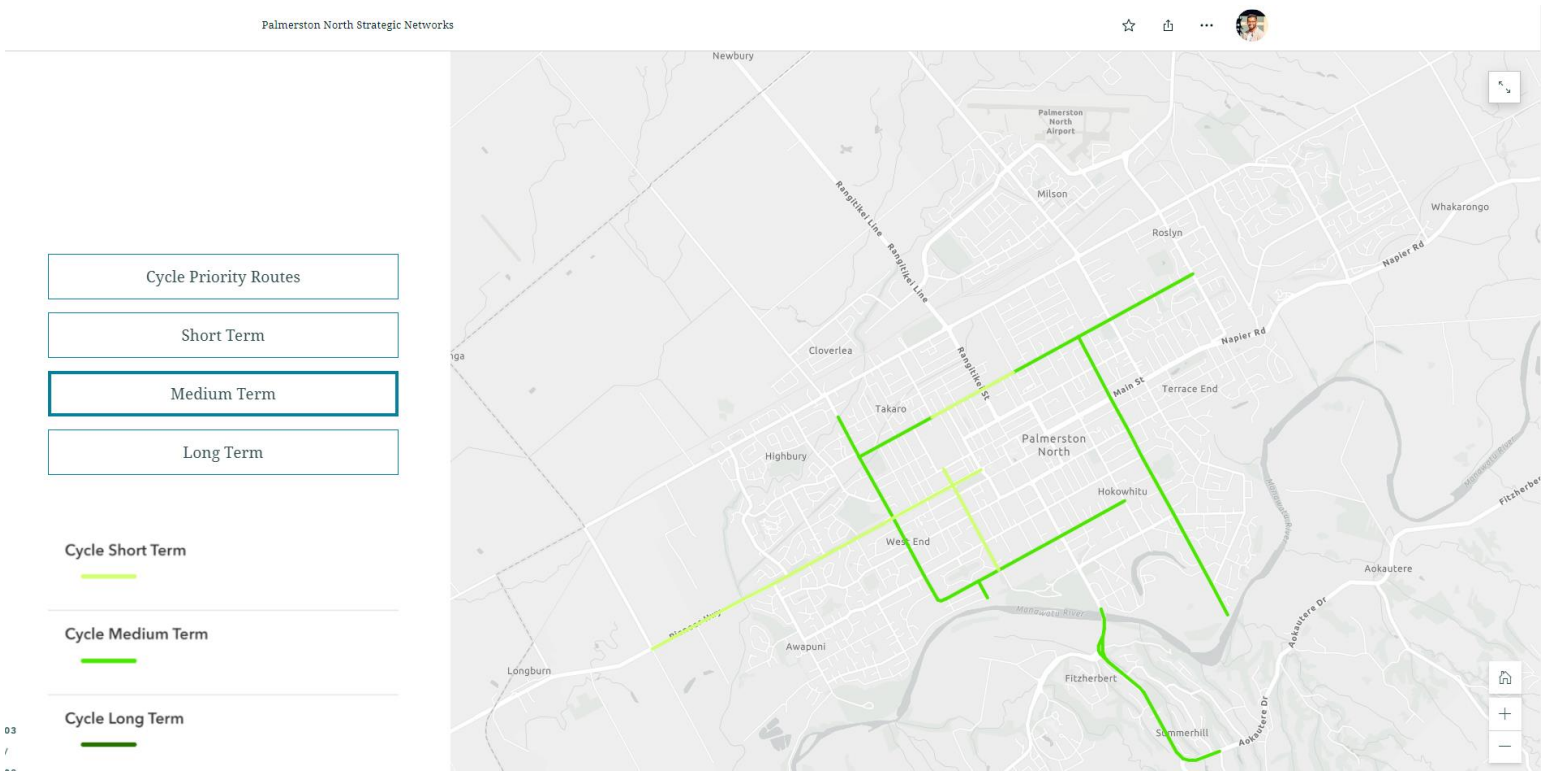
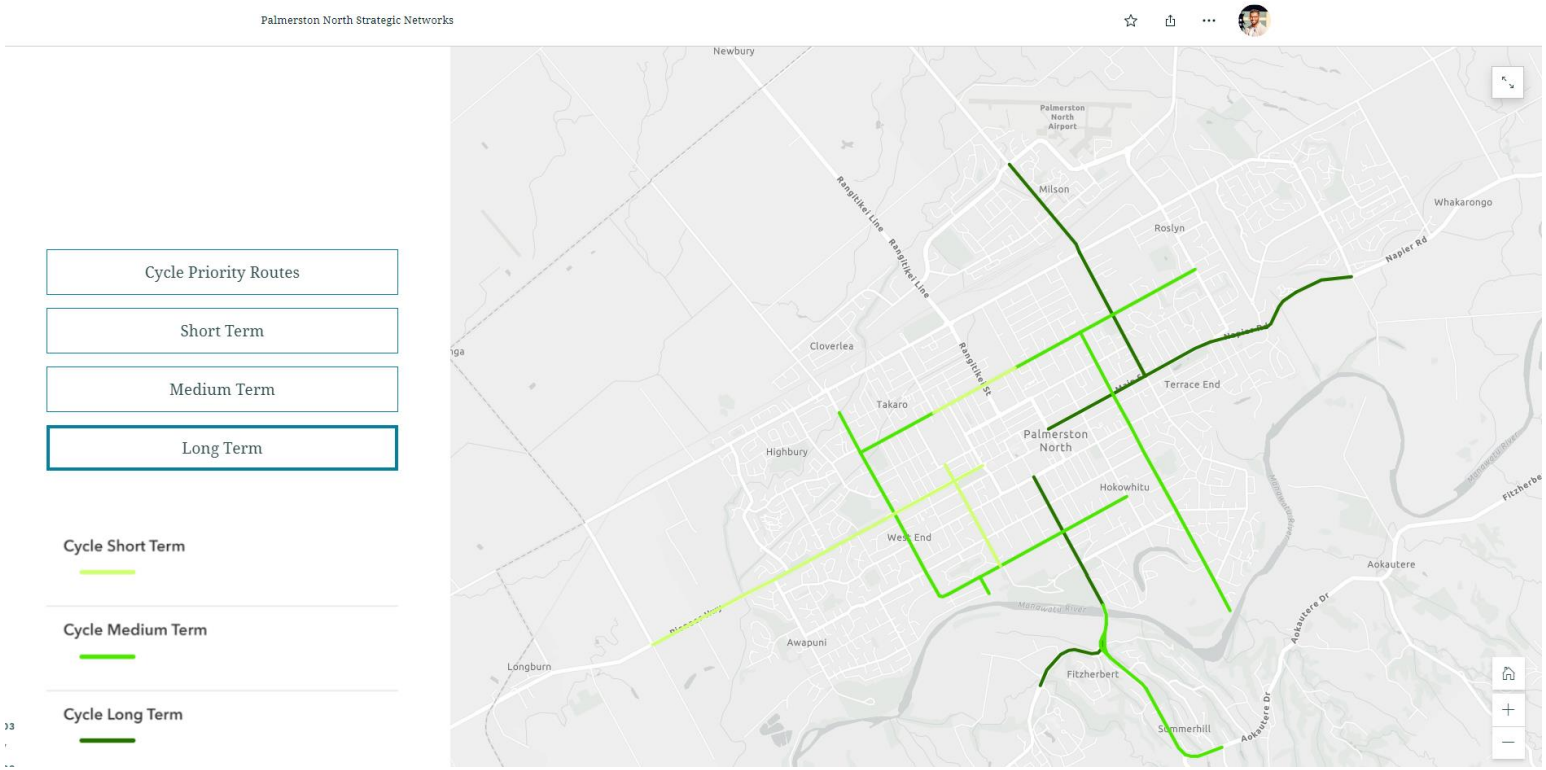

Palmerston North Strategic Networks
Cycle Priority Routes
Short Term
Medium Term
Long Term
Cycle Short Term
Cycle Medium Term
Cycle Long Term
Newbury
Palmerston North Airport
Milson
Roslyn
Whakarongo
Napier Rd
Rangitikei Line
Cloverlea
Takaro
Main St
Terrace End
Highbury
Palmerston North
Hokowhitu
West End
Aokautere
Aokautere Dr
Awapuni
Longburn
Fitzherbert
Summerhill

25


Palmerston North Strategic Networks
Cycle Priority Routes
Short Term
Medium Term
Long Term
Cycle Short Term
Cycle Medium Term
Cycle Long Term
Newbury
Palmerston North Airport
Milson
Roslyn
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Cloverlea
Takaro
Terrace End
Highbury
Palmerston North
Hokowhitu
West End
Aokautere
Aokautere Dr
Awapuni
Longburn
Fitzherbert
Summerhill

Public Transport

Palmerston North Strategic Networks

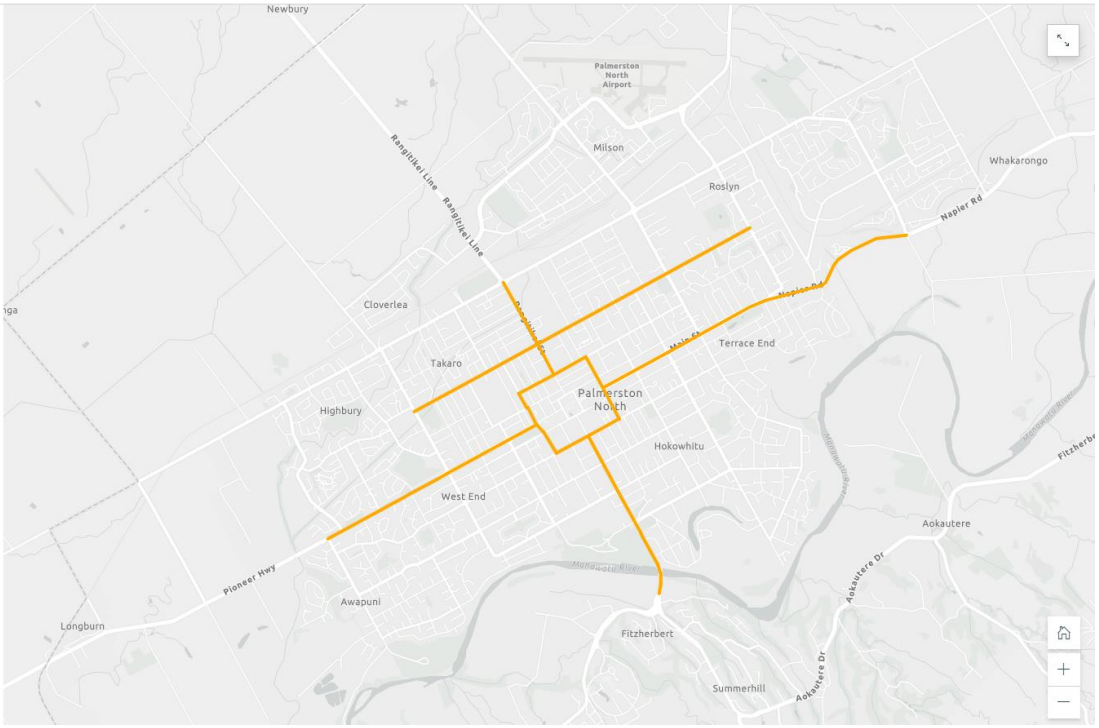
Public Transport Priority Routes

Short Term

Medium & Long Term

Public Transport Short Term

Public Transport Medium & Long Term



Palmerston North Strategic Networks

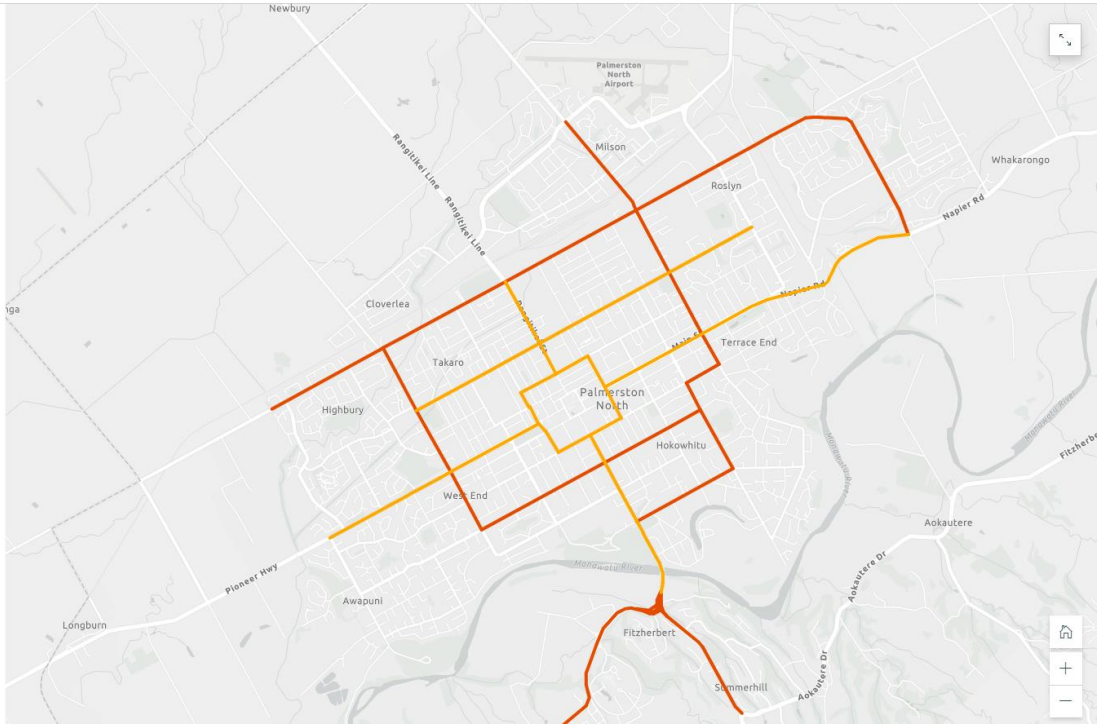
Public Transport Priority Routes

Short Term

Medium & Long Term

Public Transport Short Term

Public Transport Medium & Long Term



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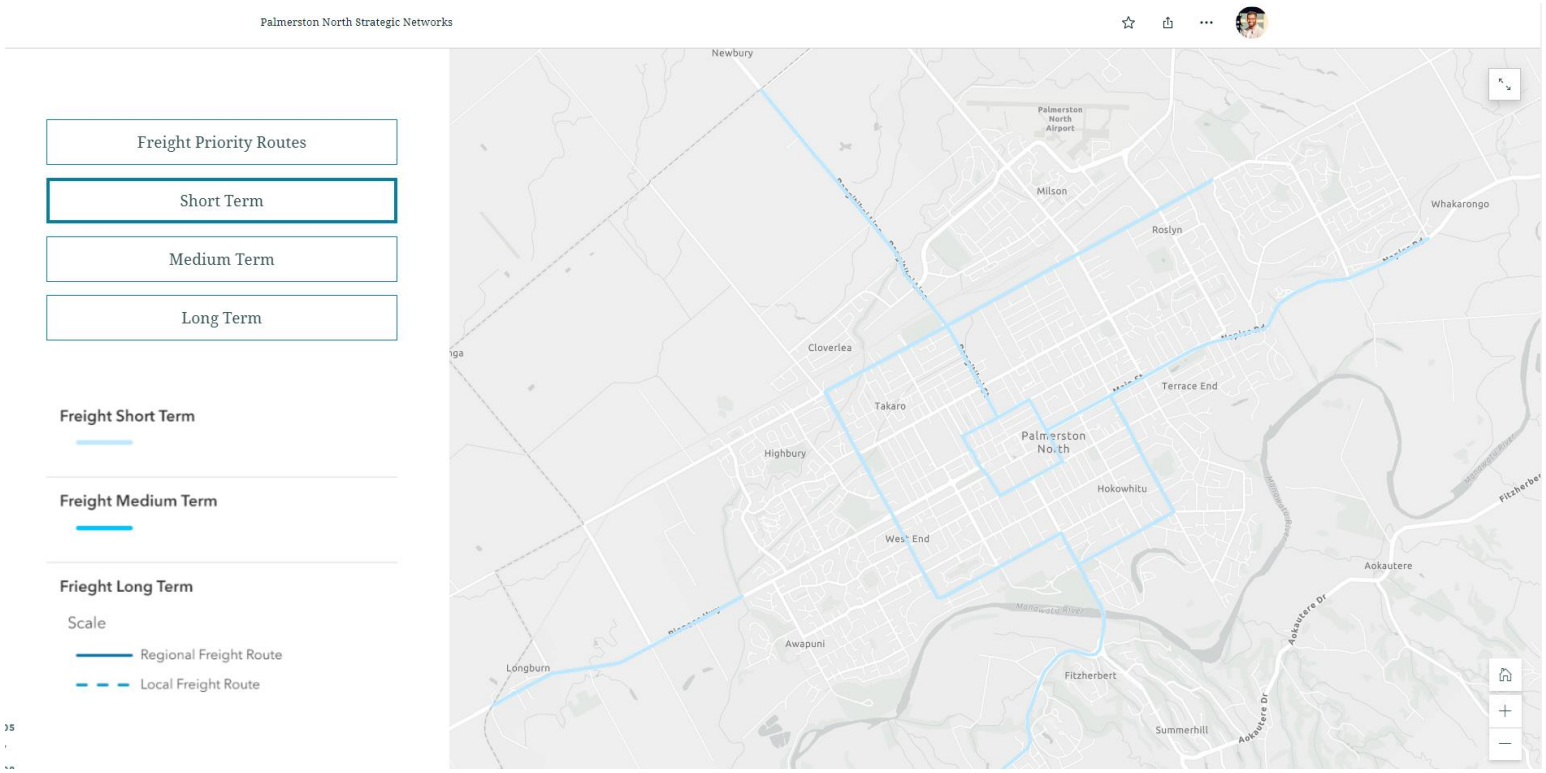
Freight



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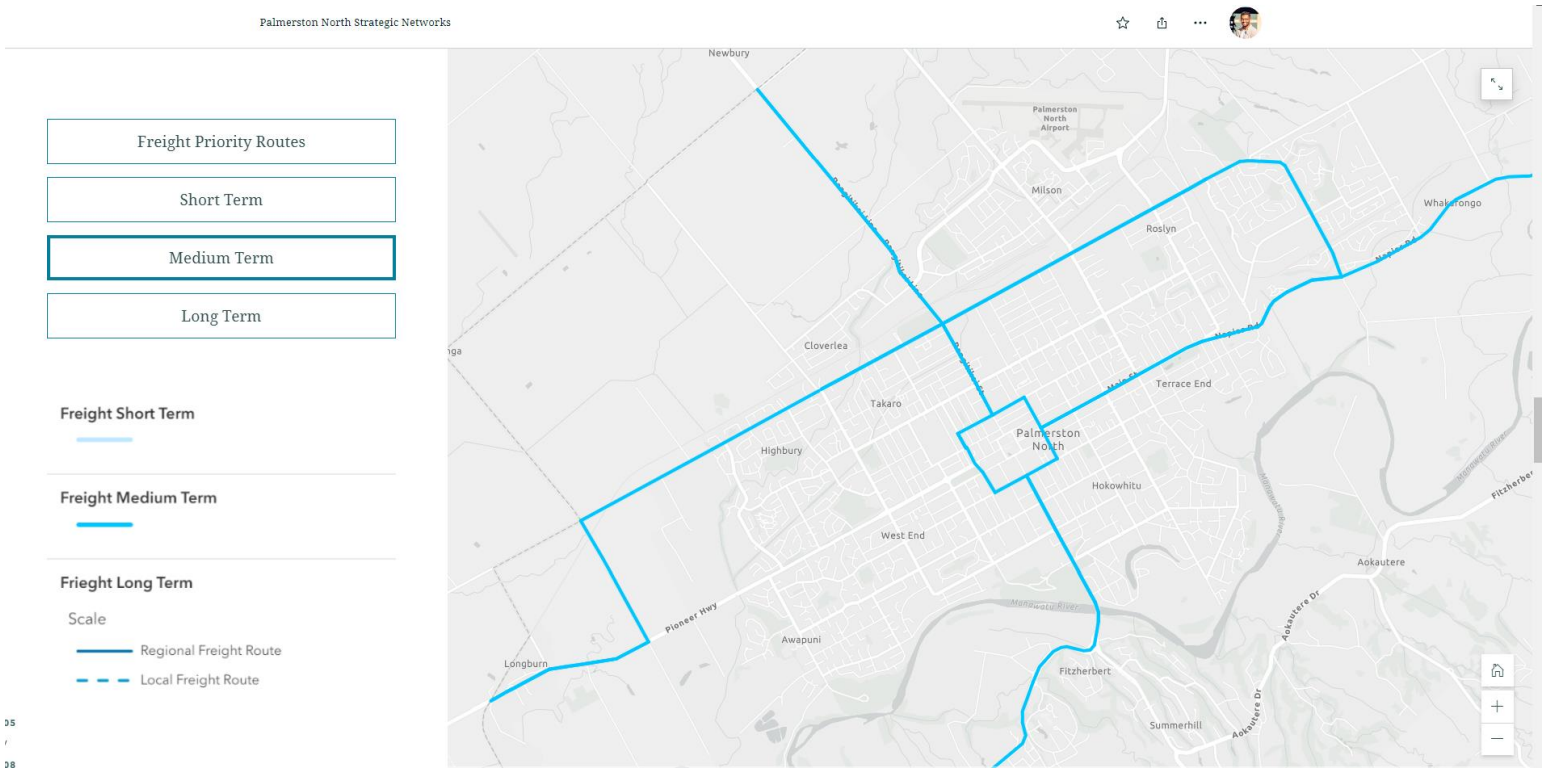

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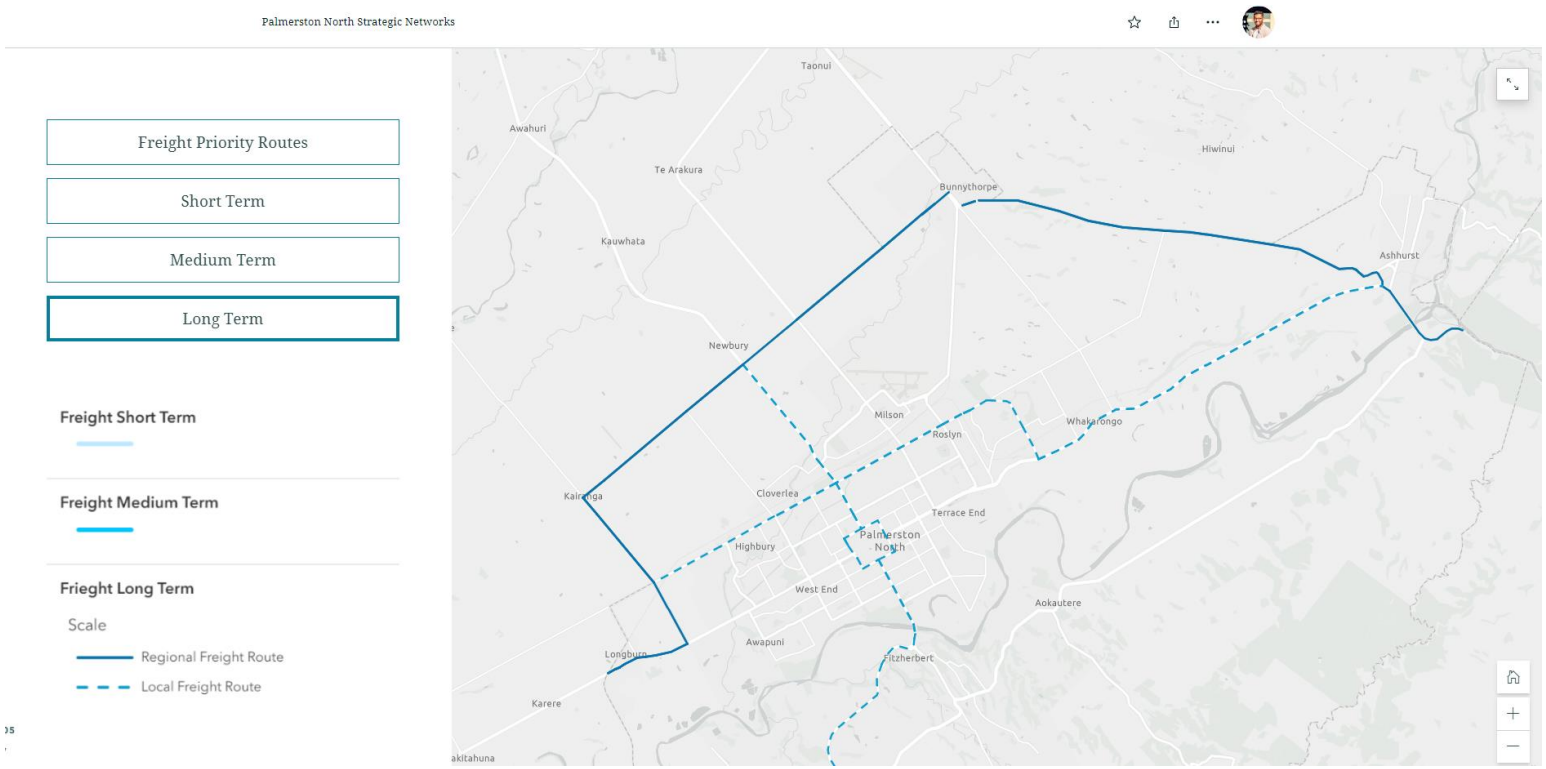

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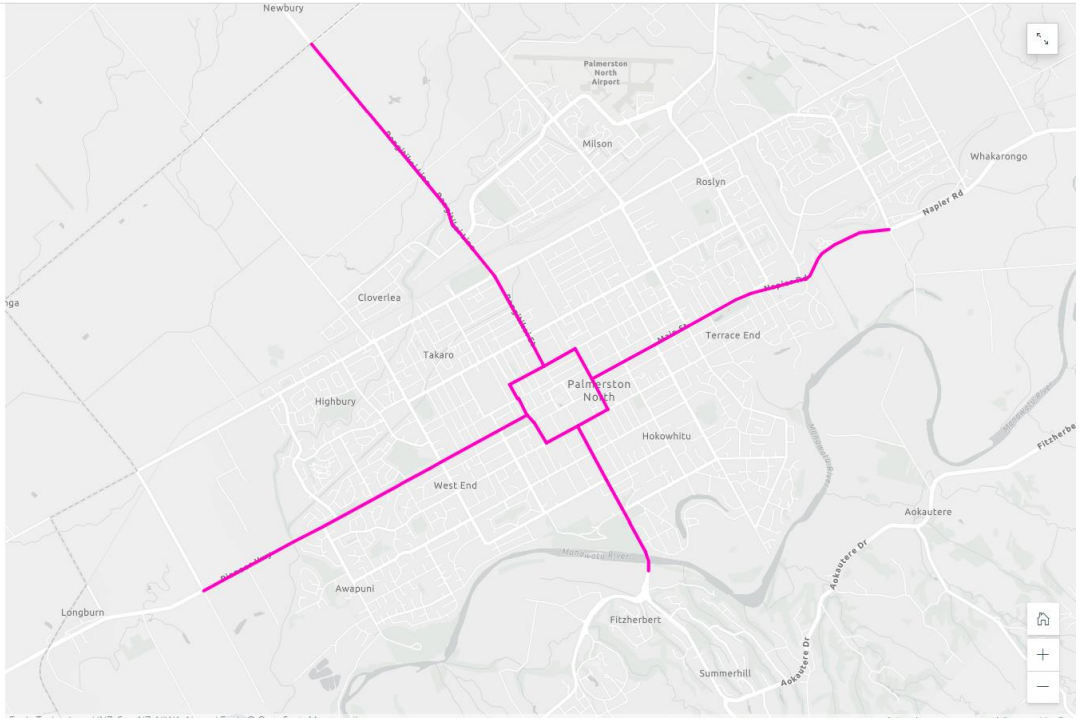
General Traffic

Palmerston North Strategic Networks

General Traffic



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ITEM 7 - ATTACHMENT 2

Strategic Networks

Network Operating Plan 2023

PAPAIOEA PALMERSTON NORTH CITY

This document was prepared by Palmerston North City Council.

	Name	Signature	Date
Prepared by:	Abley		29 August 2022
Reviewed by:	Vinuka Nanayakkara		25 October 2022
Approved for Issue by:			

Version No.	Reason for Amendment	Date
A	WORKING DRAFT	29 August 2022
B	Final	25 October 2022

Contents

Figures

Tables

Appendices

Executive Summary

The Palmerston North Network Operation Plan (NOP) is intended to enable and guide investment decisions on shorter-term improvements so that they are targeted towards achieving the longer-term strategic network. The plan identifies relative level of service (LOS) operating gaps in Palmerston North's transport network.

The NOP has been developed in response to Palmy Transport System Improvement Plan (PTSIP) and the Palmerston North Integrated Transport Initiative (PNITI). PNITI develops the case for a package of roading interventions focusing on improving freight movements in the region in the long-term, while PTSIP brought together existing transport plans and forms an integrated multi-modal view of place and movement priorities, presenting a blueprint to improve the transportation system in the short and medium term. The NOP uses PTSIP as a starting point, examining priority routes using a holistic and network-wide approach to consolidate the long-term transport vision into a single document, and then identifies steps that can be taken in the short term towards achieving this vision.

The development of the NOP has followed the Network Operating Framework (NOF) process guidance issued by Waka Kotahi, which provides a structure for stakeholders to come together and agree how the transport network should be planned and operated in the context of place and mode. The process includes four collaborative, workshop-based steps, the first two of which – identifying the strategic setting and developing a links and places map – were given effect by PTSIP. The NOP gives effect to the final two steps – developing a road use hierarchy map and assessing operating gaps.

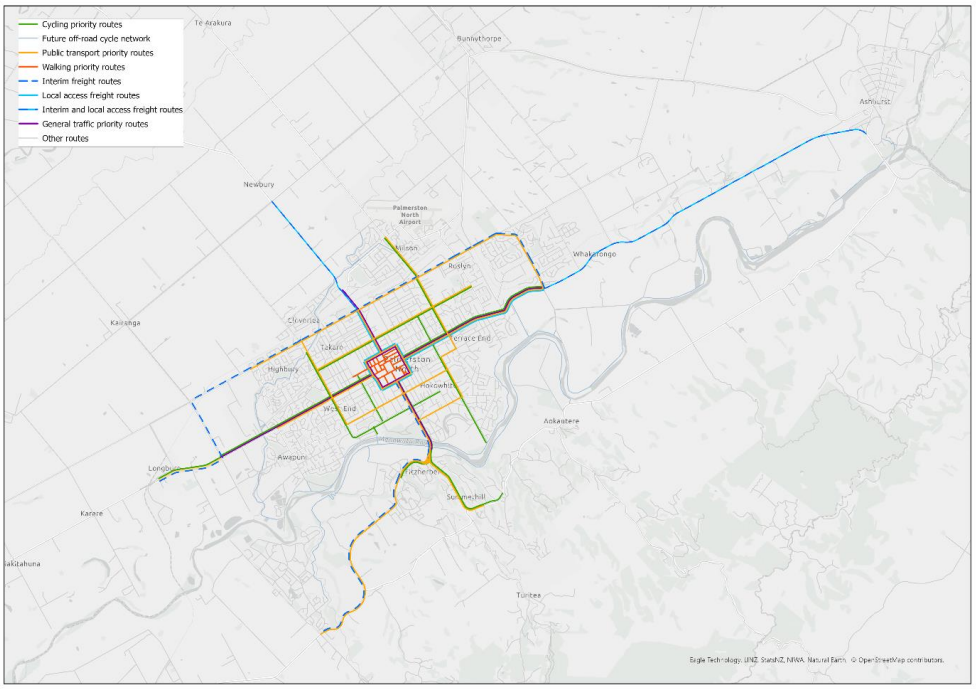
Strategic review

National, regional and local policy documents have been reviewed in order to develop a series of objectives for the NOP that are aligned with the strategic context. These objectives are as follows:

- Enabling travel choices by making Palmerston North accessible by a variety of modes. This means providing safe, easy to access and well-connected networks for all key modes.
- Encouraging uptake of sustainable travel options to reduce transport emissions. This means making public transport, walking and cycling attractive by ensuring journeys are safe, accessible and enjoyable when using these modes.
- Developing a transport system where no-one is killed or seriously injured in road crashes. This means prioritising routes on corridors where high-quality infrastructure is in place and reducing intermodal conflicts by separating priority routes for modes that are most at risk.
- Matching modal priorities with place functions. This means prioritising car and freight movement in areas where people are less likely to spend time, while prioritising lower-impact modes to contribute to placemaking in key centres.

Network assessment

The network assessment used PTSIP as a starting point, refining the proposed key journeys presented in that plan into a long-term strategic network that considers other applicable plans and strategies, including PNITI, the Urban Cycle Network Masterplan (UCNM), the operative district plan, the One Network Road Classification (ONRC) and One Network Framework (ONF), and the previous NOP. The long-term strategic network separates priority routes by mode and is shown in the figure below.



This strategic network focuses on the primary routes that are to be prioritised for each mode. By definition, this network excludes secondary routes that may nevertheless be important routes at the local level. Though some modes may not be identified for prioritisation on certain routes, it does not mean that these modes will not be present in these locations or that transport infrastructure will not be provided for them.

Operating gaps

LOS has been scored based on the 2015 Austroads Research Report AP-R475-15 *Level of Service Metrics (for Network Operations Planning)*. This report identifies five common LOS needs across each mode: mobility, safety, access, information, and amenity. The measures that contribute to each of these needs are different for each mode. LOS is scored on a scale from A (best/highest) to F (worst/lowest).

- Priority public transport routes score low to middling, with no corridor scoring higher than LOS C.
- The LOS provided by priority cycling routes is wide ranging with some moderate to good routes but several poorly scoring routes along major vehicular corridors.
- Priority pedestrian routes range from reasonably good (LOS B) to mediocre (LOS D).
- The interim freight bypass route scores at LOS C, which is only one step below LOS B, the maximum that is likely to be possible. This route is intended to be temporary as in the long term through freight will bypass the city using the proposed Regional Freight Ring Road. The local access routes that are proposed to provide freight access to city centre activities do not generally score high.
- The priority network for general traffic varies significantly in LOS, which is primarily due to varying levels of congestion, road quality and road safety risk.

Interventions

The operating gap assessment shows that the proposed modal priority networks are generally not currently providing the aspirational LOS. Few routes have been scored as currently having a high LOS for prioritised modes, and none of these have scored LOS A. Interventions have been proposed that would help to improve LOS in consideration of the NOP objectives.

As a first step, interventions have been identified on a programme basis. That is, routes with common elements have been addressed together to ensure a consistent network-wide approach. These have then been adjusted to tailor them to specific environments. Proposed interventions are conceptual only and further work is required to confirm their effectiveness and feasibility. The following programmes have been identified:

- Urban speed management
- Walkable city centre improvements
- Rural corridor safety improvements
- Rural intersection safety improvements
- Major arterial route optimisation
- Urban cycle corridor improvements
- Bus stop access and amenity improvements
- Intersection upgrades for cycling and public transport
- Detuning high-volume roads without prioritisation

Phasing

Proposed interventions have been programmed across the short- (0-10 years), medium- (10-20 years) and long-term (20-30 years and beyond) projects. These timeframes are approximate estimations only, and the key focus of the phasing is identifying the order in which projects should be delivered in order to most effectively address gaps across the network.

The majority of interventions fall into the short term. In particular, improvements for walking, cycling and public transport generally represent levels of investment that are achievable in the short term

Recommendations

The identified series of interventions represents an approach that could be taken to achieve the long-term strategic network. However, these have only been identified at a strategic level, and while specific measures are suggested, these are only intended to start the conversation around planning a programme of works. Before progressing to design and construction, it is recommended that further investigations are made into the feasibility of these interventions and that viable alternatives are considered.

1 Introduction

The Palmerston North Network Operation Plan (NOP) is intended to enable and guide investment decisions on shorter-term improvements so that they are targeted towards achieving the longer-term strategic network. The plan identifies relative level of service (LOS) operating gaps in Palmerston North's transport network.

The previous NOP was developed by Abley and issued in September 2019 and was intended to have a three-year lifespan. In the intervening years, several further plans and strategies have been developed that alter the long-term strategic network. Key among these is the Palmerston North Integrated Transport Initiative (PNITI), which develops the case for a package of roading interventions focusing on improving freight movements in the region in the long-term.

PNITI recommended the development of a system improvement plan as one of the first actions within the programme. This was completed in January 2022 with the Palmy Transport System Improvement Plan (PTSIP) through a collaboration between Palmerston North City Council (PNCC) and Waka Kotahi NZ Transport Agency (Waka Kotahi). This document brought together existing transport plans and forms an integrated multi-modal view of place and movement priorities, presenting a blueprint to improve the transportation system in the short and medium term.

PTSIP in turn has recommended updates to the NOP. In its review of the previous NOP, PTSIP has identified inconsistencies between nominated freight routes and current use. It also notes that some corridors are catering for several different modes and that there may be conflicts between modes as a result. The NOP responds to this review, examining priority routes using a holistic and network-wide approach to consolidate the long-term transport vision into a single document, and then identifies steps that can be taken in the short term towards achieving this vision. The relationship between the NOP and other frameworks and plans is shown in Figure 1-1.

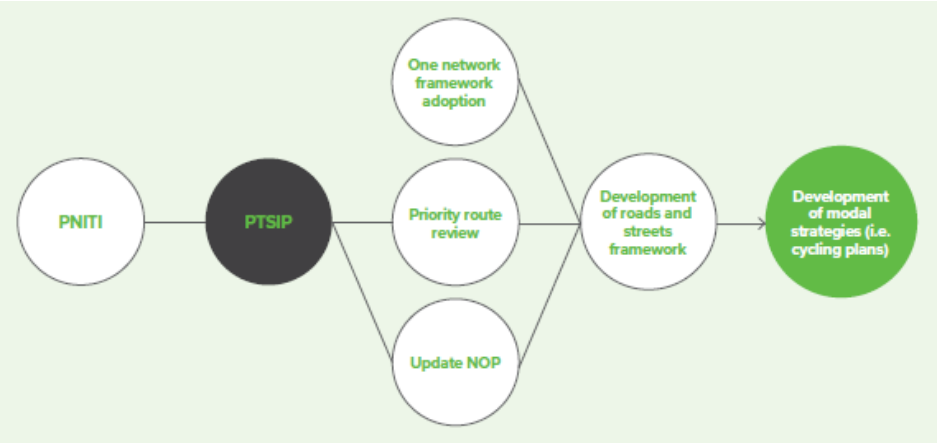


Figure 1-1: Connections between key transport frameworks and tools (Source: PTSIP)

1.1 NOF process

The Network Operating Framework (NOF) process provides a structure for stakeholders to come together and agree how the transport network should be planned and operated in the context of place and mode. The methodology follows the SmartRoads process developed by VicRoads, following Austroads' Network Operations Planning framework guidance and endorsed by Waka Kotahi.

The NOF process moves away from the traditional prioritisation of transport networks by function (i.e. Arterial, Collector, Access roads) to recognise that surrounding land use and the associated place function of a road is also critical to decision-making for operation of and investment in the network. The network is assessed to identify operating gaps and test interventions across modes.

The process includes four collaborative, workshop-based steps that are shown in Figure 1-2, below. The four steps are:

- Strategic setting – development of strategic objectives and priorities.
- Links and places map – development of a strategic map showing the strategic modal network (primary and feeder routes for each mode) and key land use areas.
- Road use hierarchy map – development of modal road use hierarchy maps.
- Operating gaps – assessment of the gaps between the network today and the future network state needed to deliver the strategic intent.

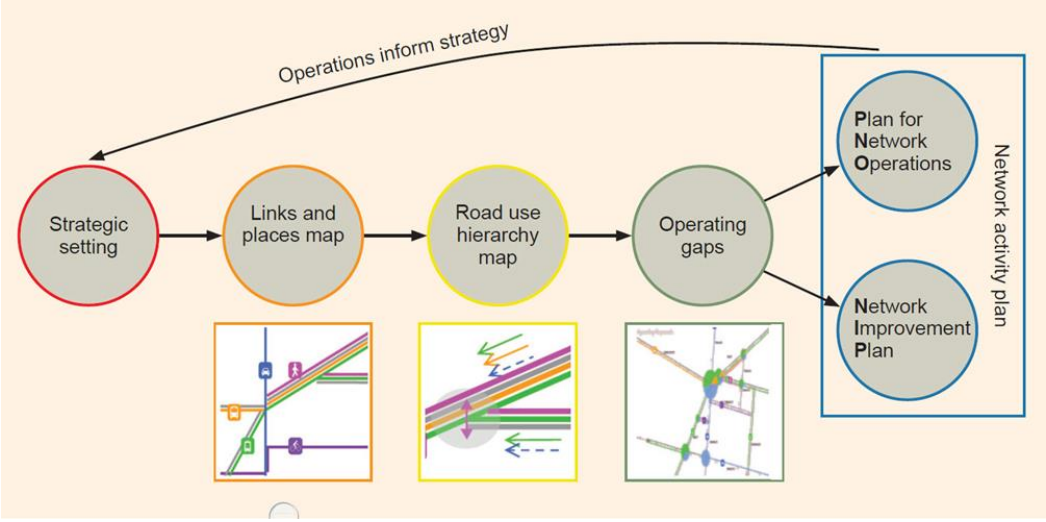


Figure 1-2: NOF process diagram

1.2 Study area

The study area for this plan is the Palmerston North City Council area, including Palmerston North and outlying towns of Ashhurst, Bunnythorpe and Longburn. Note that the previous 2019 NOP was developed for a larger area that included the town of Feilding in the Manawatū District.

1.3 Report structure

- Chapter 2: Strategic context. This section summarises the policy that has fed into the development of the NOP objectives.
- Chapter 3: NOP objectives. This section identifies the policy objectives that the NOP seeks to achieve.
- Chapter 4: Methodology. This section outlines the methodology uses in the development of the NOP.
- Chapter 5: Network assessment. This section details the assessment of the network to identify multi-modal priority routes.
- Chapter 6: Operating gaps. This section details the process of identifying where there are operating gaps between the current and desired future network.
- Chapter 7: Interventions. This section details the process of identifying interventions to achieve the desired future network.
- Chapter 8: Phasing. This section details the process of programming interventions for the short, medium and long term.
- Chapter 9: Conclusion. This section summarises the report and makes concluding remarks and recommendations.

2 Strategic context

National, regional and local policy documents have been considered in the development of the NOP objectives. The relevant policy is summarised in this section.

2.1 Central government policy

2.1.1 Land Transport Management Act 2003

The LTMA is the legislation that governs the operation, development and funding of the land transport system. This Act requires central government to produce the Government Policy Statement (GPS) on Land Transport, which sets the strategic direction for land transport. Regional governments are required to produce a Regional Land Transport Plan (RLTP) and a Regional Public Transport Plan (RPTP), which set out regional policies and objectives for transport. These plans must reflect the purpose of the Act, which is to contribute to an effective, efficient, and safe land transport system in the public interest.

The LTMA is not intended to set out the tangible objectives for the transport system, apart from identifying the principles for the provision of public transport and mandating the consideration of the needs of people who are transport disadvantaged.

2.1.2 Local Government Act 2002

The LGA defines the purpose of local government and sets out the responsibilities and powers of local authorities. The Act defines how local authorities undertake their activities and promotes accountability. The Act place a clear emphasis on sustainability in shaping local authorities' roles in promoting the social, economic, environmental, and cultural well-being of their communities through sustainable development. One of the requirements of the LGA is that local authorities always have an active long-term plan (LTP) describing their intended activities and outcomes while providing a basis of accountability to the community.

2.1.3 Climate Change Response (Zero Carbon) Amendment Act 2019

New Zealand passed the Climate Change Response (Zero Carbon) Amendment Act in 2019, which set targets for emissions reductions in line with its commitments under the Paris Agreement. The Act, commonly known as the Zero Carbon Act, sets targets for emissions reduction in line with international global average temperature targets. For the transport sector, this means greenhouse gas emissions must be net zero by 2050.

The Zero Carbon Act also established the Climate Change Commission (CCC) to provide independent, expert advice to the government on meeting its climate goals and monitor its progress towards achieving them. Initial advice for its first three emissions budgets was released in May 2021, and the first Emissions Reduction Plan was released in May 2022 for the period 2022-25.

The Ministry of Transport is also currently developing the Transport Emissions Action Plan (TEAP) which will provide a strategic plan towards achieving the transport emissions targets. Although the details of this plan have not yet been released, it is anticipated that it will include a focus on shifting people from private vehicle travel to sustainable modes such as walking, cycling and public transport.

2.1.4 Government Policy Statement on Land Transport 2021

The GPS is required by the LTMA and sets out the New Zealand Government's priorities and investment strategy for land transport. The current GPS is applicable for the six financial years beginning in 2021/22, though they are traditionally replaced with every change in government.

The GPS targets the five key outcomes identified in the Ministry of Transport's Transport Outcomes Framework in 2018 towards providing a transport system that improves wellbeing and liveability. The framework purpose and five contributing outcomes are illustrated in Figure 2-1.

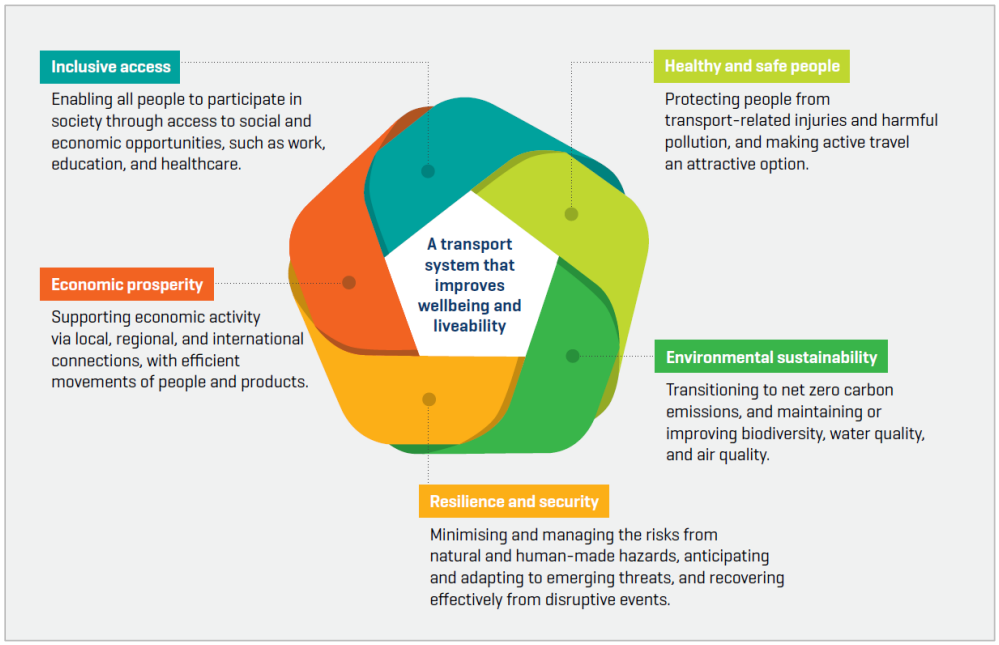


Figure 2-1: Transport outcomes framework (Ministry of Transport)

To achieve these outcomes, the GPS has set four strategic priorities to guide land transport investment. The four strategic priorities are as follows:

- Developing a transport system where no-one is killed or seriously injured.
- Providing people with better travel options to access places for earning, learning, and participating in society.
- Improving freight connections to support economic development.
- Transforming to a low carbon transport system that supports emissions reductions aligned with national commitments, while improving safety and inclusive access.

Network operation is closely related to all four of these priorities, and an effective NOP is an important part of aligning transport in Palmerston North with national objectives.

2.1.5 Emissions Reduction Plan 2022

The Zero Carbon Act requires Emissions Reduction Plans to be developed for each emissions budget period in order to set strategies, policies and actions for achieving the Act's goals. The Emissions Reduction Plan 2022 is the first such plan and sets out how the 2022-2025 emissions budget will be achieved. The Emissions Reduction Plan targets a 41% reduction in emissions from transport by 2035. Three focus areas are identified to achieve this. Of particular importance to the NOP is the first focus area, which is to 'reduce reliance on cars and support people to walk, cycle and use public transport'. Among the actions for local government (in partnership with Waka Kotahi) are:

- Develop VKT reduction programmes for major urban areas.
- Support a major uplift in all urban bus networks nationwide.
- Substantially improve infrastructure for walking and cycling.
- Improve walking and cycling infrastructure to and along school routes, in schools, and in surrounding neighbourhoods.

2.1.6 Road to Zero

Road to Zero is New Zealand's Road Safety Strategy 2020-2030 and was released in December 2019. This strategy presents a vision of a New Zealand where no one is killed or seriously injured in road crashes. Of the five focus areas, the one that is most of relevance to the NOP is to improve road safety through infrastructure improvements and speed management. This means planning and prioritising infrastructure improvements with road safety in mind, using targeted safety treatments at higher risk locations, and establishing speed limits in line with safe and appropriate speeds. These can be improved through council infrastructure investment, which will be informed by the NOP.

The other four focus areas are vehicle safety (vehicle standards), work-related road safety (the role of businesses in improving fleet safety and encouraging mode shift), road user choices (driver education, licencing, and culture), and system management (leadership and empowering local communities).

2.1.7 Keeping Cities Moving

Keeping Cities Moving is a strategy published by Waka Kotahi in September 2019 for improving the wellbeing of New Zealand's cities by growing the share of travel by public transport, walking and cycling. This is proposed to be accomplished in three primary ways, as follows:

- Shaping urban form to compact urban environments with shorter local trips and encourage more walking and cycling.
- Making shared and active modes more attractive by improving and expanding facilities for walking, cycling and public transport, and providing more quality public transport services.

- Influencing travel demand and transport choices by incentivising public and active transport and disincentivising use of private motor vehicles.

2.2 Regional government policy

2.2.1 Horizons Regional Land Transport Plan 2021-31

The Horizons RLTP sets out Manawatū-Whanganui's land transport objectives, policies and measures per the requirements of the LTMA. The current plan was developed by the Regional Transport Committee and adopted in June 2021. The plan uses the Ministry of Transport's Outcomes Framework to derive a 30-year vision supported by five strategic objectives and four headline targets for the region. These are illustrated in Figure 2-2.

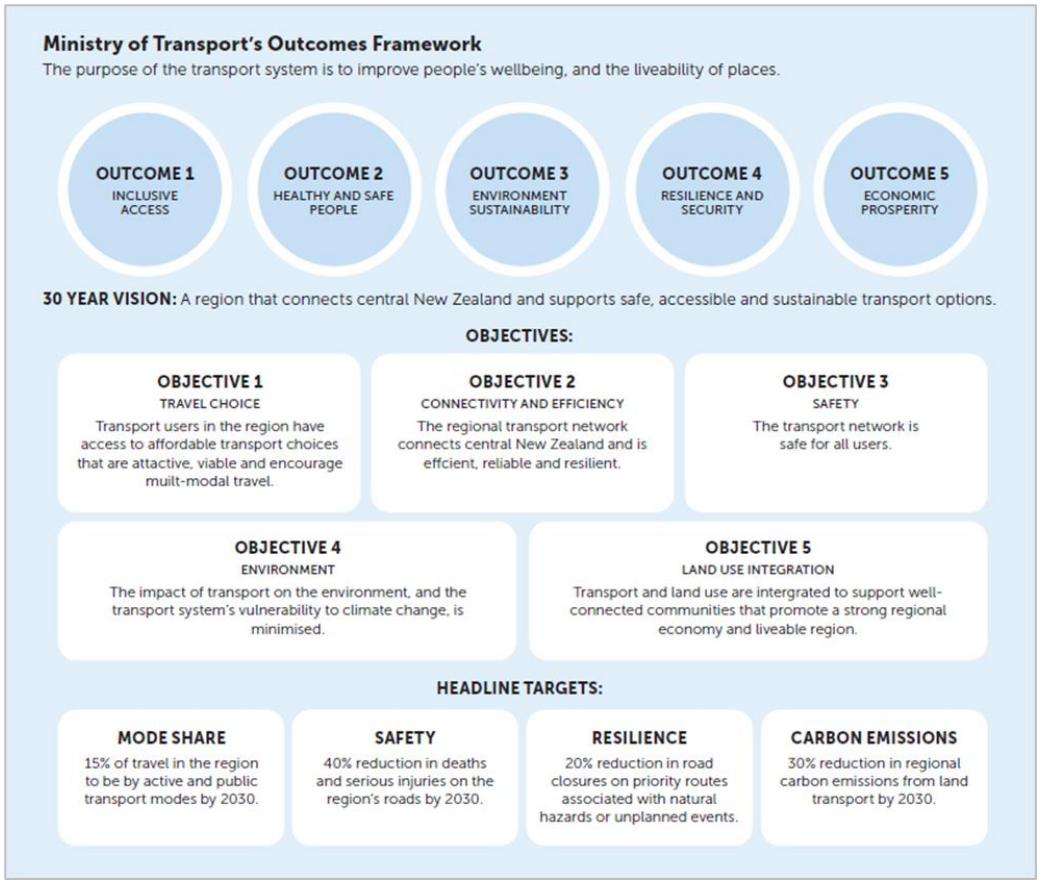


Figure 2-2: Horizons RLTP vision, objectives and headline targets

The RLTP is closely aligned to the GPS and the transport outcomes framework and reflects the level of urgency they express. The plan sets out the strategic direction for the region and outlines the activities proposed that will allow it to be delivered. The plan prioritises these proposed activities and identifies where funding will be sought, whether through the National Land Transport Programme (NLTP), National Land Transport Fund (NLTF) or other sources.

2.2.2 Horizons Regional Public Transport Plan 2015-2025

The RPTP identifies four objectives for the provision of public transport in Manawatū-Whanganui:

- A reliable, integrated, accessible and sustainable public transport system.
- An effective procurement system that delivers the desired public transport services.
- A safe and accessible network of supporting infrastructure.
- Increasing patronage.

As the current RPTP pre-dates the GPS and the RLTP, it does not carry the same urgency regarding sustainability and climate change as those newer documents.

2.2.3 Accelerate25 Manawatū-Whanganui

The Accelerate 25 (A25) regional economic development programme is an action plan that came out of the Manawatū-Whanganui Growth Study. Produced in 2015, the Growth Study was developed to identify opportunities to increase growth in the region as a response to what was seen as a stagnant economy with a dependency on primary industries and an aging population. The Growth Study identified transport amongst its three strategic areas of enablement, with a focus on improving freight distribution and hubbing in the region to obtain the greatest value from its industries. This primarily affected road and rail and looked to increase the efficiency of supply chains and logistics to and from the region, though some consideration was given to accommodating commuter growth, particularly from growing rural residential living areas in the Manawatū District to the region's urban centres.

The A25 Economic Action Plan, released in August 2016, built off the Growth Study by identifying a practical road map to accelerating social and economic growth in the region through to 2025. The Action Plan continued with transport and distribution as one of three enablers, reiterating the need to streamline connections from the primary sector through distribution hubs. Palmerston North was identified as a major intersection of the road and rail networks that required further investment in streamlined transport movement.

More recently, the "Refresh of Accelerate 25" document was produced in August 2020 to review the A25 and its progress to date. This document confirmed that stakeholders see the region as more organised and forward-thinking as a result of the A25. Transport continues to focus on road and rail, particularly in the context of access in and out of the region as well as between outlying towns to urban centres like Palmerston North. The follow-up "Recommendations on the future of A25" report produced in October 2020 reiterated this need, but also brought the A25 closer to current attitudes around climate change by highlighting environmental sustainability as a key transformational feature that is a bottom line for a modern economy.

2.3 PNCC policy

2.3.1 PNCC 10-Year Plan 2021-2031

Councils are required by the LGA to have an active LTP. PNCC's current LTP is the 10-Year Plan adopted on 7 July 2021 and covering the period from 2021 to 2031. The LTP provides a statement of PNCC's intended strategic direction, the measures that are planned to be implemented and how they will be financed.

PNCC's vision for its 10-Year Plan was established with the previous 2018 plan. This vision is presented as "Small City Benefits, Big City Ambition", and is about achieving the community and quality of life benefits of a small city while offering the vibrancy, lifestyle, and opportunities of a larger city. This vision is supported by five strategic goals, each of which is has its own strategy document formed around a series of plans. These collectively form PNCC's strategic direction –Figure 2-3 illustrates this policy relationship.

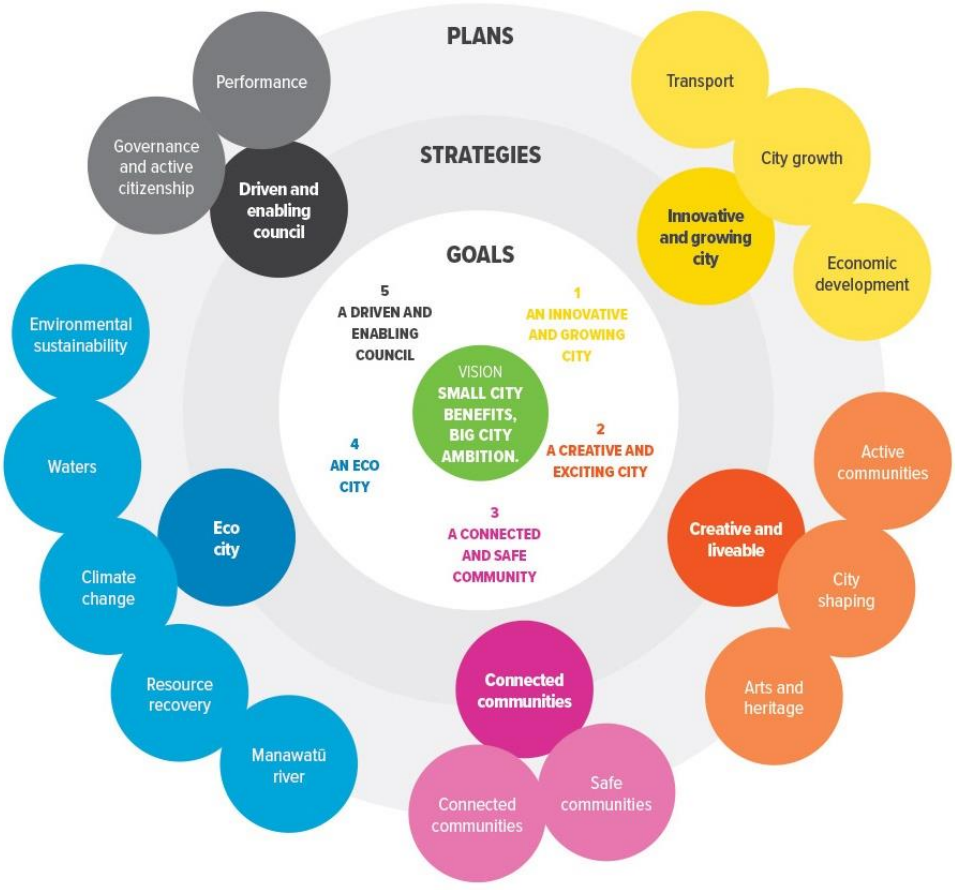


Figure 2-3: PNCC strategic direction

The plans define what PNCC is aiming to achieve, the targets that progress will be measured against, and planned projects and funding. As seen in the figure, transport has its own dedicated plan under the innovative and growing city strategy. However, there are also elements within other strategies and plans that also apply to transport. Plans relevant to transport and the purposes of these plans are summarised in Table 1.

Table 1: Transport-related LTP plans and their purposes

Strategic goal	Plan	Plan purpose
An innovative and growing city	Transport	Provide an integrated multi-modal transport network that connects people and goods with destinations in a safe, efficient and sustainable manner and evolves to meet new transport demands with less reliance on private motor-vehicles
A creative and exciting city	Active communities	Provide a wide range of accessible and well-maintained play, active recreation and sports facilities to increase levels of physical activity and participation in sport and active recreation and meet a diverse range of local communities (Includes walkways and shared paths)
	City shaping	Implement the City Centre Streetscape Plan to increase city centre vibrancy and improve the perception of the city
An eco city	Climate change	Develop policies and plans and work with city stakeholders to achieve the target of a 30% reduction in greenhouse gas emissions by 2031 (from the 2018 baseline)

The five strategic goals have been expanded upon in individual strategy documents, as have each of the underlying plans. These reiterate the provisions of the LTP and provide programmes of improvements to be undertaken.

2.3.2 District Plan

The PNCC District Plan manages land use and development in the city. The District Plan identifies areas for future greenfield growth in the east and west of the existing urban area. These are:

- Whakarongo (Stoney Creek), located north of SH3 Napier Road, east of James Line and west of Stoney Creek Road.
- Kikiwhenua, located south of SH56 Pioneer Highway, east of Mangaone Stream and west of Te Wanaka Road.

In addition, there are proposed changes to the District Plan to:

- Expand the Kikiwhenua growth area to create an 842-hectare Kākātangiata urban growth area which would fill the space between the existing Palmerston North Urban Area and Longburn.
- Allocate four greenfield sites on the peripheries of Ashhurst for growth.
- Expand the ongoing Summer Hill development in Aokautere to provide additional greenfield growth.

The District Plan also identifies the roading hierarchy for the city, which divides the road network in primary roads (major/minor arterials and collectors), secondary roads (local roads) and other roads (pedestrian streets). The roles of the primary road categories are described as follows:

- Major Arterial Roads are of strategic importance to the Region. They provide interconnections between areas within the city and distribute traffic from major intercity links. Access is generally at grade but may be limited.
- Minor Arterial Roads provide access between Collector and Major Arterial Roads. These roads have a dominant through vehicular movement and carry the major public transport routes. Access to property may be restricted and rear servicing facilities may be required.
- Collector Roads provide circulation in local areas and links to arterial roads, while balancing these needs with pedestrian and local amenity values. These roads provide access for all modes of transport including public transport.

Based on these definitions, it is the major and minor arterials that are the most relevant to network operations for road-based modes.

2.3.3 Urban Cycle Network Masterplan 2019

The Urban Cycle Network Masterplan (UCNM) 2019 envisions an urban cycle network investment resulting in an environment and culture change that enables people in Palmerston North to choose cycling more often. This vision is proposed to be achieved through:

- Investment in cycle infrastructure, education and encouragement.
- An environment change that includes cycleways and cycle parking coupled with supporting speed management, parking management, and land use planning.
- A culture change delivered though comprehensive education, encouragement and enforcement campaign aimed at school children and the wider community.
- Provide transport options for people to support their trip needs and provide access to people who cannot or do not wish to drive and do not have public transport options.

The Masterplan presents a vision for cycling facilities in and around the city that has been developed through a gap analysis, high level project investigation, and prioritisation of

potential cycle facilities. It identifies supporting infrastructure (cycle parking, wayfinding, repair and bike pump stations) and supporting programmes for education and engagement. However, the Masterplan does not prioritise routes and instead aims to provide comprehensive cycle network coverage across the Palmerston North urban area. It also goes into much greater level of detail, identifying proposed neighbourhood greenways, for example, which is beyond the scope of a NOP.

2.3.4 Palmy Transport System Improvement Plan (PTSIP)

The Palmy Transport System Improvement Plan (PTSIP) is a 'journey' based blueprint to improve the city's transport system over the short and medium terms. Developing PTSIP is one of the key recommendations from the PNITI programme which outlines several significant transport improvements for Palmerston North and the wider Manawatū Region.

PTSIP brings together existing transport plans to form an integrated multi-modal view of place and movement priorities, including key customer destinations and journeys, to best support the city's transport system. In particular when coupled with the One Network Framework (ONF), PTSIP provides an opportunity to achieve better integration between land use and transport outcomes for Palmerston North City where growth, accessibility, and place are considered and balanced accordingly.

Overall, PTSIP provides a consistent plan to help Palmerston North City Council (Council) and Waka Kotahi/NZ Transport Agency, develop and deliver interventions necessary to support sustainable growth management, improve multi-modal accessibility, and support the medium- to long-term delivery of the PNITI programme.

The key journeys support the City's vision and community outcomes including the importance of:

- Prosperous communities with integrated multi-modal travel options to work, education, recreation, and health services.
- Increased economic productivity, freight logistics and support for new industries and business.
- Well-planned and serviced growth areas that deliver walkable neighbourhoods and easy access to urban street connections, cycleways and public transport.
- Reducing transport emissions and supporting an eco-city ambition.

As a part of the development of PTSIP, recent community engagement and consultation processes were reviewed to identify key themes in community feedback. These themes are as follows:

- Well-maintained roads, paths and street-lighting.
- High-quality travel choices.
- Strong connections to the river.
- Shared space where everyone wins.

- The right mode on the right road.
- Future-focused infrastructure.

The key journeys identified by PTSIP across public transport, rail, freight, cycling and walking are illustrated in Figure 2-4.

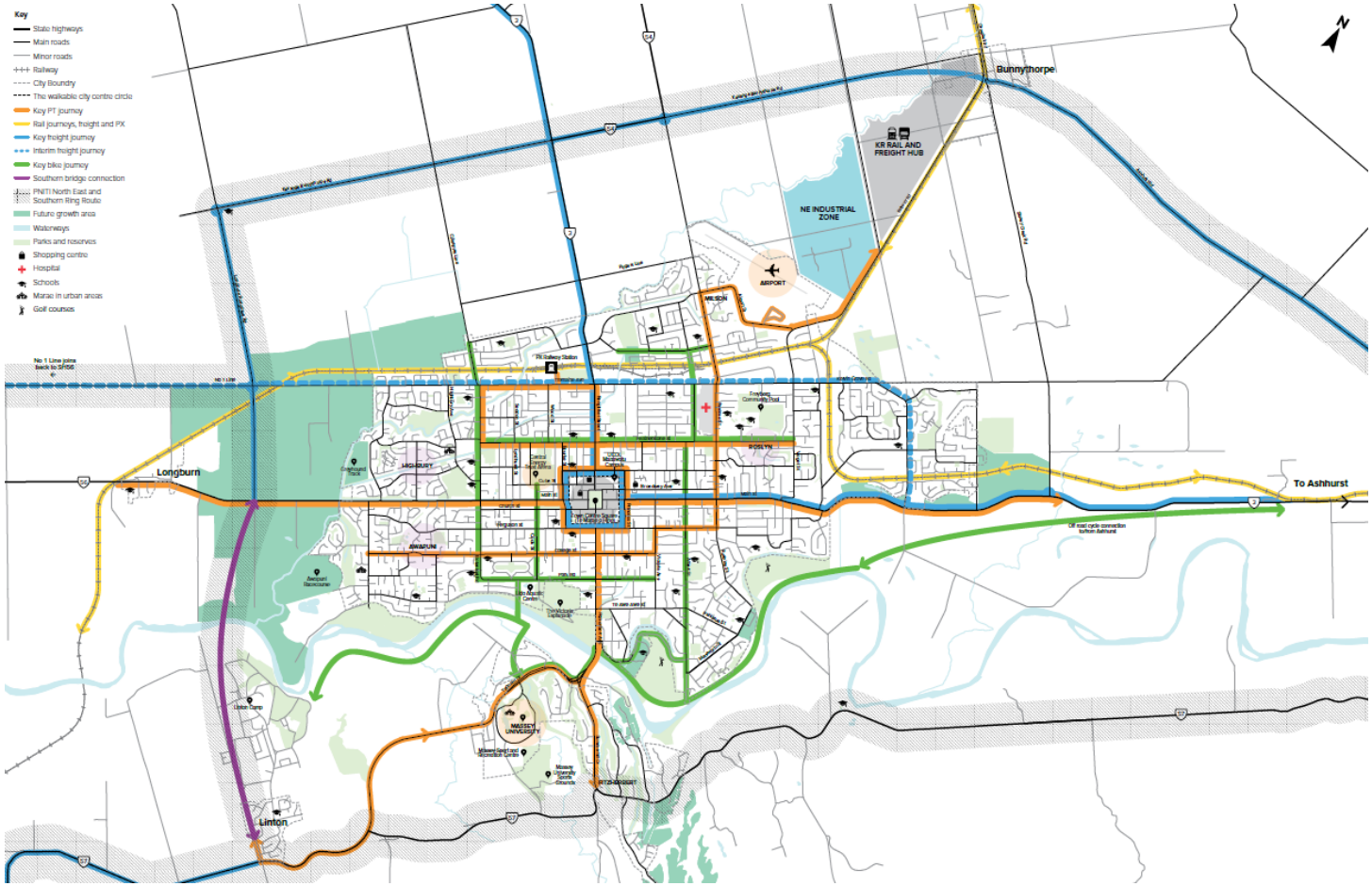


Figure 2-4: PTSIP key journeys

2.4 Related projects

2.4.1 Palmerston North Streets for People – Streetscape Upgrades

The Streets for People project aims to implement some of the plans for Palmerston North city centre outlined in the CCF and CCP above by improving streets to create social spaces where people want to shop, eat, attend events and do business.

A workshop was held in April 2021 to develop an investment logic map (ILM) to understand the problems the project is seeking to address and the benefits that will be realised. This identified the primary desired outcomes as being a vibrant city centre and equitable use of central city streets. The benefits and key performance indicators (KPIs) from the ILM are shown in Table 2.

Table 2: Streets for people ILM benefits and KPIs

Benefit	Key performance indicators
Vibrant city centre	Number of people in the street
	Street life by duration, time of day and location
	Retail / hospitality spend
Equitable use of central city streets	Age and gender of people on the street
	Demographic characteristics
	Mobility mode share

2.4.2 Palmerston North Integrated Transport Initiative (PNITI)

The Palmerston North Integrated Transport Initiative (PNITI) is a package of interventions that is being progressed by Waka Kotahi, PNCC and iwi. The goals of the project are to manage planned economic growth, support the freight and distribution potential of the region, address identified safety issues, and improve the liveability of Palmerston North's residential areas and city centre. The Network Options Report for the PNITI project was issued in January 2021 and proposes a number of interventions to improve freight access to industrial zones in Palmerston North and divert heavy traffic from the residential areas and the city centre. This will result in a range of benefits including:

- Improved road safety from separating heavy traffic from vulnerable modes.
- Improved network efficiency for freight distribution and logistics.
- Improved amenity and reduced severance within residential areas and the city centre.
- A more resilient network.

The proposed long-term programme upgrades as a part of PNITI are illustrated in Figure 2-5.

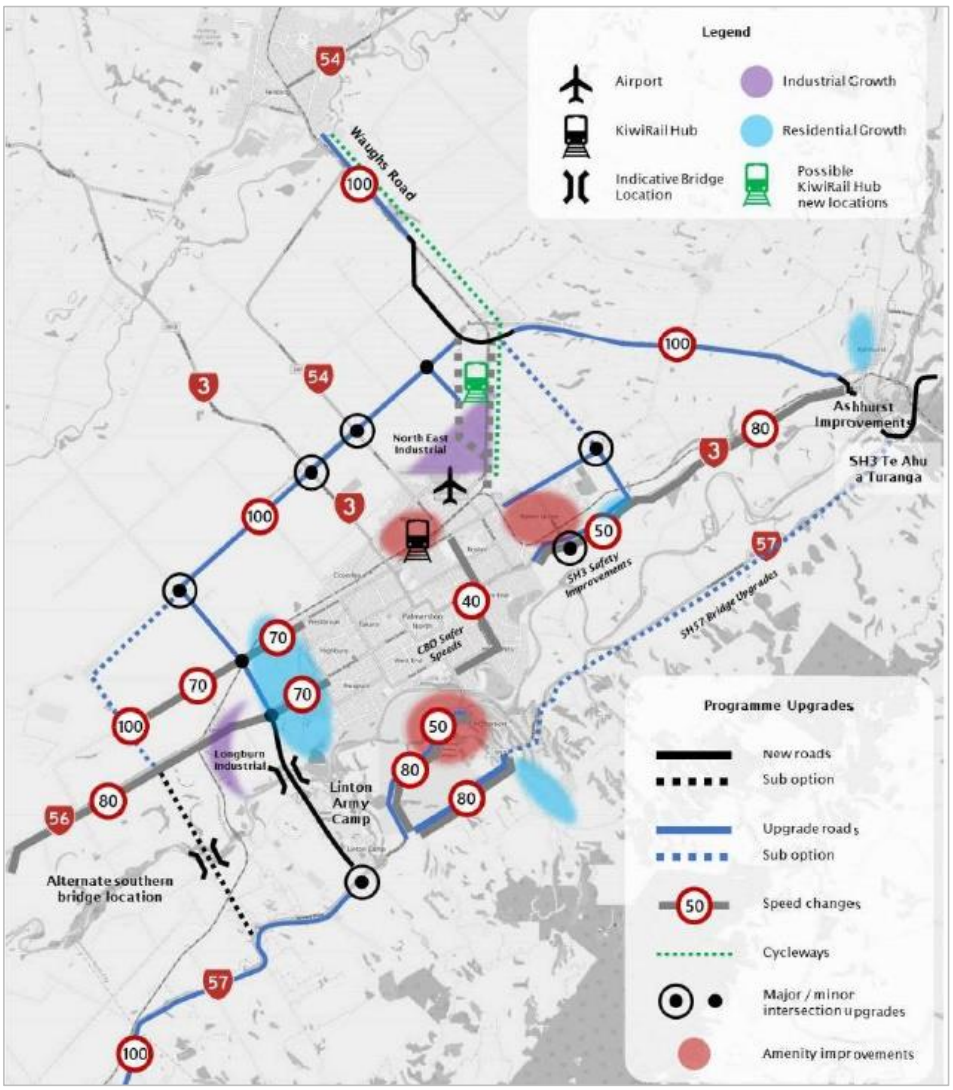


Figure 2-5: PNITI long-term programme upgrades

A key outcome of the programme is the development of a Regional Freight Ring Road that bypasses Palmerston North using Kairanga Bunnythorpe Road and Ashhurst Road. In the long-term, this is proposed to include a bridge across the Manawatū River that connects SH57 to the Ring Road, though the exact location of this infrastructure remains to be confirmed.

3 NOP objectives

In order to ensure clear and explicit alignment with the local, regional and national strategic context for transport outlined in Section 2, four objectives were developed to inform and guide this NOP. These objectives will be used to shape Palmerston North's long-term strategic network and ensure that it is aligned with intended local, regional and national outcomes.

- **Enabling travel choices by making Palmerston North accessible by a variety of modes.** This means providing safe, easy to access and well-connected networks for all key modes.
- **Encouraging uptake of sustainable travel options to reduce transport emissions.** This means making public transport, walking and cycling attractive by ensuring journeys are safe, accessible and enjoyable when using these modes.
- **Developing a transport system where no-one is killed or seriously injured in road crashes.** This means prioritising routes on corridors where high-quality infrastructure is in place and reducing intermodal conflicts by separating priority routes for modes that are most at risk.
- **Matching modal priorities with movement/place functions.** This means prioritising car and freight movement in areas where people are less likely to spend time, while prioritising lower-impact modes to contribute to placemaking in key centres.

4 Methodology

The methodology for this study broadly follows the NOF process, with some changes. Though it does not follow the process exactly as outlined by Waka Kotahi, the methodology is intended to achieve the same overall aim and deliver a compatible NOP.

This NOP uses PTSIP developed by PNCC as a starting point. PTSIP itself was developed through a collaborative process that is in line with the approach and vision underlying the Waka Kotahi NOP process. PTSIP therefore represents the first and second steps of the NOP process identified by Waka Kotahi.

PTSIP also goes some way towards developing a road use hierarchy map for key modes of transport. However, in the process of developing that plan, inconsistencies were identified with the previous NOP, indicating that a new NOP is required.

However, there are elements of this work that do not align with other active PNCC strategies. This NOP uses PTSIP as a starting point and develops it to achieve the function of a network operating framework.

The process to develop the NOP from PTSIP has been undertaken in four stages as follows:

- Network assessment.
- Assessment of operating gaps.
- Confirm interventions.
- Develop phasing plans.

Workshop-style discussions are undertaken at each stage. The stages are outlined in more detail below.

4.1 Network assessment

The first stage in the development of the NOP is to assess PTSIP against other applicable plans and strategies. This will identify where these documents are and are not aligned with the latest thinking presented in PTSIP. The following are considered against PTSIP:

- Urban Cycle Network Masterplan (UCNM), developed in 2019.
- PNITI Network Operations Report, dated January 2021.
- Palmerston North and Feilding Network Operating Framework, dated 9 September 2019.
- Palmerston North City Council District Plan, Section 20: Land Transport.
- One Network Road Classification (ONRC) and One Network Framework (ONF).

This review identifies the areas of the network that are well aligned across the applicable plans and strategies, the areas where there are potential modal conflicts, and the areas where there is the opportunity to provide additional modal priority to improve connections and make better use of space and existing infrastructure. These findings are then discussed in a workshop-like environment to produce the confirmed long-term strategic network to be taken forward for further assessment.

4.2 Assess operating gaps

Next, the confirmed long-term strategic network is assessed to quantify operating gaps, that is, the difference between the levels of service required to achieve this network and the current levels of service on the existing network.

Key corridors are assessed qualitatively using a multi-criteria analysis that scores corridors and intersections for their existing LOS and their ability to meet aspirational levels of service to achieve the strategic network. The basis for this assessment will primarily revolve around the level and capacity of existing and planned infrastructure, and the presence of conflict points with other modes. Where possible, the assessment will be informed by available transport data. The output from this stage will summarise the capability of the existing network to meet the needs of the future strategic network, identifying any operating gaps that are likely to emerge.

The NFA tool developed by SmartRoads is not used as a part of this assessment, as the tool is most effective when comprehensive transport data is available for every section of the corridor, for each mode and time period. This level of data is not available for Palmerston North due to the absence of an up-to-date traffic model and limited collected data for non-car modes. Therefore, an alternative approach has been developed that uses the same approach but reduces the data requirements.

The NFA tool calculates operating gaps by mode based on defined access LOS measures. To keep the methodologies as similar as possible, this NOP has taken the same approach. The 2015 Austroads Research Report AP-R475-15 *Level of Service Metrics (for Network Operations Planning)* has been used to define the LOS needs and measures for each mode. This approach allows a qualitative assessment of gaps along priority routes, which is informed by key transport data where it is available. The outputs from this qualitative assessment are LOS scores by mode for each priority corridor. The gap in priority network operation can then be considered as the difference between the modal LOS score and the highest possible LOS score (LOS A). This is an efficient approach to identify where the network is not performing to the level of service needed to achieve the strategic outcomes for the network.

While the NFA tool assesses network performance separately for different time periods (generally including the AM and PM peak periods, and potentially inter-peak and off-peak), data limitations necessitate that the qualitative approach consider all periods together. However, the peak periods remain the primary concern as they typically represent the periods at which network performance is at its lowest. While the assessment is less detailed, the primary network issues are still captured.

If the alternative qualitative approach were not used, it would be necessary to estimate a significant amount of transport data for entry into the tool. Initial error in the estimations would propagate through the tool, potentially leading to high error in the outputs. The high precision

of the results output by the tool could create the perception of more accuracy than actually exists. Indeed, the simplified output that emerges from the qualitative approach assists with understanding network performance at a high level.

4.3 Confirm interventions

The next stage is the identification of interventions that may be required to achieve the strategic network and assessment of their capability to reduce future operating gaps. Many interventions have already been proposed through previous plans, and these have been identified in the network assessment stage of the work. Proposed interventions are assessed using a similar multi-criteria analysis to the previous stage. This analysis helps to identify the effectiveness of the interventions at reaching the aspirational future levels of service. Where planned interventions are found to be insufficient, alternatives are proposed. The output from this stage is a refined list of interventions needed to reduce the operating gaps and to achieve the strategic network.

4.4 Develop phasing plans

The final stage is the development of a high-level programme of improvements. This is developed by prioritising the confirmed interventions into short- (0-10 years), medium- (10-20 years) and long-term (20-30 years and beyond) projects. Interventions are allocated into these strategic timeframes on the basis of an assessment that considers interfaces and interdependencies between interventions, factors like ease of implementation, and is informed by the short-, medium- and long-term programmes in PNITI and the timeline for the development of the KiwiRail Freight Hub.

5 Network assessment

5.1 Network comparison

Modal priority networks from the plans and strategies identified in Section 4.1 have been compared against PTSIP. This assessment is summarised in table form in Appendix A.

5.1.1 Strategic alignment

PTSIP discusses several of the changes that it has made to the priority network as compared to the previous NOP. This includes:

- The use of No.1 Line / Tremaine Avenue as an interim freight route until the longer-term option proposed by PNITI is developed.
- Focusing bus journeys on the 'inner-city loop' – the ring route comprising Walding Street / Grey Street, Princess Street, Ferguson Street and Pitt Street / Bourke Street.
- Focusing cycling journeys in the south and west of the city on Park Road and Botanical Road, respectively.
- Extending the bus network to improve access to Linton.

The review of PTSIP against the strategies and plans in Section 4.1 demonstrates that PTSIP has adopted a much simpler network structure for each mode than have been presented previously. This is necessarily a result of PTSIP's goal of separating modal priority routes as much as possible. However, there are some corridors that are proposed as key routes by PTSIP that do not reflect prior strategies and plans. Most notable are the following:

- SH56 Pioneer Highway from Longburn to Botanical Road is identified as a cycle route in the UNCM and the previous 2019 NOP, but has not been identified as a key cycle route in PTSIP. It is proposed that this corridor should be a priority cycle route under the NOP as it is a key corridor entering the city from the west and therefore provides a direct route from Longburn and the projected Kākātangiata urban growth area. While there are safety issues with proposing cycling priority along a corridor that is both a state highway and key vehicular route, the existing cycling facility, a high-quality shared path, mitigates this through full separation between the shared path and the carriageway, which leads into a temporary facility from Botanical Road to Pitt Street that is expected to become permanent in the imminent future.
- PTSIP anticipates that freight bypassing the city from the west will leave SH56 at Tiakitahuna Road in the interim and use No.1 Line. The long-term priority route is proposed to leave SH56 at Longburn Rongotea Road, which is also the route identified in PNITI. As Longburn Rongotea Road is already frequented by freight vehicles, it is appropriate that it form both interim priority route and the long-term route. PNITI proposed a new Manawatū River crossing, but the crossing location is not yet confirmed. The exact location that is chosen for the crossing will inform which route is used in the long-term.

- PTSIP includes a freight route through the city centre using SH3 (Rangitikei Street and Main Street East) and including the inner-city loop, which is intended for local freight access to facilities within the city and is not intended as a through route. This route is not identified as a freight route in other strategies and plans. As freight travelling to and from city centre businesses cannot be removed or displaced from the network, these routes have been retained in the NOP.

- PTSIP identifies a walkable city centre within the inner-city loop without specifically identifying routes within it. The 2019 NOP identifies all roads within the inner-city loop as being pedestrian priority routes. The revised NOP will assess the city centre as individual roads within the inner-city loop (but excluding the inner-city loop itself).

5.1.2 Conflicts

The review of PTSIP has identified two corridors –Botanical Road between Featherston Street and Tremaine Avenue, and Featherston Street over its full length between Botanical Road and Vogel Street – that have been prioritised for both buses and cycling. These modes are recognised as having a safety risk when using the same spaces. As vulnerable road users, cyclists are at risk of conflict with buses at key points like at intersections and through bus stops. There is also a risk of conflicts between passengers who are boarding or alighting bus services, waiting at a bus stop, or crossing the road to/from a bus stop.

In addition to PTSIP, the UNCM and the previous NOP identify Featherston Street as the key east-west cycle route in the north of the city. This is necessary as there are no parallel roads that could provide as direct a route other than Main Street and Tremaine Avenue, which are both much more heavily trafficked and are some distance away. Similarly, Botanical Road provides one of the few direct north-south routes in the west of the Palmerston North city centre.

Both roads are identified as Minor Arterials in the District Plan, which is why they are more appropriate for designation as priority bus routes than alternative routes which would likely utilise minor residential roads.

Based on the limited options in this area, it is proposed that these roads be designated as priority routes for both buses and cycles, with two caveats. That Intersection and bus stop design should recognise the dual focus of these roads, and future opportunities to shift bus movements onto other nearby routes should be explored in particular Pioneer Highway and Tremaine Avenue.

5.1.3 Network gaps

The modal priority networks identified in PTSIP have been found to include some gaps that could result in disconnected journeys.

The most gaps are found in the cycle network. The UCNM proposed a comprehensive cycle network that provided some level of provision on all major roads. PTSIP takes a more targeted approach, focusing on fewer cycle routes to enable more high-quality infrastructure in those locations. This does not mean that corridors not identified as priority routes will be absent of cycle infrastructure, only that there is less focus on providing infrastructure at a high level. For instance, many major roads in Palmerston North already have cycle lanes but are not

included as priority routes as these facilities are not suitable for all users. These will form the secondary cycling network, which is not the focus of the NOP. Nonetheless, the following gaps have been identified in the key cycle journey network:

- No key cycle journeys intersect with the city centre area. The priority routes on Featherston Street, Albert Street, Park Road and Cook Street pass near to the city centre, but it is not clear how it is intended for cyclists to make a safe and effective link into the city centre. From the north and the south, there are many streets with relatively low vehicular traffic which could provide connectivity from Featherston Street and Park Road via secondary routes. However, from the east and west there are fewer options, and many of these are higher-order roads with more vehicular traffic and more risk to cyclists. It is proposed that the cycle priority network include Pioneer Highway / Main Street from the west, Napier Road / Main Street from the east, and Fitzherbert Avenue from the south.

- It is not considered that the absence of cycling routes within the city centre is a gap, as the development of pedestrian streets within this area will improve access for cyclists without the need for dedicated cycle infrastructure.

- There are no identified connections between the Park Road and Albert Street key journeys and the Cook Street and Featherston Street key journeys. It is assumed that low volume roads will provide secondary (green route) connections between these.

- All roads defined as Major Arterials in the District Plan are assigned as bus routes in PTSIP except for Tremaine Avenue / Kelvin Grove Road / McLeavey Drive / Roberts Line, which forms part of the interim freight ring road. Tremaine Avenue is appropriate for a bus route in the longer term when freight journeys are reduced. This could be extended to the entirety of this corridor to improve bus access in the northeast of Palmerston North, where the Whakarongo growth area is set to be developed. The Tremaine Avenue / Kelvin Grove Road / McLeavey Drive / Roberts Line corridor is identified as a priority bus route in the previous NOP.

5.1.4 Access gaps for key destinations

Palmerston North Passenger Railway Station

Access for walking and cycling to the railway station has not been identified in PTSIP. The Horizons RLTP aspires to increase the frequency of the capital connection and the feasibility of implementing other passenger rail services is being investigated. PTSIP acknowledges this in providing a bus link to the station, but access is not prioritised for other sustainable modes. At present, the station is served by two services each weekday – one in the morning towards Wellington and a return service in the evening. This is insufficient to qualify the station as a key trip attractor that would merit being served by primary walking and cycling routes. However, if more services are implemented, it is important that there are walking and cycling options to maximise the proportion of new patronage that access the station by sustainable modes. With no certainty of additional services and no timelines in place, it is not appropriate to include these routes in the NOP. Improved active mode connectivity to and from the railway station should be investigated in future as improvements to the Capital Connection service are implemented.

Kelvin Grove Walking & Cycling Access

PTSIP also does not identify how cycle access to Kelvin Grove and the Whakarongo growth area will be achieved. These suburbs are notably segregated from the rest of Palmerston North by the railway line and the industrial / commercial land that straddles it. Whereas suburbs in the west of the city have a range of quieter routes available to connect into the priority cycle routes, this is not the case here. Kelvin Grove has only three road connections in the direction of the city centre: Kelvin Grove Road, Roberts Line, and Mihaere Drive. All of these are identified as routes for improved cycle provision in the UNCM. However, Kelvin Grove Road and Roberts Line are proposed to form part of the interim ring road freight route while Mihaere Drive passes through a large an industrial / commercial area which also features heavy freight movements. It is proposed that a cycle route along Main Street (East) and Napier Road as far as Roberts Line would suffice as an interim measure, with future extension to be determined as Whakarongo develops.

5.1.5 Walking and cycling in secondary centres

PTSIP does not prioritise walking routes in any secondary centres in the city, and only a few such centres are served by a priority cycling route. This includes centres in the urban area, such as Awapuni and Hokowhitu as well as outlying centres like Ashhurst, Bunnythorpe and Linton. It is not proposed to identify walking and cycling routes for these centres within the NOP as there are no existing plans that investigate the needs of these communities relative to walking and cycling. It is recommended that future work investigates this gap to inform future iterations of the NOP.

5.2 Proposed modal priority networks

Separate priority network maps have been produced for each mode and are shown below and in Appendix B.

5.2.1 Public transport

The proposed public transport priority routes are shown in Figure 5-1. This is as per PTSIP with the following changes:

- Addition of Tremaine Avenue/ Kelvin Grove Road/ McLeavey Drive/ Roberts Line corridor.
- Addition of Te Awe Awe Road and Albert Street corridor to College Street to serve Hokowhitu.
- Extension of Botanical Road corridor to College Street to provide a north-south priority route in the west of the city.
- Extension of Summerhill Road corridor along Aokautere Drive to Pacific Drive to provide priority public transport access to the urban growth currently underway in Summerhill.
- Curtailing of Pioneer Highway and Napier Road corridors at Maxwells Line and Roberts Line, respectively. It is considered that it is not necessary to prioritise these sections of road for public transport as level of service in rural environments is more about efficient

movement than other considerations like bus stop access and amenity. Prioritisation for other vehicle-based modes (freight and general traffic) will ensure efficient movement for public transport as well.

- Curtailing of College Street corridor at Botanical Road. It is considered that this section is more appropriate as a secondary route and does not need to be addressed by the NOP.

- Removal of Airport Road / Railway Road corridor. It is considered that this road is more appropriate as a secondary route and does not need to be addressed by the NOP.

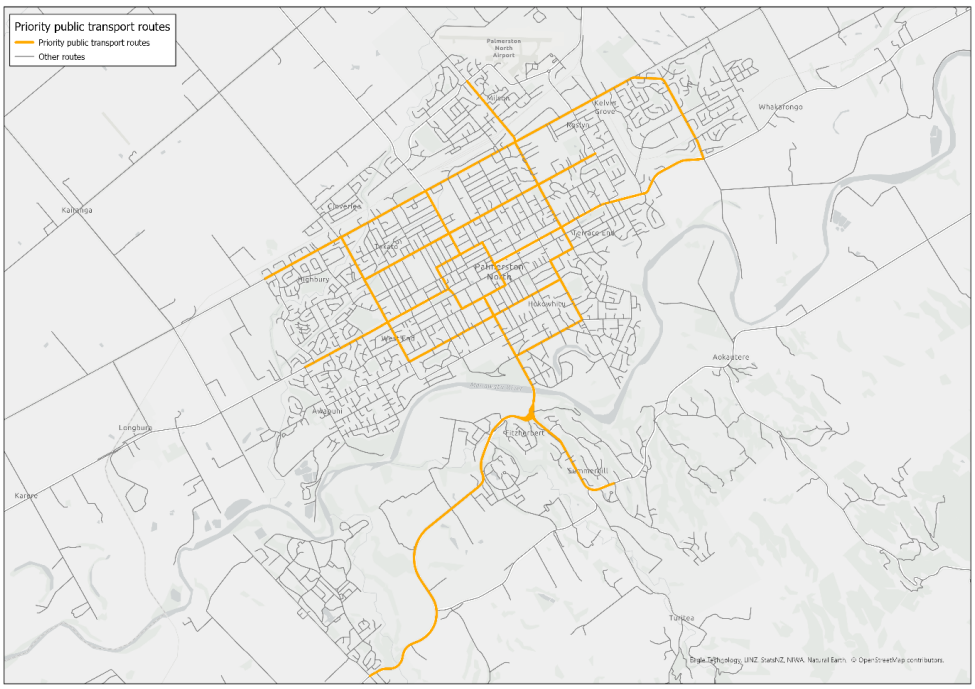


Figure 5-1: Public transport priority network

5.2.2 Cycling

The proposed cycling priority routes are shown in Figure 5-2. Present and planned future off-road cycling links are shown for context. This network is as per PTSIP with the addition of several changes to improve connectivity, as follows:

- Addition of Fitzherbert Avenue between Ferguson Street and Fitzherbert Bridge, in order to provide direct cycle access to the city centre from the south.

- Addition of Pioneer Highway / Main Street West between Longburn and Pitt Street to provide direct cycle access to the city centre from the west.

- Addition of Main Street East / Napier Road between Princess Street and Roberts Line to provide direct cycle access to the city centre from the east.

- Addition of Milson Line and Ruahine Street north of Main Street to provide cycle access to Milson north of the railway line and connect into the off-road Mangaone Stream path.
- Addition of Summerhill Road and Aokautere Drive to Johnstone Road to prioritise cycle access to an area with limited modal choice.
- Removal of Botanical Road and Gillespies Line north of Mangaone Stream, ending the Botanical Road route at its intersection with the off-road Mangaone Stream path.
- Removal of Heretaunga Street and Fairs Road as these are minor roads more suitable as secondary routes. These were included in PTSIP based on the assumption of a new cycle bridge over the railway line, which is not currently in any approved plans.

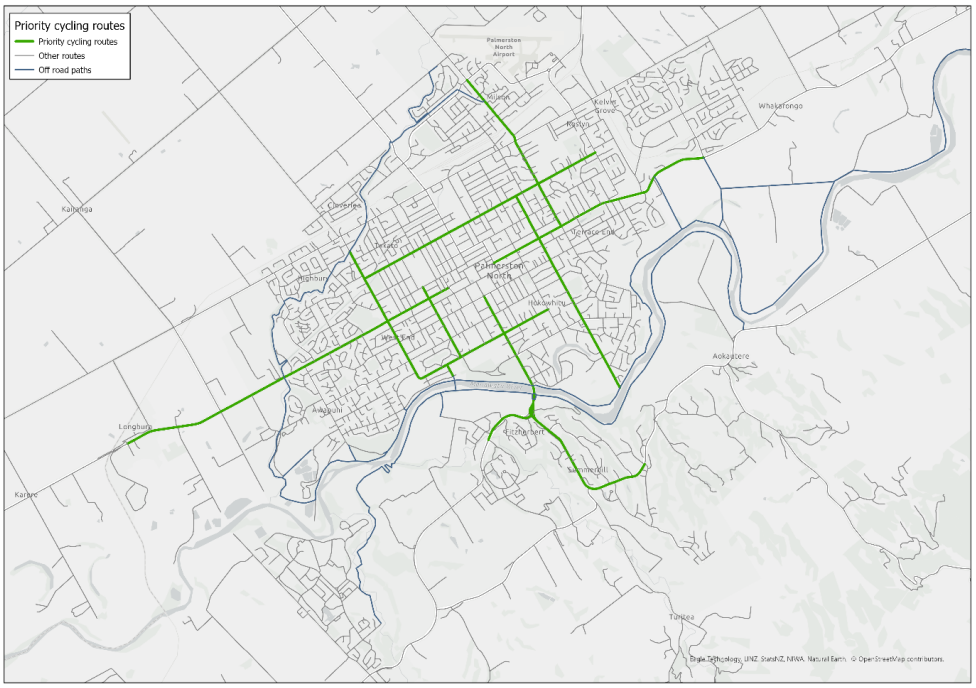


Figure 5-2: Cycling priority network

5.2.3 Walking

Walking priority routes are shown in Figure 5-3. The walking network focuses on the walkable city centre area identified in PTSIP, with the addition of Cuba Street to link pedestrians to the Central Energy Trust Arena.

This NOP does not include longer distance routes towards the hospital, Hokowhitu Lagoon, He Ara Kotahi, and Fitzherbert Bridge which were identified in the previous NOP. It is recommended these be considered as secondary routes, but they do not meet the threshold for inclusion as priority routes in this high-level NOP.

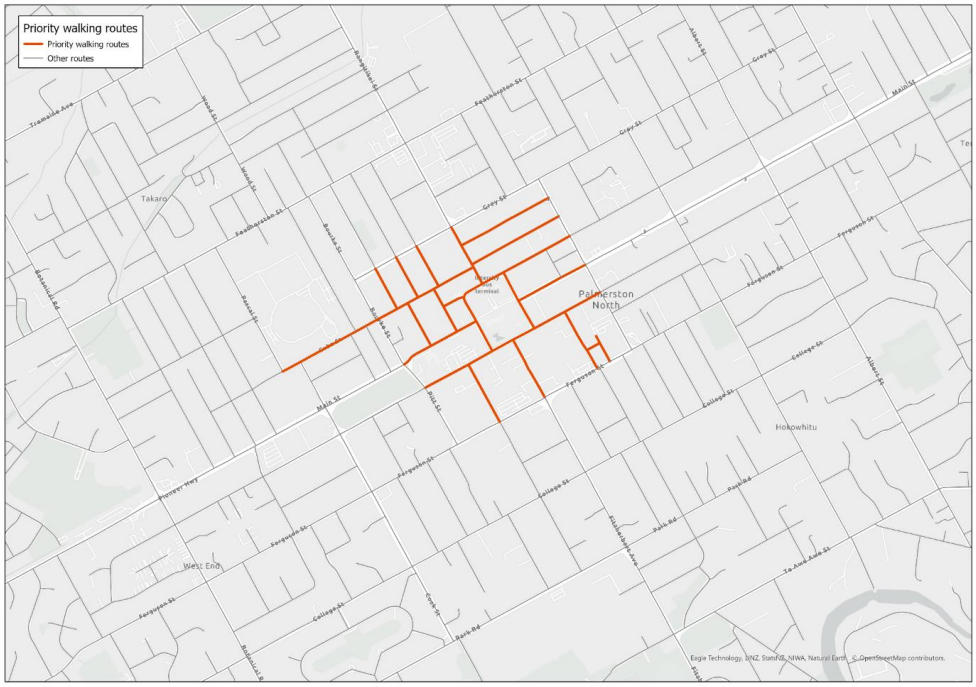


Figure 5-3: Walking priority network

5.2.4 Freight

The interim and long-term local access freight priority routes are shown in Figure 5-4. The interim network is as shown in the PTSIP with the following additions:

- Longburn Rongotea Road, shown in PTSIP as a long-term route only.
- Rangitikei Street and Rangitikei Line, providing access from the north via SH3.
- Fitzherbert Avenue and Tennent Drive, providing access from the south and SH57.

The outer ring road proposed by PNITI as a long-term freight route has not been included in this NOP as the final routing has not been determined.

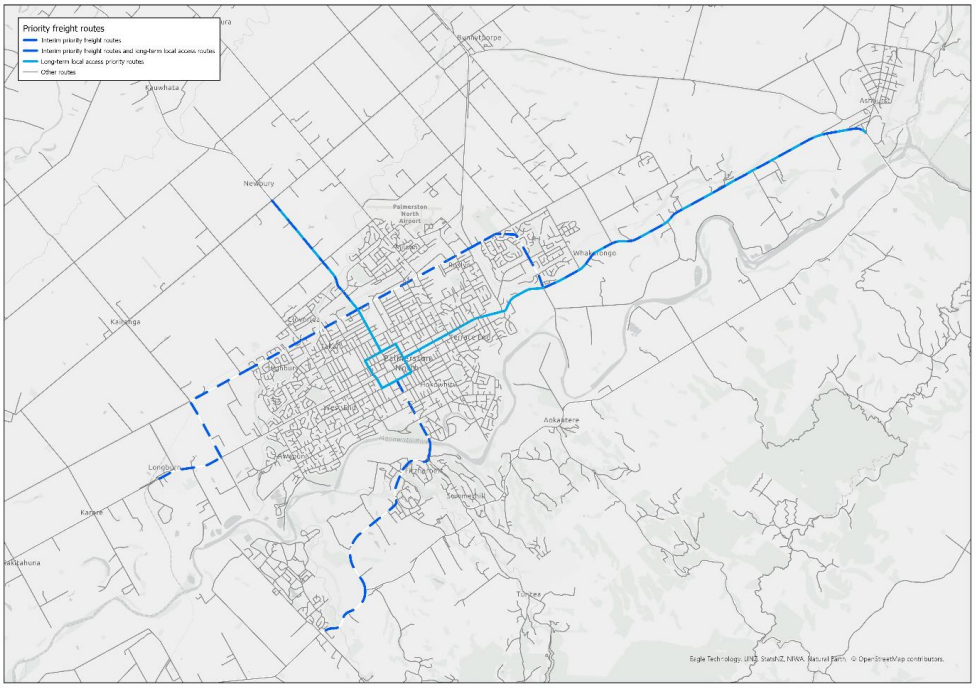


Figure 5-4: Freight priority network

5.2.5 General traffic

PTSIP did not identify priority routes for general traffic, as strategically it is the lowest-priority mode considered. The previous NOP included an extensive priority network for general traffic, but this has been scaled back to only include the inner-city loop and the major arterials leading into it from the north, east, south and west. This is shown in Figure 5-5.

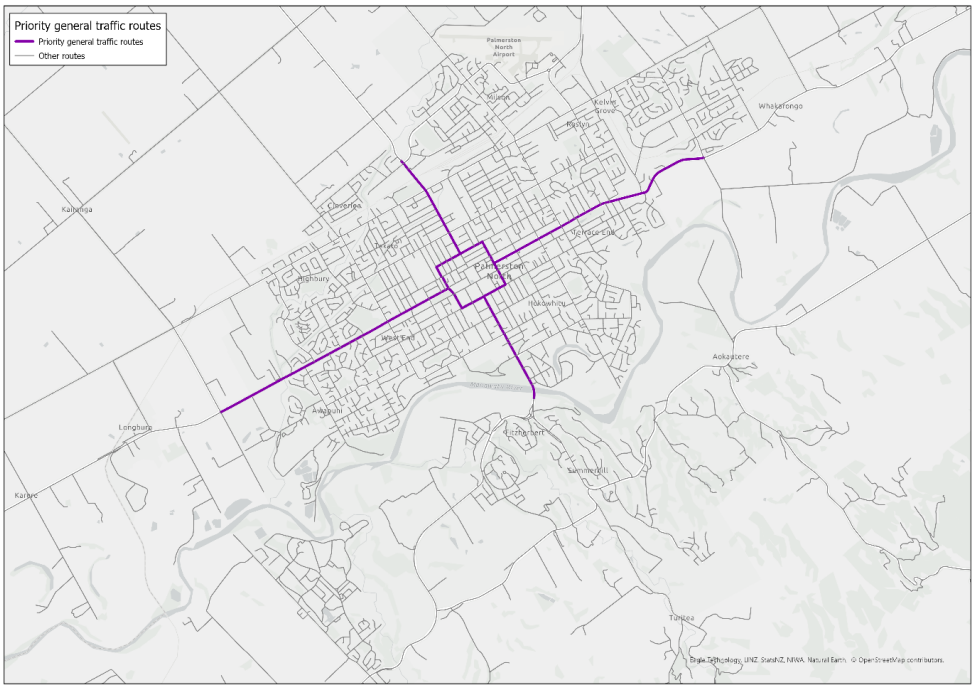


Figure 5-5: General traffic priority network

6 Operating gaps

6.1 Assessment approach

Priority routes identified in the network assessment have been scored for the LOS they are currently able to provide.

6.1.1 Assumptions

The current network is assumed to include projects that have committed funding and are programmed to be implemented in the near future. This includes one cycling project:

- Separated cycle lanes on Main Street West between Botanical Road and Pitt Street. This is currently being trialled and it is planned that temporary separation between the cycle lanes and traffic will be made permanent with kerbs.

6.1.2 Inputs

In addition to assessing the current infrastructure provision for the priority modes, inputs have been obtained from a variety of sources to inform the assessment. These include:

- Average annual daily traffic (AADT) estimates from RAMM
- Collective and Personal Risk measurements. These represent the potential for death and serious injury on the corridor. Collective risk is the cumulative number of deaths and serious injuries expected on a corridor when considering historic crash attributes and speed environment, and personal risk represents the risk to an individual of experiencing a death or serious injury while traveling along a corridor. Risk for corridors includes the intersection component from crashes that occur at or near intersections.
- Crash history over the five years 2017-2021 from the Crash Analysis System (CAS) to identify crashes involving cycles, pedestrians and buses.

LOS scores for each mode have been identified based on the 2015 Austroads research report. This report identifies five common LOS needs across each mode: mobility, safety, access, information, and amenity. The measures that contribute to each of these needs are different for each mode. These are identified by mode below, along with the results for the scoring of each modal priority network. The detailed assessment is provided in Appendix C. LOS scores have been assessed primarily based on the network's peak-hour performance.

6.1.3 Public transport

The measures that contribute to public transport LOS as described by the 2015 Austroads report are shown in Table 3.

Table 3: Austroads (2015) LOS needs and measures for public transport users

LOS needs	LOS measure
Mobility	Service schedule reliability, operating speed
Safety	Crash risk of public transport vehicle, crash risk of public transport users while accessing/egressing public transport vehicle
Access	Service availability (urban services only), level of disability access, access to public transport user stops/stations from key origins and destinations
Information	Traveller information available
Amenity	Pedestrian environment, on-board congestion, seat availability, security, comfort and convenience features, aesthetics, ride quality

A key factor in public transport LOS is passenger experience. This includes their experience during the time they spend on the bus, but also the time spent at bus stops and the trips that bus passengers take to travel between bus stops and their ultimate origin/destination.

Public transport LOS is also highly dependent on achieving fast and consistent travel times. There are currently no bus priority measures such as bus lanes, bus gates, or signal priority, in place in Palmerston North, meaning services are likely to experience some delay during peak hours on all but the lowest volume roads. Therefore, the public transport network has generally been scored at a poor to medium LOS, with better scores for public transport priority routes that have less traffic.

The aspirational LOS for public transport is considered to be LOS A, and the difference between this and the assessed LOS is the operating gap.

6.1.4 Cycling

The measures that contribute to cycling LOS as described by the 2015 Austroads report are shown in Table 4.

Table 4: Austroads (2015) LOS needs and measures for cyclists

LOS needs	LOS measure
Mobility	Travel speed, congestion, grades
Safety	Risk of cycle-to-cycle/pedestrian crash
	Risk of crash caused by surface unevenness or slippage
	Risk of crash with stationary hazards
	Risk of cycle-to-motor vehicle crash at mid-blocks
	Risk of cycle-to-motor vehicle crash at intersections and/or driveways
Access	Access to and ability to park close to destination, cycle restrictions
Information	Traveller information available, including signposting
Amenity	Aesthetics, comfort and convenience, security, pavement ride quality

Safety is a key consideration to the LOS provided for cyclists, as vulnerable road users. High-risk roads not only create a risk of death or serious injury, but the perception of risk dissuades cycling in general. Important considerations around cycling safety include:

- Presence and form of cycling infrastructure.
- Presence of on-street parking, side accesses and intersections.
- Volume of general traffic.
- Speed of general traffic.
- Modal conflicts.

The Waka Kotahi Cycle Network Guidance (CNG) suggests the level of pedestrian infrastructure that is necessary to enable cycling given a road's AADT and operating speed (Figure 6-1). For example, in a typical 50 km/h urban environment, the appropriate level of cycling infrastructure is:

- 'Quiet street' without cycle infrastructure when AADT ≤ 3000 (low-risk environment).
- On-road cycle lanes when AADT >3,000 but ≤ 8,000 (medium-risk environment).
- Separated cycle paths when AADT > 8,000 (high-risk environment).

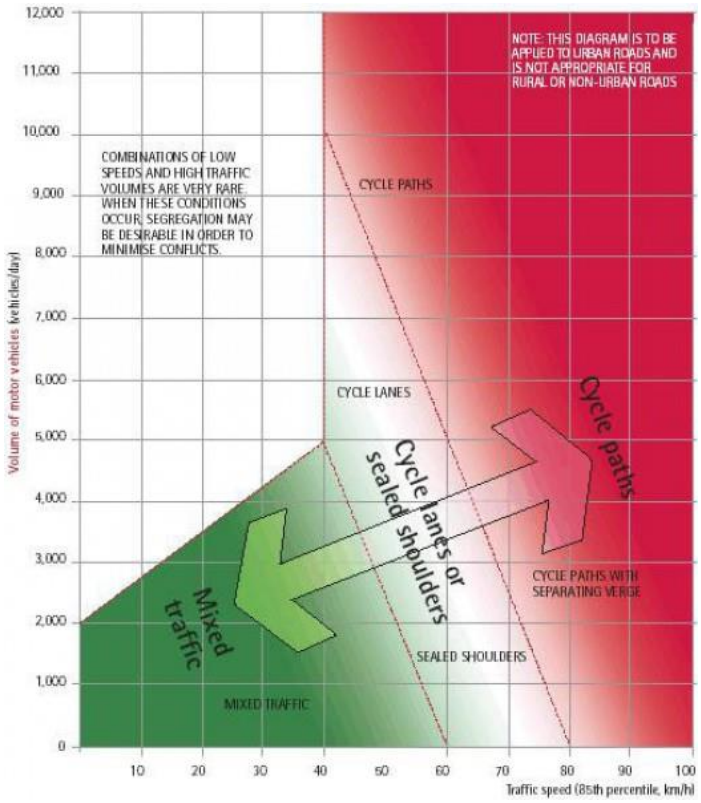


Figure 6-1: Preferred separation of bicycles and motor vehicles on urban roads (Source: CNG)

This relationship has been used to assess whether roads represent low-, medium- or high-risk cycling environments, though these can be altered by other factors, for example the presence of high freight movements. The CNG also provides a guide to LOS ratings for different levels of infrastructure provision, demonstrated in Table 5. This has been used to determine the LOS provided by the identified priority cycle network.

Table 5: Waka Kotahi CNG LOS ratings for different levels of infrastructure provision

Level of service rating	Service measure value
A	Exclusive bicycle facility in a low-risk environment
B	Exclusive bicycle facility in a low- to medium-risk road environment or no bicycle facility in a low-risk road environment
C	Exclusive bicycle facility in a medium- to high-risk road environment or no bicycle facility in a low- to medium-risk road environment
D	Exclusive bicycle facility in a medium- to high-risk road environment or no bicycle facility in a medium-risk road environment
E	Bicycle only lane in a high-risk road environment or no bicycle facility in a medium to high-risk road environment

Level of service rating	Service measure value
F	No bicycle facility in a high-risk road environment

Present and future off-road paths have been included in the cycle network for information but have not been assessed for LOS as this is not within the scope of a NOP.

The aspirational LOS for cycling is considered to be LOS A, and the difference between this and the assessed LOS is the operating gap.

6.1.5 Walking

The measures that contribute to walking LOS as described by the 2015 Austroads report are shown in Table 6.

Table 6: Austroads (2015) LOS needs and measures for pedestrians

LOS needs	LOS measure
Mobility	Footpath congestion, grade of path, crossing delay or detour
Safety	Exposure to vehicles at mid-blocks; Exposure to vehicles at crossings; trip hazards
Access	Crossing opportunities, level of disability access
Information	Traveller information available including signposting
Amenity	Footpath pavement conditions, comfort and convenience features, security, aesthetics

In addition, the Pedestrian Network Guidance (PNG) provided by Waka Kotahi has been used to assist in the assessment of walking routes. The factors that have been considered for pedestrian LOS include:

- Width of footpaths. The PNG recommends 3.0 metres of through route width (i.e. excluding street furniture and frontage space) for main streets and 2.4 metres for activity streets.
- Quality and frequency of crossing facilities.
- Volume of general traffic. In the context of pedestrians, a road is considered to be a lower-risk environment if it has an AADT ≤ 3000.
- Speed of general traffic. In the context of pedestrians, a road is considered to be a lower-risk environment if the 85th percentile operating speed is ≤ 30 km/h.
- Modal conflicts (prioritisation for public transport, freight, and general traffic).

The aspirational LOS for walking is considered to be LOS A, and the difference between this and the assessed LOS is the operating gap.

6.1.6 Freight

The measures that contribute to freight LOS as described by the 2015 Austroads report are shown in Table 7.

Table 7: Austroads (2015) LOS needs and measures for freight

LOS needs	LOS measure
Mobility	Congestion, travel time reliability, travel speed
Safety	Crash risk
Access	Level of freight vehicle type access
Information	Traveller information
Amenity	Pavement ride quality, driving stress

LOS for freight movements is heavily dependent on achieving high mobility. Key freight routes are therefore focussed on enabling high speeds with minimal delays. Another important consideration in assessing LOS for freight is the form of the road itself, as tight geometries can limit access and delay freight movements in forcing vehicles to slow down significantly to make difficult manoeuvres.

In urban environments, it is considered unlikely that freight can achieve a high LOS, as it is generally not possible to fully remove delays from intersections and side friction caused by accesses, intersections and off-street parking from these corridors. The aspiration LOS for freight in urban environments is therefore LOS B.

In rural environments, mobility considerations are generally not an issue, and the main factor affecting LOS is safety. The aspirational LOS for freight is therefore considered to be LOS A in rural environments.

6.1.7 General traffic

The measures that contribute to general traffic LOS as described by the 2015 Austroads report are shown in Table 8.

Table 8: Austroads (2015) LOS needs and measures for general traffic

LOS needs	LOS measure
Mobility	Congestion, travel time reliability, travel speed
Safety	Crash risk
Access	Ability to park close to destination; ability to access roadside land or ability to depart an intersection
Information	Traveller information available
Amenity	Aesthetics, driving stress, pavement ride quality

Like freight, it is unlikely that high LOS scores can be achieved for general traffic in urban environments. The aspirational level of service in these environments is therefore considered to be LOS B. In rural environments, the aspirational LOS for general traffic is considered to be LOS A.

6.2 Modal gap scoring

The LOS scores across each mode are mapped and summarised below. Higher-resolution mapping is provided in Appendix D.

6.2.1 Public transport

The public transport priority network as assessed for LOS is shown in Figure 6-2. The assessment has identified that no priority public transport routes currently score higher than LOS C. This is primarily due to the following factors:

- Impacts to travel times and travel time reliability as a result of delays caused by traffic signals and congestion. In general, the more traffic and congestion on a road, the lower the public transport LOS.
- Quality of bus stops, including the presence of shelters with amenity infrastructure such as rubbish bins and cycle parking.
- Pedestrian environment around bus stops, including the availability of safe crossing points within a short distance of bus stops.

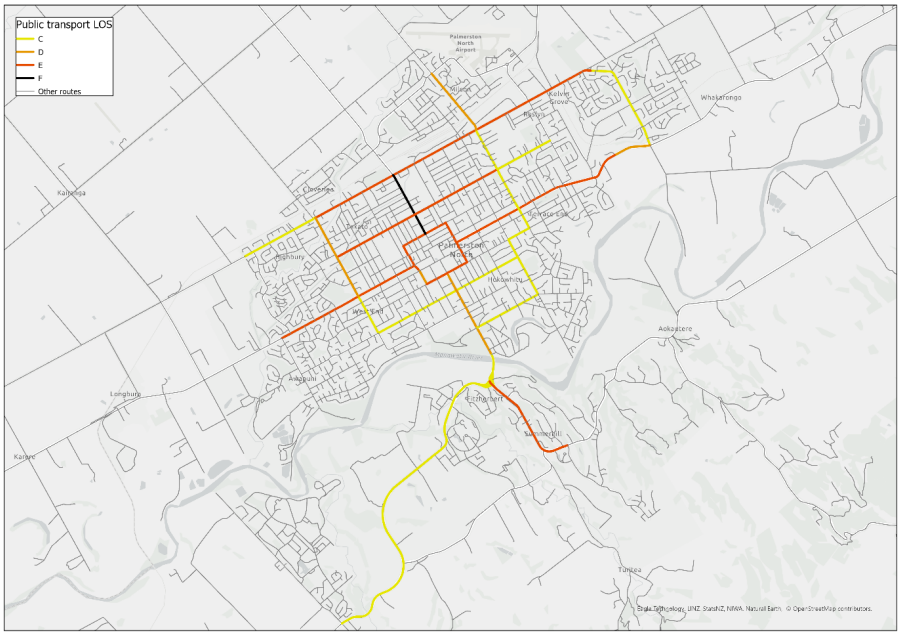


Figure 6-2: Current LOS on public transport priority network

6.2.2 Cycling

The cycling priority network as assessed for LOS is shown in Figure 6-3. The assessment shows that the LOS provided by priority cycling routes is wide ranging. Some routes score well (Tennant Drive and Ruha Street), and Pioneer Highway / Main Street West scores an adequate LOS C due to the off-road shared path and separated cycleway However, many of the main arterial routes in the Palmerston North urban area score poorly (LOS E or F) due to these routes being shared by high volumes of vehicular traffic and there being insufficient cycle infrastructure in place to provide a safe cycling environment.

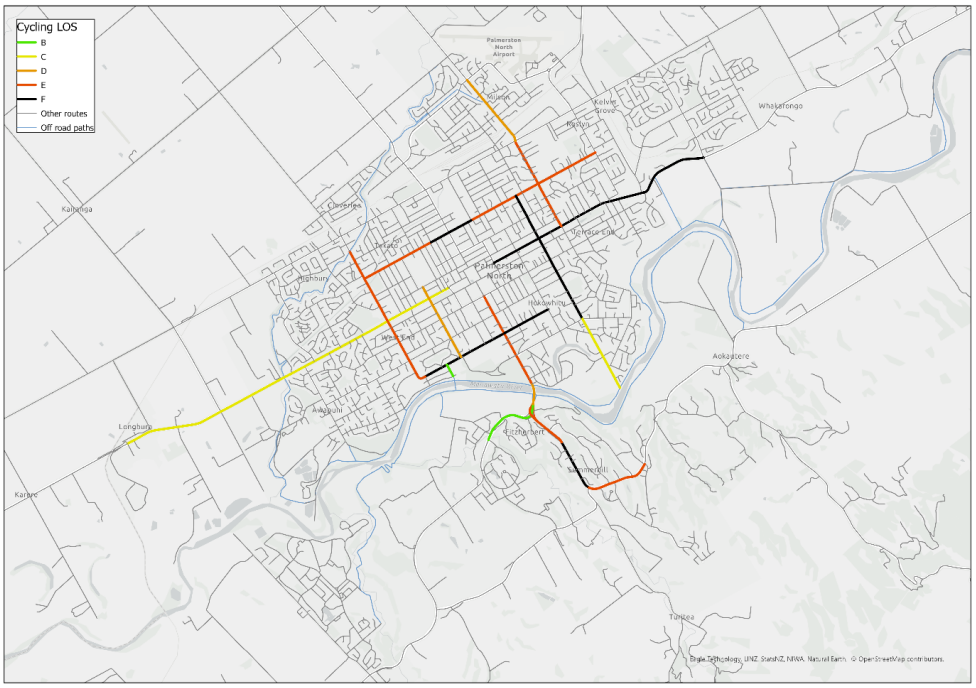


Figure 6-3: Current LOS on cycling priority network

6.2.3 Walking

The walking priority network as assessed for LOS is shown in Figure 6-4. The assessment shows that the priority pedestrian routes range from reasonably good (LOS B) to mediocre (LOS D). The most poorly rated routes are generally those with high vehicular traffic volumes. Many of the pedestrian LOS gaps can likely be addressed through measures to reduce vehicular traffic volumes and speeds.

Figure 6-4: Current LOS on walking priority network

6.2.4 Freight

The freight priority network as assessed for LOS is shown in Figure 6-5. The priority freight network stands to change over the long term as the Regional Freight Ring Road is implemented. The interim freight bypass route scores at LOS C, which is only a step below the aspirational LOS B in this context. It may not be feasible to make significant improvements before this route is no longer required for freight. While the current LOS scores for freight are generally not high, part of improving the network for freight will be ensuring that priority routes change at the appropriate times. For the Regional Freight Ring Road itself, it is assumed that LOS gaps will be addressed as a part of the PNITI programme. It is yet to be determined the exact route it will follow.

The local access routes that are proposed to provide freight access to city centre activities do not generally score well. In particular, Rangitikei Street, Princess Street and Fitzherbert Avenue score at LOS E or F. These routes score poorly due to high traffic volumes and because they are more complex road environments with a range of intermodal interactions that increase risk and stress for drivers.

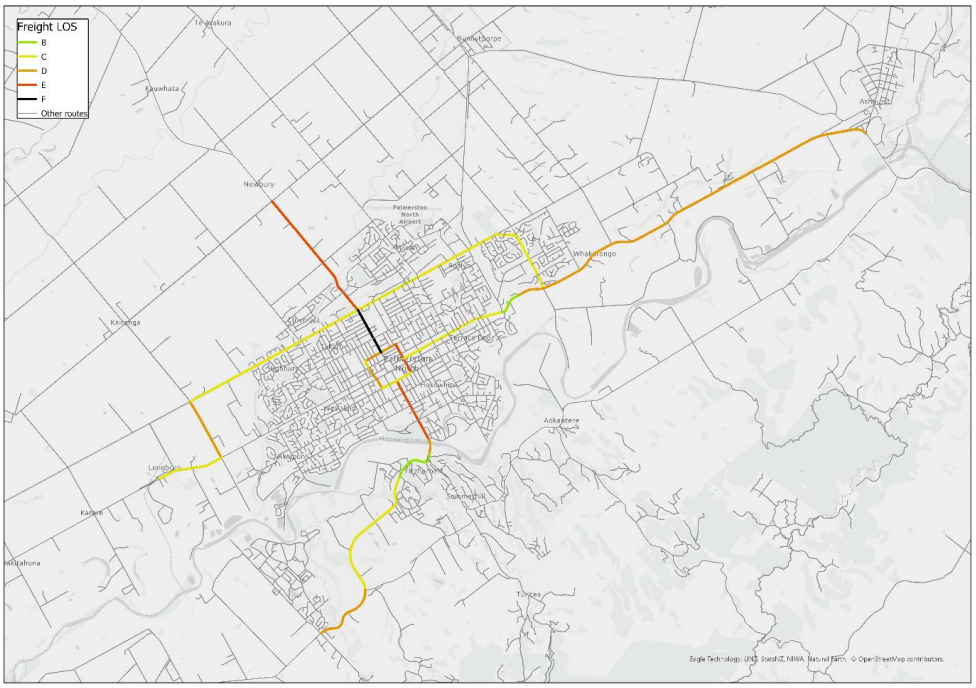


Figure 6-5: Current LOS on freight priority network

6.2.5 General traffic

The general traffic priority network as assessed for LOS is shown in Figure 6-6. The priority network for general traffic varies significantly in LOS, which is primarily due to varying levels of congestion, road quality and road safety risk. As the NOP objectives identify general traffic as the lowest priority mode, it is not considered that a high LOS needs to be achieved on most of these routes. Road safety risk, however, remains a key objective and it is therefore considered that improvements to road safety through projects aligning with the Road to Zero programme should be the primary way of improving LOS for general traffic.

The streets forming the inner-city loop are similar across many of the LOS categories and are considered to score LOS C-D in terms of mobility, access, information, and amenity. There is more variance in terms of safety. Under the Austroads framework, a 50 km/h road generally scores LOS B-C in terms of safety, though this been modified depending on the form of the road. In particular, the following factors have been considered:

- Divided versus undivided roads. Divided roads score a better LOS due to reduced risk of head-on crashes or crashes involving right-turning movements.
- Presence of on-street parking. Roads score a better LOS if there is no on-street parking, as this reduces side friction and crash risk.
- Frequency of accesses and intersections. Roads score a better LOS if accesses and minor intersections are infrequent or right-turning facilities are provided.

Figure 6-6: Current LOS on general traffic priority network

7 Interventions

7.1 Approach

The operating gap assessment shows that the proposed modal priority networks are generally not currently providing the aspirational LOS. Few routes have been scored as currently having a high LOS for prioritised modes, and none of these have scored LOS A. Interventions have been proposed that would help to improve LOS in consideration of the NOP objectives.

As a first step, interventions have been identified on a programme basis. That is, routes with common elements have been addressed together to ensure a consistent network-wide approach. These have then been adjusted to tailor them to specific environments. Proposed interventions are conceptual only and further work is required to confirm their effectiveness and feasibility.

It has been assumed that interventions identified in PNITI and PTSIP will be implemented per the recommended programme. Many of PNITI interventions do not overlap with the identified priority networks, but their implementation may still affect priority routes. Where they do overlap, it has not been considered necessary to restate the interventions unless this NOP proposes interventions that adjust what was recommended in PNITI in terms of scope or timing.

7.2 Intervention programmes

7.2.1 Urban speed management programme

A city-wide speed management programme is proposed that sets speed in line with the Land Transport Rule: Setting of Speed Limits 2022. Speeds should align with the national assessment of safe and appropriate speeds that has been undertaken by Waka Kotahi. This assessment suggests a 50 km/h limit is appropriate only for higher-order roads, with the appropriate speed for most urban roads being 40 km/h. A 30 km/h limit is considered appropriate in city centre environments.

For Palmerston North, it is therefore proposed to reduce speed limits on all urban streets to 40 km/h with the exception of:

- Streets prioritised for general traffic, which would remain at 50 km/h. This includes the inner-city Loop, Pioneer Highway and Main Street (West), Main Street (East) and Napier Road, Fitzherbert Avenue, and Rangitikei Street. Tremaine Avenue would also remain at 50 km/h.
- Streets prioritised for walking, which would be set at 30 km/h. This includes all streets within the inner-city loop (but excluding the inner-city loop itself) and Cuba Street between the city centre and Pascal Street.

PNITI notes that some local streets in residential areas have been observed to be used by freight movements despite not forming part of an identified freight route. Albert Street, Ruahine Street and Te Awe Awe Street are specifically identified. A reduction in speed limit to 40 km/h is recommended for these roads, though it is noted that a network approach to

speed management is necessary due to Palmerston North's grid structure. These recommendations are therefore consistent with the proposal of a city-wide speed management programme. Speed management changes are included within the 2021-24 NLTP, and this is identified in PTSIP.

7.2.2 Walkable city centre improvements

Improvements to support walking are proposed in the city centre, i.e., within the inner-city loop and on Cuba Street. Reduction of speed limits to 30 km/h is a key element of improving pedestrian level of service. However, the reduced speed limit will need to be reflected by the environment using traffic calming measures, pedestrian infrastructure improvements and streetscape upgrades.

A second key element is reducing vehicular traffic on roads in the city centre. It is proposed that vehicular trips across the city centre area should be removed, leaving only the trips that are accessing destinations within the city centre. Through trips are proposed to be rerouted around the inner-city loop, which is prioritised for vehicular modes. To achieve this, streets will need to be 'detuned' to make through travel less attractive. In addition to the reduced speed limit and improvements to the pedestrian environment, modal filters can be used that maintain permeability for active modes.

Lastly, it is proposed that on-street parking in the city centre should be rationalised in consideration of off-street parking availability to keep most parking on the outer edge of the city centre area. This would limit the distance into the city centre that most vehicles need to travel and reduce vehicular flows in and around The Square. It is proposed to undertake a parking study to identify current on- and off-street parking capacity and occupancy. From this, a parking management plan can be developed that prioritises use of Council parking assets and sets a path to managing those assets in a way that reflects the strategic context.

7.2.3 Rural corridor safety improvements

PNITI makes recommendations for safety improvements on many rural corridors that are prioritised for freight. Some of these routes have been prioritised by this NOP and Table 9 summarises where there is overlap.

Table 9: PNITI rural corridor safety improvements on the prioritized modal network

Timeframe	Treatment	Locations
Short-term	Adopt safe and appropriate speed	• Tennent Drive (Camp Road to Massey University) • Pioneer Highway (Longburn Rongotea Road to Maxwells Line) • Napier Road (Roberts Line to Stoney Creek Road)
	Safety upgrades	• Napier Road (Roberts Line to Stoney Creek Road)
Medium-term	Adopt safe and appropriate speed	• No.1 Line (Longburn Rongotea Road to Tremaine Avenue)
	Safety upgrades	• Longburn Rongotea Road (Pioneer Highway to No.1 Line) • Tennent Drive (Camp Road to Massey University)
Long-term	Adopt safe and appropriate speed	• Pioneer Highway (Longburn to Longburn Rongotea Road) • Napier Road (Stoney Creek Road to Ashhurst)

In addition to these roads, the NOP also prioritises Rangitikei Line between Kairanga Bunnythorpe Road and Mangaone Stream for freight usage. It is proposed that rural safety improvements should include this corridor as well.

Each of these routes has been considered against the LOS scoring to determine whether there should be any adjustments to this programme in light of the prioritised network. This assessment is as follows:

- Longburn Rongotea Road is currently LOS D for freight. It is considered that it should receive additional priority for safety upgrades. As the surrounding land is proposed as an urban growth area, any improvements should be undertaken with futureproofing in mind.
- Napier Road (Roberts Line to Stoney Creek Road) is currently LOS D for freight. It is considered that the proposed adoption of a safe and appropriate speed and safety upgrades in the short-term is appropriate.
- Napier Road (Stoney Creek Road to Ashhurst) is currently LOS D for freight. It is considered that the adoption of a safe and appropriate speed in the long term is not appropriate and that this should be brought forward to the short-term with low-cost safety upgrades provided in the medium term.
- No.1 Line is currently LOS C for freight. This is acceptable in the short term and it is considered that the adoption of a safe and appropriate speed in the medium-term is appropriate. It may also be appropriate to provide low-cost safety upgrades.
- Pioneer Highway (Longburn Rongotea Road to Maxwells Line) is currently LOS C for general traffic. This section of road also needs to be de-emphasised for freight. It is considered that the adoption of a safe and appropriate speed in the short-term is appropriate.
- Pioneer Highway (Longburn to Longburn Rongotea Road) is currently LOS C for freight. It is considered that this is acceptable in the short- and medium-term and that the

adoption of a safe and appropriate speed in the long-term in preparation for the Regional Freight Ring Road is appropriate.

- Tennent Drive is currently LOS C-D for freight and LOS C for public transport. The proposed timing for improvements is considered appropriate.

- Rangitikei Line is currently LOS E for freight. It is considered that this road needs improvements to reduce the safety risk on this road. In the short-term it is considered that adoption of a safe and appropriate speed is appropriate. It is proposed that safety upgrades would be appropriate in the long-term as traffic levels are likely to increase when the Regional Freight Ring Road is implemented.

7.2.4 Rural intersection safety improvements

PNITI also makes recommendations for intersection safety improvements at key rural intersections that are part of NOP priority routes. The short-term improvements identified by PNITI are:

- No.1 Line / Longburn Rongotea Road.
- Roberts Line / Napier Road.
- Rangitkei Line / Kairanga Bunnythorpe Road.

The long-term improvements are:

- Pioneer Highway / Longburn Rongotea Road.
- Tennent Drive / Camp Road.

Both PNITI and the UNCM recommend a signalised intersection at Roberts Line / Napier Road. This is currently being progressed by Waka Kotahi but is dependent on funding approval. Coupled with a reduction in speed limit to 50 km/h, this will bring the intersection into the urban environment and improve the travel options between Kelvin Grove and the city centre.

For the other intersections, PNITI recommends safety improvements without specifying their scope or scale. While minor intersection improvements to improve visibility and reduced hazards may provide some short-term benefit, the level of traffic in these locations in the long term may necessitate conversion to roundabouts. Grade separation should be considered but is unlikely to be feasible.

It is considered that the short-term improvements are appropriate. The long-term intersection improvements are associated with the Manawatū River crossing. However, the Pioneer Highway / Longburn Rongotea Road intersection is essential to encouraging freight traffic onto the interim route and it is considered that some elements, with allowance for the future river crossing, should be brought forward to the medium-term.

7.2.5 Major arterial route optimisation

Route optimisation is proposed on the major arterials that are proposed to remain at 50 km/h. These improvements aim to reduce delays and improve safety on these routes to decrease

travel times for public transport, freight, and general traffic. In doing so, it is intended that vehicular trips can be reduced on lower-order streets, enabling them to provide a greater level of service for sustainable modes.

Specific measures to optimise these routes include:

- Coordination of signal timings along corridors in consideration of flow directionality throughout the day.
- Provision of raised medians to limit right-turning movements at minor intersections and accesses, with appropriate right-turning facilities at intersections and accesses that remain.
- Removal / rationalisation of on-street parking to limit side friction.
- Improving routing information for local and onward destinations, including how to access parking.

7.2.6 Urban cycle corridor improvements

It is proposed that cycle infrastructure on prioritised corridors would generally take the form of separated cycleways in line with the indicative designs in the UCNM (Figure 7-1). The exception is in locations where there is sufficient road reserve to provide a high-quality fully separated shared path. While the UCNM provides indicative designs for neighbourhood greenways, these are only applicable to lower-priority routes that are not being considered as a part of the NOP.

Figure 7-1: Artist impressions of cycleways on minor (left) and major (right) arterials (Source: UCNM)

The designs provided in the UCNM are in alignment with design advice in the CNG and include:

- Physical separation from vehicular traffic.
- Treatments at side roads to slow turning vehicles. Ideally cyclists should have priority over vehicles exiting and entering the side road, though this is difficult to achieve under current legislation. Refer to Waka Kotahi technical note TN002 *Updated guidance on separated cycleways at side roads and driveways*.
- Use of coloured surfacing to highlight the presence of cycle paths at accesses and intersections.

- Use of vegetation to demarcate modal boundaries and to reduce vehicle speeds by narrowing perceived road width.
- Measures to mitigate conflicts with pedestrians crossing the road.

7.2.7 Bus stop access and amenity improvements

Improvements to bus stop access and amenity are proposed on all corridors prioritised for public transport. It is anticipated that these corridors will be used by core public transport routes that are intended to provide direct and high-frequency services. High-quality bus stop infrastructure will ensure public transport is attractive and will help to achieve strategic goals around modal shift.

Bus stop locations should be rationalised so that bus stop pairs are in close proximity to each other. These locations should be supported by pedestrian crossings that are appropriate for the road environment. In some locations this would mean using existing pedestrian crossings, for example at signalised intersections. In other locations, new pedestrian crossing may need to be provided to enable the bus stops to be ideally positioned.

Bus stop amenity can be maximised by providing:

- Improved bus stop shelters with seating and enough sheltered area to meet peak demand requirements.
- Prominent display of public transport information, including timetables or information for accessing them.
- Cycle parking to enable modal interchange.
- Design in consideration of Crime Prevention Through Environmental Design (CPTED) principles, including adequate lighting.
- Other amenity infrastructure such as rubbish bins.

Where routes are prioritised for both public transport and cycling, bus stops must be designed to provide for safe interactions between cyclists and passengers who are boarding, alighting or waiting for a bus service to arrive. This means providing a surfaced waiting space that can accommodate peak patronage levels, and routing cycle paths behind the bus stop to avoid bus / cycle conflicts. Locations where pedestrians cross the cycle path to access the bus stop should be well marked and apparent to users of both modes.

7.2.8 Intersection upgrades for cycling and public transport

A total of seventeen existing signalised intersections are on routes that have been prioritised for both cycles and public transport. Providing priority for both modes in these locations will be a design challenge due to space and signal timing constraints, and the need to protect cyclists from conflicts with other modes.

For cycles, the preferred approach is to provide separated cycle lanes up to the intersection with dedicated cycle signal phases and cycle detection. This approach is particularly appropriate when high bus and freight volumes are present. For buses, priority can be

provided with bus lanes leading up to intersections and bus priority signals, potentially on a part-time basis. How these priorities interact with each other will depend on the specifics of individual intersections.

Several existing roundabouts are located on routes prioritised for cycling. This includes five roundabouts on Albert Street, three on Cook Street, and one on Featherston Street. While roundabouts generally reduce the risk of a serious crash compared to other intersection forms, they also can create a disproportionately high safety risk to cyclists. Indeed, on these nine roundabouts there were a total of 26 cycle crashes in the five-year period from 2017 to 2021, inclusive. Some of these roundabouts already include 'sharrows' to inform vehicle drivers of the presence of cyclists. Other methods of improving cyclist safety in these locations include providing raised platform across the approaches and tightening the roundabout geometry to reduce vehicle speeds. Routing cyclists around the outside of the roundabout rather than through it is an also an option to improve cyclist safety.

The roundabout at the intersection of Tremaine Avenue, Botanical Road, Gillespies Line and Admiral Place has been identified as a location that could benefit from bus priority. However, as this roundabout is non-standard, this may be difficult to accomplish. It is recommended that further assessment be done to determine the feasibility of upgrading this intersection.

In addition, some priority intersections have been identified that may require upgrades. Vehicular speeds and volumes are key contributors to active travel safety risk. The use of raised intersection platforms is a measure that can help to calm vehicle speed and discourage rat-running. In particular, the intersections of Park Road / Victoria Street and Featherston Street / Vogel Street are priority intersections located where cycle priority routes end at a T-intersection. Reducing speeds through these intersections and improving cyclist crossing safety is therefore an important consideration to protect these users as they connect to/from on-road routes.

Two priority public transport routes meet at the intersection of College Street, Albert Street and Churchill Avenue. To facilitate bus turning movements, it is recommended that this is upgraded to a roundabout.

7.2.9 Secondary route detuning

In addition to the prioritised corridors, some interventions are proposed for corridors that have not been prioritised for any mode. These are interventions to 'detune' streets which are currently being used as priority routes but have not been prioritised for the future. The most notable instance of this is the Vogel Street and Upper Main Street corridor, which will require active detuning to slow traffic and encourage vehicles to reroute onto the priority network.

Other routes that may require detuning include, for example, Church Street, which is often used by freight and general traffic in order to bypass the signalised intersections on Main Street. It is possible that improvements to LOS on major arterial routes may attract traffic that currently uses rat-runs. It will be necessary to monitor these as improvements are made to determine where additional detuning is needed.

Vogel Street and Upper Main Street

The Vogel Street – Upper Main Street corridor is identified as a minor arterial route in the District Plan and is a direct connection between major arterial routes – Tremaine Avenue and Railway Road in the north, and Napier Road in the south. As such, it carries high vehicular flows, with an AADT in the range of 8,000-10,000 vehicles per day between Tremaine Avenue and Featherston Street in 2022. As an alternative access to the industrial land uses on Keith Street, Vogel Street also carries more heavy vehicle movements than is desired for a residential street that includes a local retail centre. Featherston Street is prioritised for cycling and public transport, and reducing the attractiveness of Vogel Street as a vehicular route is also a part of achieving this. Detuning this road is therefore needed in order to support the wider NOP.

To achieve this, it is proposed that the intersections at either end of the corridor should be improved to reduce the attractiveness of entering the corridor in the first place for general traffic and freight movements. At the Tremaine signals, this could mean a reduction in capacity for vehicles exiting Vogel Street and adopting signal timings and phasing to favour other movements. At Napier Road this could mean reducing the width of the Upper Main Street approach, installing a raised platform to decrease entry and exit speeds, and potentially converting to left-in left-out by extending the raised median in Napier Road or signalising the intersection. Along the corridor, traffic calming is proposed to reduce speeds and decrease attractiveness as a through route. In particular, measures to decrease speeds and improve the pedestrian environment are proposed around the Roslyn neighbourhood retail centre, where AADT and the proportion of heavy vehicles is highest.

7.3 Proposed interventions

Based on the intervention programmes above, a series of interventions has been proposed for the prioritised corridors. These interventions are detailed in Appendix E. Post-intervention LOS for each prioritised mode have been estimated in the same way as the base assessment. The level of confidence in the post-intervention score has also been estimated (low, medium or high confidence) in consideration of factors that could influence the effectiveness the proposals.

8 Phasing

8.1 Approach

Proposed interventions have been programmed across the short- (0-10 years), medium- (10-20 years) and long-term (20-30 years and beyond) projects. These timeframes are approximate estimations only, and the key focus of the phasing is identifying the order in which projects should be delivered in order to most effectively address gaps across the network. This means:

- Targeting high priority modes over low priority modes.
- Targeting routes with very low LOS scores over those with more moderate scores.
- Considering how changes to modal priorities affect the LOS provided by other routes.

The timeframes have been set in order to align with those used in the PNITI programme. Despite this, the focus of the NOP as a tool to enable shorter term improvements that are aligned with the long-term strategic network means that interventions are generally more focused on the short term.

The UCNM uses similar language in referring to near-, medium- and short-term interventions, but these are not equivalent to the timeframes described in PNITI or the NOP. The interventions in the UCNM, being cycle-focused, are on a smaller scale in terms of implementation time and cost. The 'long-term' described in the UCNM therefore covers both the medium- and long-term periods discussed herein, while both earlier periods fall into the short-term.

Prioritisation of interventions considers where there is the greatest opportunity to achieve the NOP objectives. Interventions that improve LOS for higher-priority modes over lower-priority modes are generally considered more urgent, as are interventions that address a LOS that is currently poor. However, a network-wide approach is necessary as some interventions are reliant on others being progressed first.

8.1.1 Timing of changes to freight routes

One of key outcomes of the PNITI programme is the delivery of the Regional Freight Ring Road that enables freight traffic to route around Palmerston North rather than through the inner city as currently occurs. In the context of the NOP, there are three stages to freight routes: the current situation, which is heavily dependent on SH3, SH56 and other arterial routes in Palmerston North; the interim solution, which would move most freight traffic to the Tremaine Avenue – McLeavey Drive – Roberts Line corridor, and the medium- and long-term ring road solution using Kairanga Bunnythorpe Road and Ashhurst Road.

The freight routes in place at each stage have a considerable effect on how other interventions can be programmed. Corridors used as freight routes are generally unsuitable for active modes. Improving corridors for active modes can displace freight movements, but it is important that safe and desirable alternative freight routes are in place to receive these movements. Improvements to freight routes will therefore shape much of the intervention programme.

It is anticipated that when the Regional Freight Ring Road is completed in the long-term, it will take a state highway designation and the roads within the Palmerston North urban area that are currently designated as state highways would relinquish these.

8.2 Proposed phasing

The interventions included in each of the three phases are summarised below.

8.2.1 Short-term

The proposed interventions in the short-term (0-10 years) are summarised below by programme. It is proposed that most of the improvements for walking, cycling, and public transport could be achieved in the short-term as these are generally lower cost interventions than other modes.

Urban speed management:

- Develop and implement programme to reduce speed limits on most urban roads while encouraging use of prioritised freight and general traffic routes.

Walkable city:

- Undertake a city centre parking study and develop a parking management plan in line with the national parking management guidance issued by Waka Kotahi.
- Begin implementation of streetscape improvements to reinforce 30 km/h speed limit, e.g. modal filters, raised crossings and intersections, narrowed carriageways, increased crossing frequency, amenity upgrades.

Urban cycle improvements:

- Upgrade temporary segregated cycleway on Pioneer Hwy / Main St to a permanent facility.
- Cycling improvements on routes to the Summerhill suburb to meet the needs of ongoing growth.
- Implement further segregated on-street cycleway facilities.

Bus stop access and amenity improvements:

- Develop a bus stop plan to rationalise bus stop locations and determine the level of bus stop infrastructure to be provided at each.
- Public transport improvements on routes to the Summerhill suburb to meet the needs of ongoing growth.
- Begin relocation of bus stops and upgrades to existing stops and access provisions.

Arterial route optimisation:

- Improvements to signal timings to prioritise general traffic on priority routes over those on other routes.

Intersection upgrades for public transport and cycling:

- Cycle safety improvements at roundabouts on priority cycling network.
- Remove slip lanes facilitating freight access to/from residential streets (e.g. Park Road at Fitzherbert Avenue, Te Awe Awe Road at Fitzherbert Avenue, Botanical Road at Pioneer Highway).

Secondary route detuning:

- Traffic calming on Vogel Street.
- Monitor other secondary routes as network changes are implemented.

Rural corridor safety improvements:

- Improvements as per PNITI except the following:
    - Safety upgrades (low-cost / futureproofed) on Longburn Rongotea Road between Pioneer Highway and No. 1 Line.
    - Adoption of a safe and appropriate speed and safety upgrades on all of Napier Road between Roberts Line and Ashhurst.
    - Additional adoption of a safe and appropriate speed on Rangitikei Line.

Rural intersection safety improvements:

- Improvements as per PNITI.

Other items:

- Investigate walking and cycling needs in suburban and outlying centres.

8.2.2 Medium-term

In the medium term, the PNITI programme proposes to upgrade roads forming part of the Regional Freight Ring Road, including Longburn Rongotea Road, Kairanga Bunnythorpe Road and Ashhurst Road. These improvements will put the Ring Road route in place, though with key gaps still in place around Bunnythorpe and Ashhurst. This will allow some freight traffic to shift away from the interim Tremaine Avenue Route. With the new river crossing yet to be implemented, the interim freight routes along Fitzherbert Avenue and Rangitikei Street will continue to provide a north-south connection between SH57 and SH3.

The medium-term interventions are summarised below by programme. The medium-term consists of completing the elements for walking, cycling and public transport that could not be achieved in the short term, as well as higher-cost interventions associated with improvements to LOS for general traffic and freight.

Walkable city:

- If necessary, complete remaining implementation of streetscape improvements to reinforce 30 km/h speed limit.
- Removal / rationalisation of on-street parking.

Urban cycle improvements:

- If necessary, complete remaining implementation of segregated cycle facilities on priority cycle routes.

Bus stop access and amenity improvements:

- If necessary, complete relocation of bus stops and upgrades to existing stops and access provisions.

Intersection upgrades for public transport and cycling:

- Signalised intersection improvements to provide bus priority and cycle protection.

Arterial route optimisation:

- Removal / rationalisation of on-street parking on routes prioritised for freight and general traffic.
- Implement raised medians to limit right-turning movements at minor intersections and accesses.

Secondary route detuning:

- Intersection improvements at Vogel Street / Tremaine Avenue / Railway Road and Upper Main Street / Napier Road intersections to discourage rat-running.
- Traffic calming works to other secondary routes that continue to be used as primary routes.

Rural corridor safety improvements:

- Improvements as per PNITI.

Rural intersection safety improvements:

- Improvements (low-cost / futureproofed) to the Pioneer Highway / Longburn Rongotea Road intersection.

8.2.3 Long-term

In the long-term, the PNITI programme proposes to complete the final elements of the Regional Freight Ring Road, enabling freight to bypass the Palmerston North urban area.

The long-term improvements are summarised below and consist of projects needed to support the completion of the Regional Freight Ring Road.

Rural corridor safety improvements:

- Improvements as per PNITI except the following:
    - Additional safety upgrades to Rangitikei Line.

Rural intersection safety improvements:

- Improvements as per PNITI.

9 Conclusion

Informed by existing plans and frameworks, this NOP has identified a long-term strategic transport network for Palmerston North that is aligned with local, regional and national transport strategy. This has enabled a series of interventions to be proposed with the aim of addressing operating gaps between the long-term and current networks. This process has broadly followed the Waka Kotahi NOF guidance in order to deliver a plan that provides the evidence required for the prioritisation of investment. The process has followed the following four steps:

- Network assessment to identify long-term strategic network.
- Scoring of current LOS on long-term strategic network routes to determine operating gaps.
- Proposal of interventions to address the operating gaps.
- Planning of intervention phasing in consideration of existing planned improvements.

The interventions that have been identified in this document represent an approach that could be taken to achieve the long-term strategic network. However, these have only been identified at a strategic level, and while specific measures are suggested, these are only intended to start the conversation around planning a programme of works. Before progressing to design and construction, it is recommended that further investigations are made into the feasibility of these interventions and that viable alternatives are considered.

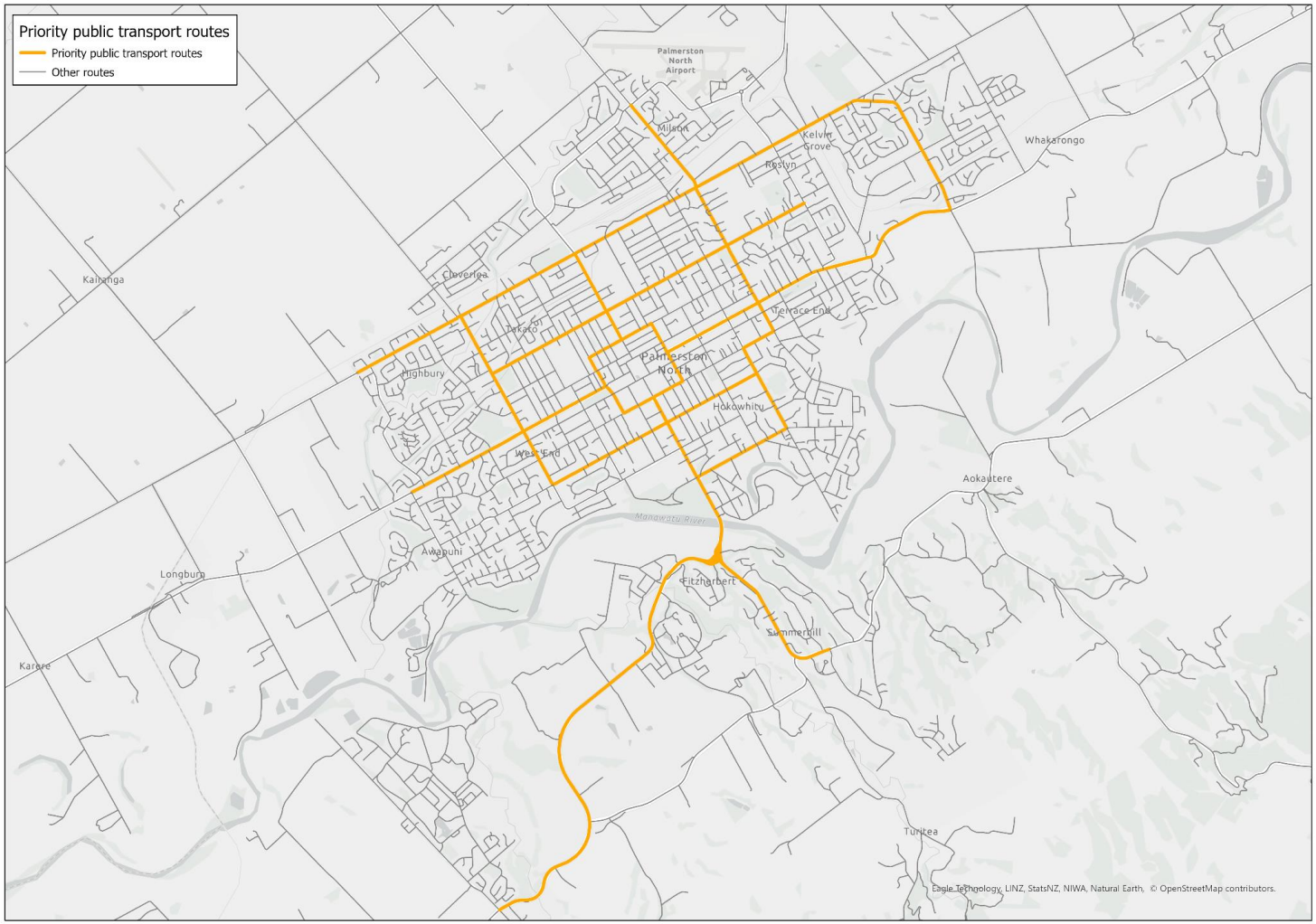
Planning network investment is a continuous cycle of investigation, application and revaluation. This NOP builds on the previous NOP developed in 2019, updating it to account for changes in strategy and planned investment. Further updates to the NOP will need to be made in the future as changes materialise to ensure network investment continues to be planned towards a long-term network that is aligned with strategic priorities.

Appendix A. Network assessment of key corridors

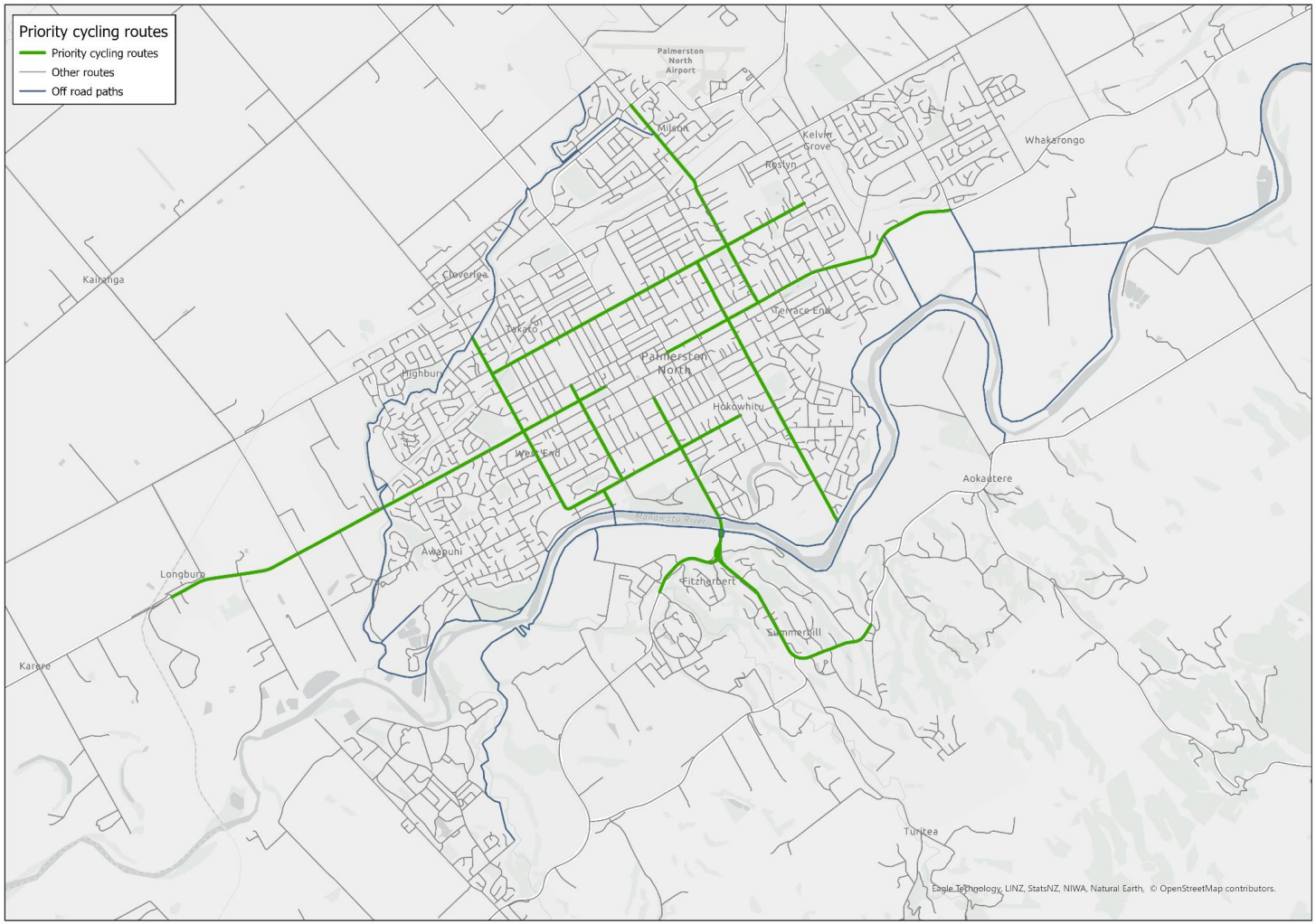
Corridor	From	To	Classification	PTSIP	PNITI	Previous NOP	UCNM	Conflicts	Proposed NOP	Comments
City Centre			Primary and Secondary collectors (ONRC) Activity Streets (ONF)	Pedestrian, Cycle		Pedestrian, Bus, Cycle	Low-speed commercial streets	PTSIP does not include bus priority routes within centre	Pedestrian, Cycle	No change from PTSIP.
Cuba St	Pascal St	Bourke St	Collector (DP) Secondary Collector (ONRC) Activity Street (ONF)	None		Bus, Cycle, Pedestrian	Proposed buffered cycle lane		Pedestrian	Pedestrian connection between City Centre and Arena. Dependent Arena outcomes
Rangitikei St / Rangitikei Line	Walding Street	Tremain Ave	Major Arterial (DP) Regional (ONRC) Activity Street (ONF)	Bus, Freight		Bus, Cycle, Cars	Proposed buffered northbound cycle lane, exisitng southbound on-road cycle lane	Freight and cycles on same route, cycles are not segregated	Bus, Freight, Car	Not proposed to form a priority cycle route due to high vehicular flows and lack of space for off-road cycling facilities.
	Tremaine Ave	Kairanga Bunnythorpe Rd	Major Arterial (DP) Regional (ONRC) Urban Connector / Interregional Connector (ONF)	Bus, Freight		Bus, Cycle, Cars	Proposed cycle lane	Freight and cycles on same route, cycles are not segregated	Freight, Bus	
Inner City Loop			Major Arterial (DP) Arterials and Regional (ONRC) Urban Connectors / Activity Streets (ONF)	Bus, Freight		Cycle, Car, Pedestrian, Bus	Improved intersections to enable cycling movements	PTSIP shows key freight route around town centre. PNITI does not show this	Car, Freight, Bus	Freight routes intended for lcoal access only. Pedestrian access needs to be considered as it may not be reasonable to expect them not to use these roads. Some sections of the loop are identified as Activity Streets in the ONF
Pioneer Hwy / Main St	Longburn	Longburn Rongotea Rd	Major Arterial (DP) Arterial (ONRC) Rural Connector (ONF)	Bus	Freight	Car, Cycle, Freight	Existing Shared Path	Freight and Cycles on same route, but cycles are segregated	Cycle, Freight	PTSIP does not include freight on this route. Bus priority not likely to be required on rural sections.
	Longburn Rongotea Rd	Botanical Rd	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Car, Cycle	Existing Shared Path		Bus, Car, Cycle	Existing shared path is good quality and segregated. Sole cycle link to Longburn.
	Botanical Rd	Pitt St	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Car	On-Road Cycle Path		Bus, Car, Cycle	Temporary separated cycle facility being trialled with intention to make permanent.
Main St / Napier Rd	Princess St	Limbrick St	Major Arterial (DP) Regional (ONRC) Urban Connector (ONF)	Bus, Freight		Bus, Car, Freight	Proposed segregated cycleway	Cycleway proposed on freight route	Bus, Car, Freight, Cycle	PTSIP includes as a freight route for local acces, which is not part of PNITI.
	Limbrick St	Roberts Line	Major Arterial (DP) Regional (ONRC) Interregional Connector (ONF)	Bus, Freight		Bus, Car, Freight	Proposed shared path	Cycleway proposed on freight route	Bus, Car, Freight, Cycle	
	Roberts Line	Manawatu Scenic Route	Major Arterial (DP) Regional (ONRC) Interregional Connector (ONF)	Bus, Freight		Bus, Car, Freight	Off-road path up to Whakarongo School		Bus, Freight	
Longburn Rongotea Rd	Pioneer Hwy	No.1 Line	Major Arterial (DP) Arterial (ONRC) Rural Connector (ONF)	Freight	Freight	Freight	Proposed off-road path		Freight	No change from PTSIP
No. 1 Line	Tremaine Ave	Longburn Rongotea Rd	Major Arterial (DP) Arterial (ONRC) Rural Connector / Peri-Urban Road (ONF)	Interim Freight	Interim Freight	Bus, Freight, Car	Proposed Shared Path	Freight and Cycles on same route, but cycles are segregated	Freight (interim)	
Tremaine Ave / Kelvin Grove Rd / McLeavey Dr / Roberts Line	No.1 Line	Botanical Rd	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Interim Freight	Interim Freight	Bus, Freight, Car	Proposed on-road cycle lane	Freight and Cycles on same route. Cycles not segregated	Bus, Freight (interim)	Propose to provide bus priority route through Kelvin Grove. Not proposed to form a priority cycle route due to freight presence.
	Botanical Rd	Linklater Reserve	Major Arterial (DP) Arterial (ONRC) Activity Street (ONF)	Interim Freight	Interim Freight	Bus, Freight, Car	Proposed on-road cycle lane	On-road cycle lane on critical interim freight route		
	Linklater Reserve	Mihaere Dr	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Interim Freight	Interim Freight	Cycle, Car, Bus, Freight	Proposed cycle lane	On-road cycle lane on critical interim freight route		
	Mihaere Dr	Napier Road	Major Arterial (DP) Regional (ONRC) Urban Connector (ONF)	Interim Freight	Interim Freight	Cycle, Car, Bus, Freight	Proposed cycle lane	On-road cycle lane on critical interim freight route		
Featherston St	Botanical Rd	Aroha St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle, Bus		Cycle, Bus, Car	Existing on-road cycle lane, proposed upgrade to separated cycleway	Bus and cycle on same route is not ideal, but there is a lack of alternatives.	Cycle, Bus	Aligns with upgrade of cycle facility, provided appropriate protection is provided from interactions with buses.
	Aroha St	North St	Minor Arterial (DP) Arterial (ONRC) Activity Street (ONF)			Cycle, Bus, Car				
	North St	Ruahine St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)			Cycle, Bus, Car				
	Ruahine St	Vogel St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)			Cycle, Car				
Gillespies Line	Botanical Rd	Benmore Ave	Collector Road (DP) Primary Collector (ONRC) Urban Connector (ONF)	Cycle		Car, Bus, Cycle	Proposed on-road cycle lane		None	
Botanical Rd	Tremaine Ave	Pioneer Hwy	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle, Bus		Bus, Freight, Car, Cycle	Proposed on-road cycle lane	Bus and cycle on same route is not ideal, but there is a lack of alternatives.	Cycle, Bus	Cycle route to begin from Mangaone Stream path
	Pioneer Hwy	College St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle		Bus, Freight, Car, Cycle	Proposed on-road cycle lane		Cycle, Bus	Extend bus to connect to College St route.
	College St	Park Rd	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle		Bus, Freight, Car, Cycle	Proposed on-road cycle lane		Cycle	No change from PTSIP.
Milson Line	John F Kennedy Dr / Airport Dr	Tremaine Ave	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Bus, Cycle, Car	Existing cycle lane, shared path on Milson Drain Path. Proposed extension of cycle lane to airport		Bus, Cycle	Milson Line / Ruahine St cycle route provides north-south connection in north-east quadrant.
Ruahine St	Tremaine Ave	Main St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Car, Cycle, Bus	Existing separated and on-street sections. Proposed cycle lane for full extent		Bus, Cycle	Milson Line / Ruahine St cycle route provides north-south connection in north-east quadrant.
	Main St	Ferguson St	Collector (DP) Primary Collector (ONRC) Urban Connector (ONF)	Bus		Car, Cycle, Bus	Proposed cycle lane		Bus	No change from PTSIP.
Albert St	Featherstone St	Main St	Collector (DP) Primary Collector (ONRC) Urban Connector(ONF)	Cycle		Cycle, Car	Proposed buffered cycle lane	Over dimension route - highly utilised by freight	Cycle	Potential conflicts with freight due to over dimenson route
	Main St	Ferguson St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle		Cycle, Car	Proposed separated cycleway	Over dimension route - highly utilised by freight	Cycle	
	Ferguson St	Te Awe Awe St	Minor Arterial (DP) Arterial (ONRC) Urban Connector / Activity Street (ONF)	Cycle		Cycle, Car	Proposed separated cycleway	Over dimension route - highly utilised by freight	Bus, Cycle	
	Te Awe Awe St	Manawatu St	Collector (DP) Primary Collector (ONRC) Activity Street / Local Street (ONF)	Cycle		Cycle, Car	Proposed separated cycleway	Over dimension route - highly utilised by freight	Cycle	No change from PTSIP.
	Manawatu St	South end of road	Local Road (DP) Secondary Collector (ONRC) Local Street (ONF)	Cycle		Cycle, Car	Proposed separated cycleway. Existing quiet street connection to Manawatu River path		Cycle	
Fitzherbert Ave / Fitzherbert Bridge	Ferguson St	Tennant Dr	Major Arterial (DP) Regional (ONRC) Urban connector (ONF)	Bus		Bus, Cycle, Freight, Pedestrian	Existing cycle lane		Bus, Cycle, Freight (interim)	Interim freight route until alternative river crossings become available. Provides pedestrian link to Manawatu River and onward paths
Tennent Dr	Fitzherbert Ave	Massey Uni	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus, Cycle		Bus, Cycle, Car	Existing shared path. Proposed extension to South Massey		Bus, Cycle, Freight (interim)	Interim freight route until alternative river crossings become available.
	Massey Uni	Old West Rd	Major Arterial (DP) Arterial (ONRC) Urban Connector / Rural Connector (ONF)	Bus		Cycle, Car			Bus, Freight (interim)	
	Old West Rd	Camp Rd / Hewitts Rd	Major Arterial (DP) National (ONRC) Rural Connector / Peri-Urban Road (ONF)			Freight, Car				
Summerhill Dr	Tennent Dr	Jasmine Pl	Major Arterial (DP) Regional (ONRC) Urban Connector (ONF)	Bus		Freight, Cycle	Existing buffered cycle lane		Bus, Cycle	Prioritise for cycling as limited options for cycle access between Summerhill suburb and city centre.
	Jasmine Pl	Lalena Grove	Major Arterial (DP) Regional (ONRC) Urban Connector (ONF)	Bus		Freight	Proposed buffered cycle lane		Bus, Cycle	
	Lalena Grove	Greenwood Pl	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Freight	Proposed buffered cycle lane		Bus, Cycle	
	Greenwood Pl	SH 57 Old West Rd	Major Arterial (DP) Regional (ONRC) Urban Connector (ONF)	Bus		Freight	Proposed buffered cycle lane		Bus, Cycle	
Aokautere Dr	Old West Rd	Pacific Dr	Major Arterial (DP) National (ONRC) Peri-Urban Road (ONF)	None		Freight	Proposed buffered cycle lane		Bus, Cycle	Extend bus and cycle to improve access to Summerhill suburb
	Pacific Dr	Johnstone Dr	Major Arterial (DP) National (ONRC) Peri-Urban Road (ONF)	None		Freight			Cycle	Extend cycle to improve access to Summerhill
College St	Maxwells Line	Botanical Rd	Minor Arterial (DP) Arterial (ONRC) Urban connector (ONF)	Bus		Bus, Car	Existing cycle lane, Proposed upgrade to buffered cycle lane		None	Bus removed.
	Botanical Rd	Victoria Ave	Collector (DP) Primary collector (ONRC) Urban connector (ONF)	Bus		Bus, Car	Existing cycle lane, Proposed upgrade to buffered cycle lane		Bus	No change from PTSIP.
	Victoria Ave	Albert St	Collector (DP) Secondary collector (ONRC) Urban connector (ONF)	None		Bus, Car	Proposed quiet street		Bus	Could provide cycle linkage between Park Road and Albert Street priority routes

Park Rd	Botanical Rd	Fitzherbert Ave	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Cycle		Freight, Bus, Cars	Proposed cycle lane		Cycle	No change from PTSIP. Currently over-dimension freight route.
	Fitzherbert Ave	Victoria Ave	Collector (DP) Primary Collector (ONRC) Urban Connector (ONF)	Cycle		Cars	Proposed cycle lane		Cycle	No change from PTSIP.
Ruha St	Park Rd	He Ara Kotahi	Local Road (DP) Access (ONRC) Local Street (ONF)	Cycle		No prioritisation	Proposed quiet street		Cycle	No change from PTSIP.
Cook St			Collector (DP) Primary collector (ONRC) Urban connector (ONF)	Cycle		Cycle, Pedestrian, Car	Existing buffered cycle lane		Cycle	No change from PTSIP.
Te Awe Awe St			Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	None		Bus, Cycle, Car		Not a key freight route but residential amenity dimished due to high volumes of HVC. Highly used by heavy vehicles due to being more attractive than existing freight routes	Bus	Currently over-dimension freight route.
Ferguson St	Victoria Ave	Albert St	Collector (DP) Primary collector (ONRC) Urban Connector (ONF)	Bus		Bus	Proposed cycle lane		None	Bus route via College St to Albert St
	Albert St	Ruahine St	Collector (DP) Primary collector (ONRC) Urban Connector (ONF)	Bus		Bus	Proposed cycle lane		Bus	No change from PTSIP.
Victoria Ave	College St	Ferguson St	Collector (DP) Primary collector (ONRC) Urban Connector (ONF)	Bus		Cycle, Pedestrian	Proposed buffered cycle lanes		None	Bus route via College St to Albert St
Heretaunga St	Tremaine Ave	Featherston St	Local Road (DP) Access (ONRC) Local Street (ONF)	Cycle		None			None	Secondary cycle route not included in NOP
Fairs Rd	Milsons Line	Jasper Pl	Collector (DP) Primary collector (ONRC) Urban Connector (ONF)	Cycle		Car	Proposed cycle lanes		None	No change from PTSIP.
Airport Dr	Milsons Line	Railway Rd	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Bus, Cycle, Car	Proposed cycle lanes		None	No change from PTSIP.
Railway Rd	Airport Dr	Roberts Line N	Major Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	Bus		Bus, Cycle, Car, Freight	Proposed off-road path		None	Route of Railway Rd cycle path no yet determined
Vogel St	Haydon St	Featherston St	Minor Arterial (DP) Arterial (ONRC) Urban Connector (ONF)	None		Car	Proposed combination of quiet street treatments , cycle lanes and separated cycleways	Not a key freight route but residential amenity dimished due to high volumes of HVC	None	No change from PTSIP. May require active detuning.

Appendix B. Modal priority network mapping



ITEM 7 - ATTACHMENT 3



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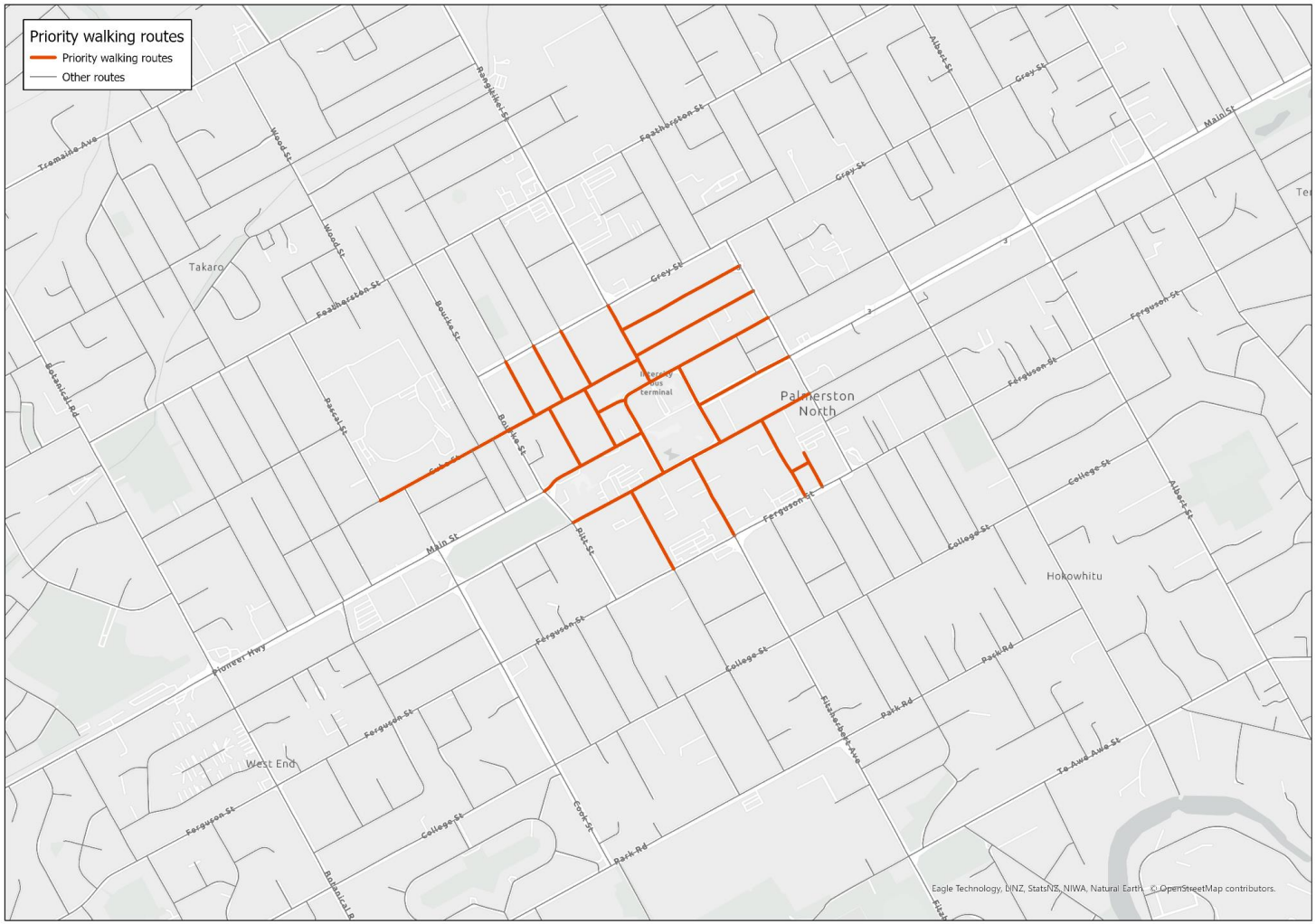

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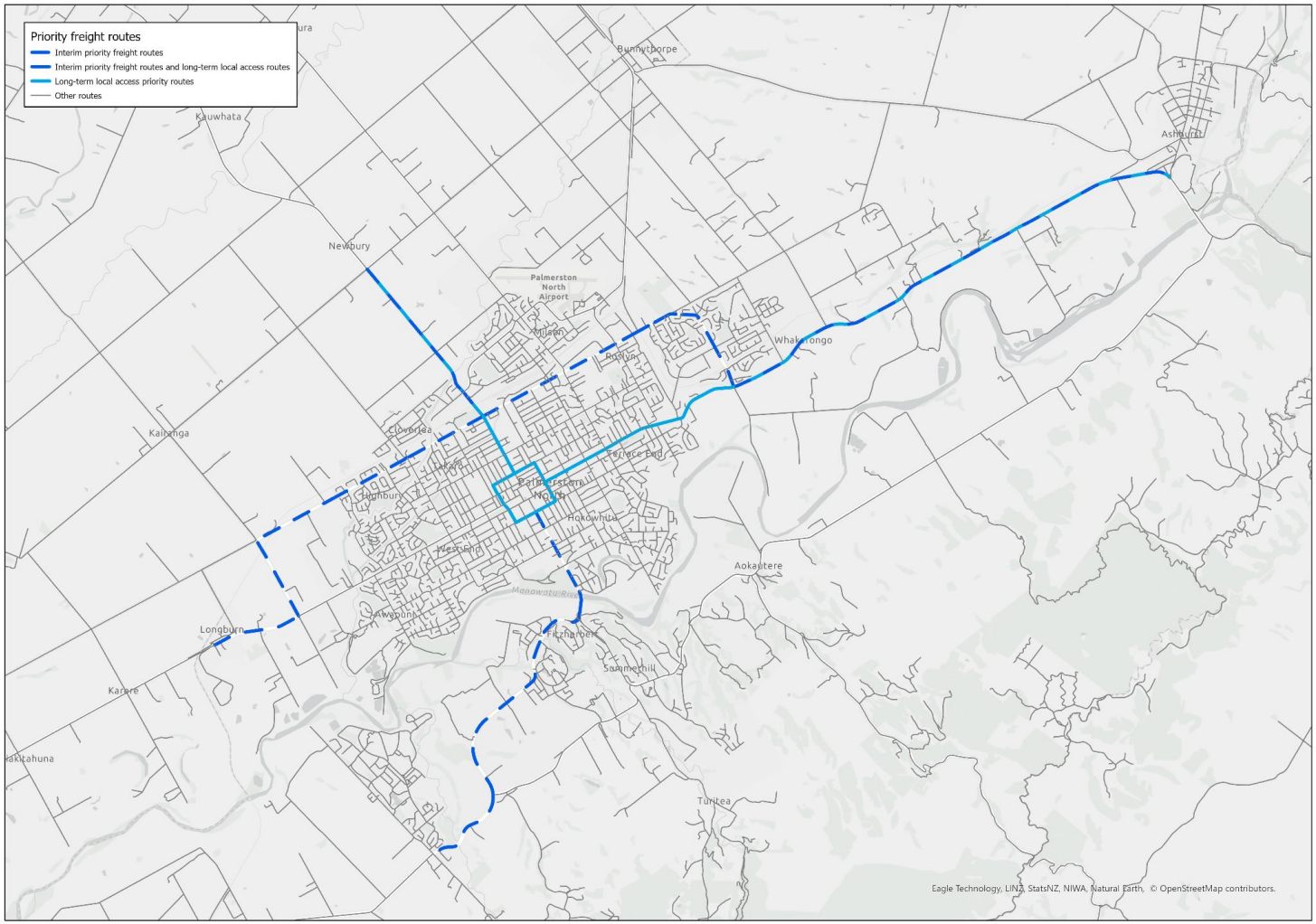
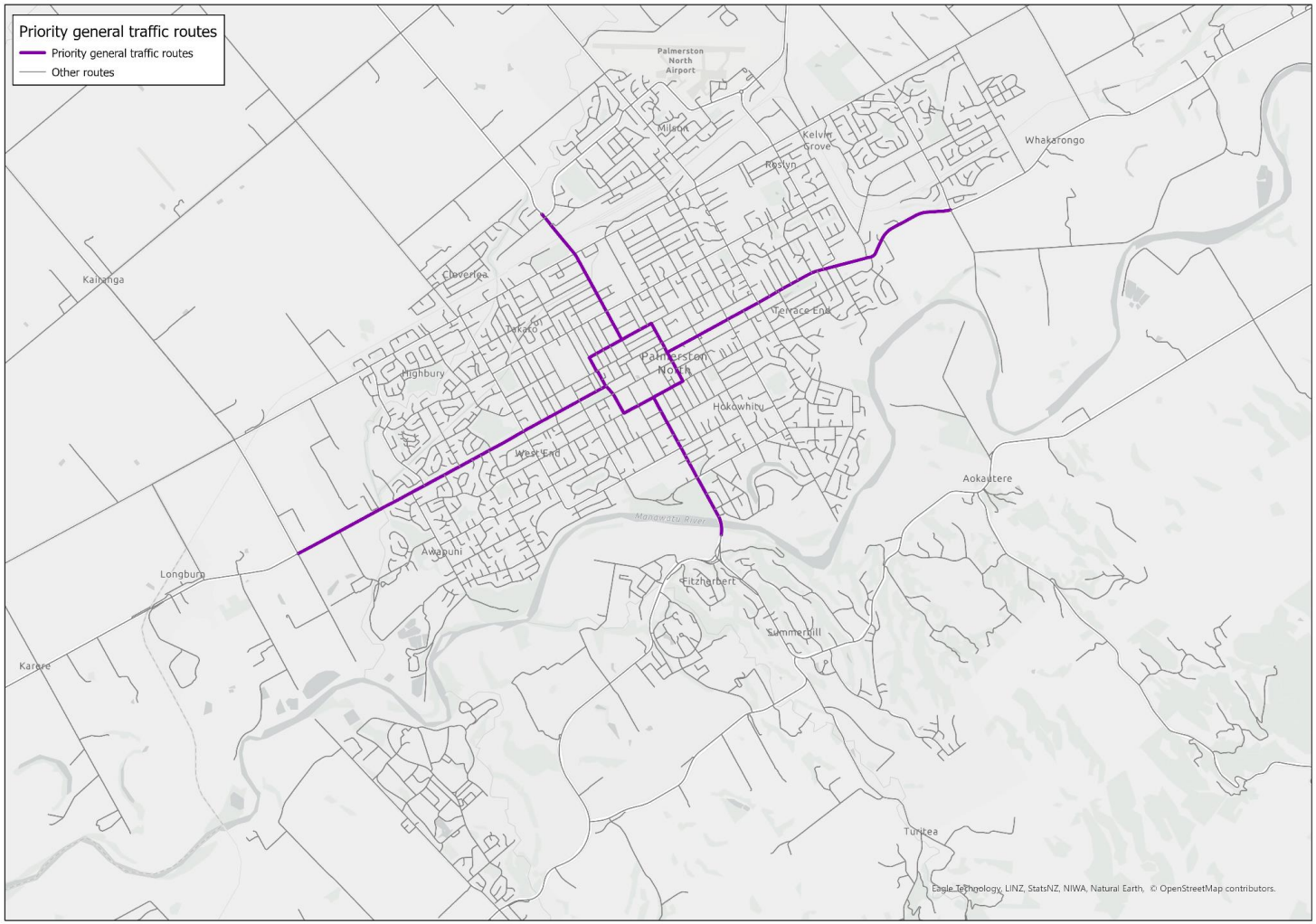


ITEM 7 - ATTACHMENT 3


Priority general traffic routes
Priority general traffic routes
Other routes
Palmerston North Airport
Milson
Kelvin Grove
Roslyn
Whakarongo
Kairanga
Cloverlea
Terrace End
Takaro
Palmerston North
Highbury
Hokowhitu
West End
Aokautere
Manawatu River
Awapuhi
Longburn
Fitzherbert
Summerhill
Kakepe
Turitea
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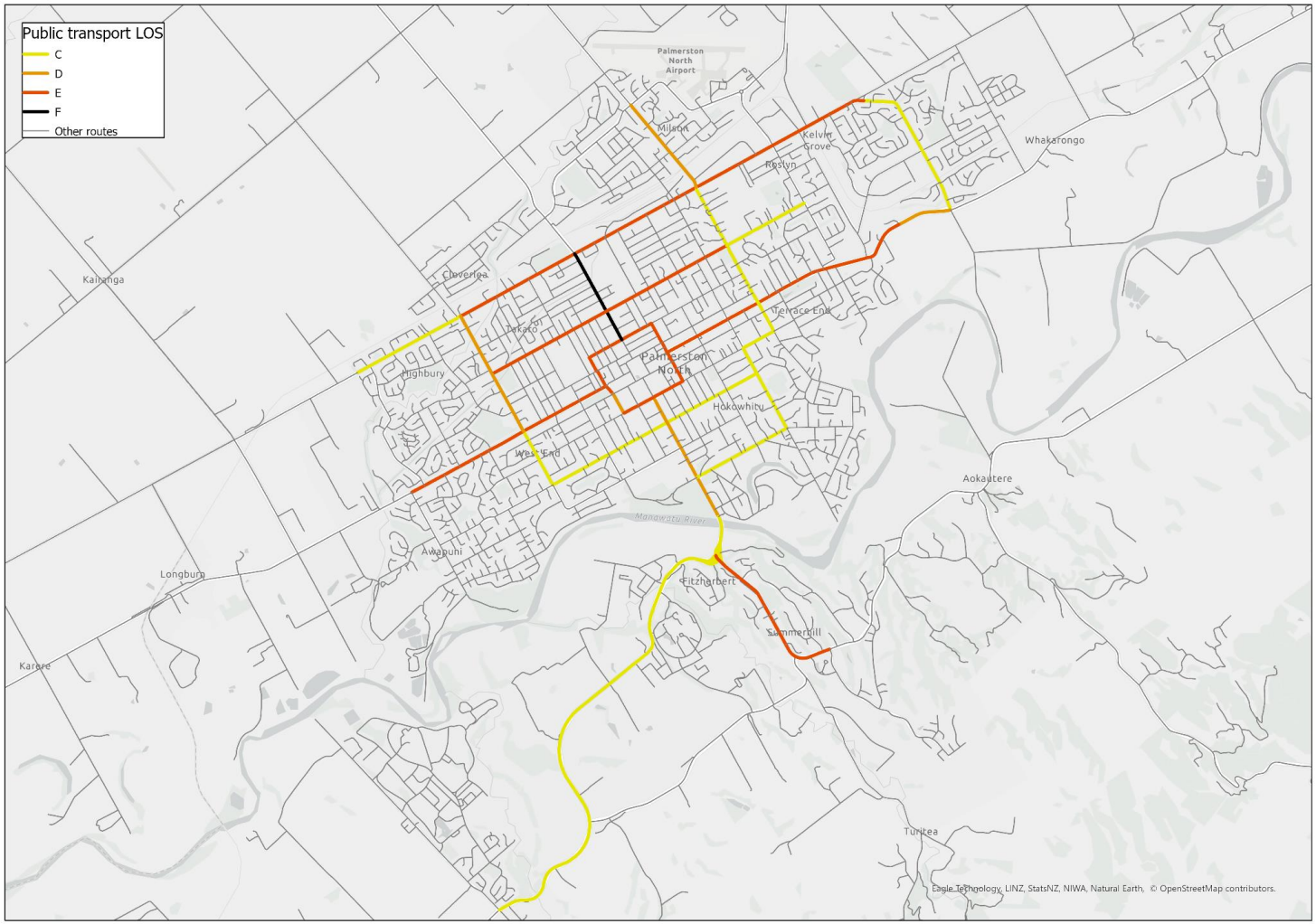
Appendix C. Operating gap assessment of key corridors

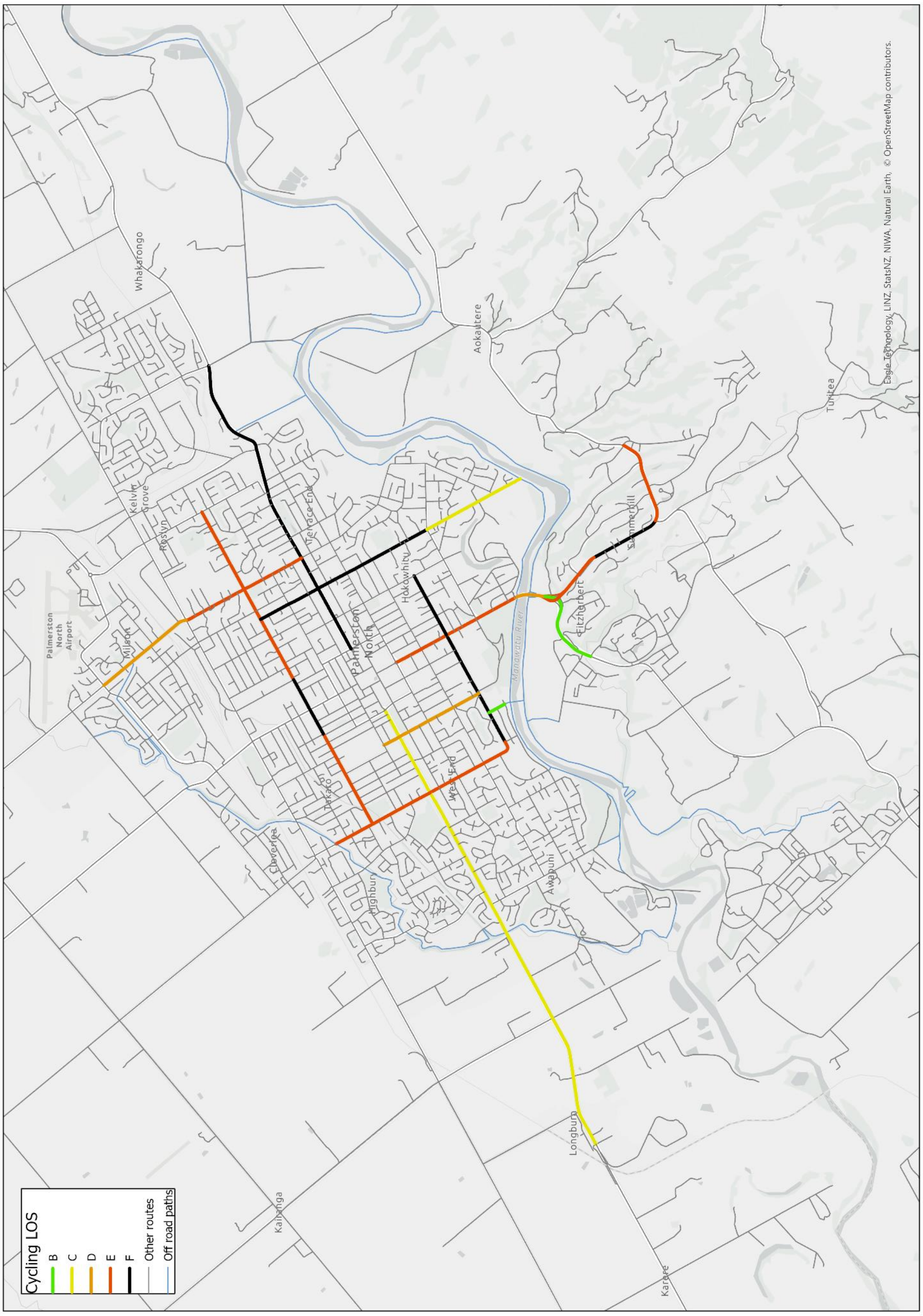
Road Name	Corridor From	To	Environment	Speed limit	AADT estimate (RAMM)	Collective Risk	Personal Risk	Priority modes	Pedestrian LOS Context	LOS	Cycling LOS Context	LOS	Current context and LOS Public Transport LOS Context	LOS	Freight LOS Context	LOS	General Traffic LOS Context	LOS
Waikahiki City Centre Streets & Cuba Street																		
The Square	Church St	Church St	Urban	50 km/h	6054-9082	Low	Low	Pedestrian	- High traffic - Moderate traffic speeds - Wide road - Wide to moderately wide footpaths - Crossings at intersections	D								
Church St	Pitt St	Princess St	Urban	50 km/h	8012-13273	Low Medium	Low Medium	Pedestrian	- High traffic - Moderate traffic speeds - Wide road - Wide footpaths but with reduced effective width - Crossings at intersections	D								
Linton St	Church St	Ferguson St	Urban	50 km/h	3840	Low	Medium	Pedestrian	- Moderately low traffic - Moderate traffic speeds - Wide road - Wide footpaths - No mid-block crossings, poor crossing facility at Ferguson St	C								
Fitzherbert Ave	Church St	Ferguson St	Urban	50 km/h	9746	Low Medium	Low Medium	Pedestrian	- High traffic - Moderate traffic speeds - Very wide road - Parking in middle of road - Wide footpaths but with reduced effective width in some locations	D								
Ashley St	Church St	Ferguson St	Urban	50 km/h	4476	Low Medium	Medium	Pedestrian	- Moderate traffic - Moderate traffic speeds but traffic calmed - Wide road - Moderately wide footpaths - Low amenity environment past multi-storey car park and through The Plaza underpass	C								
Main St	Pitt St	The Square	Urban	50 km/h	5736	Low	Medium	Pedestrian	- Moderate traffic - Moderate traffic speeds - Moderately wide footpaths - Crossings at intersections	C								
Main St	The Square	Princess St	Urban	50 km/h	14959	Low Medium	Medium High	Pedestrian	- High traffic - Moderate traffic speeds - Moderately wide footpaths - Some midblock crossings - Bus stops and parking in middle of road	D								
Broadway Ave	The Square	Princess St	Urban	50 km/h	7203	Medium	Medium High	Pedestrian	- Moderately high traffic - Moderate traffic speeds - Wide footpaths - Curtesy crossing locations	C								
Coleman Pl	George St	Main St	Urban	50 km/h	614	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds - Narrow carriageway and one-way - Wide footpaths but with reduced effective width - Raised curtesy crossing	B								
Andrew Young St	Cuba St	Main St	Urban	50 km/h	1380	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds - Wide road - Moderately wide footpaths - Crossings at intersections	C								
George St	Cuba St	Main St	Urban	50 km/h	2937	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds but traffic calming - Wide footpaths - Narrowed crossing locations	B								
Cuba St	Bourke St	Rangitikei St	Urban	50 km/h	5161-5213	Low Medium	Medium	Pedestrian	- Moderately high traffic - Moderate traffic speeds but some traffic calming - Wide footpaths - Road varies between narrow and very wide - Some curtesy crossing locations but midblock crossings lacking in some sections	C								
Cuba St	Cook St	Bourke St	Urban	50 km/h	8542	Low Medium	Medium	Pedestrian	- High traffic - Moderate speeds - Wide footpaths - Only pedestrian crossing is at Bourke St / Pitt St signalised intersection	D								
Rangitikei St	Walding St	The Square	Urban	50 km/h	20882	Medium	Medium	Pedestrian	- High traffic - Moderate traffic speeds - Wide road - Wide footpaths but with reduced effective width in some locations - Crossings at signalised intersections	D								
Campbell St	Walding St	Cuba St	Urban	50 km/h	755	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds - Wide road - Moderately wide footpaths	C								
Lombard St	Walding St	Cuba St	Urban	50 km/h	1210	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds - Wide road - Moderately wide footpaths	C								
Taonui St	Walding St	Cuba St	Urban	50 km/h	2403	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds - Wide road - Moderately wide footpaths	C								
Queen St	Rangitikei St	Princess St	Urban	50 km/h	2261	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds but traffic calming - Wide footpaths - Narrowed crossing locations	B								
King St	Rangitikei St	Princess St	Urban	50 km/h	1449	Low	Low	Pedestrian	- Low traffic - Moderate traffic speeds but traffic calming - Wide footpaths - Narrowed crossing locations	B								
Inner City Loop																		
Walding St	Bourke St	Rangitikei St	Urban	50 km/h	10156-15039	Low Medium	Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk (three non-injury crashes involving buses in last five years)	E	- High volume - Moderate speeds - Divided multilane road - Some turning facilities - Complicated environment may cause driving stress - Some crash risk	D	- High volume - Moderate speeds - Divided multilane road - Some turning facilities - On-street parking - Complicated environment may cause driving stress - Some crash risk	C
Grey St	Rangitikei St	Princess St	Urban	50 km/h	12126	High	Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Elevated crash risk	E	- High volume - Moderate speeds - Two-lane road with flush median - Flush median provides turn facilities - Complicated environment may cause driving stress - Elevated crash risk	E	- High volume - Moderate speeds - Two-lane road with flush median - On-street parking - Complicated environment may cause driving stress - Elevated crash risk	D
Princess St	Grey St	Main St	Urban	50 km/h	12126	Medium	Medium High	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk - High density of signalised intersections may cause delay	E	- High volume - Moderate speeds - Undivided multilane road - Flush median provides turn facilities - Complicated environment may cause driving stress - Some crash risk - Congestion from intersections	E	- High volume - Moderate speeds - Undivided multilane road - On-street parking - Complicated environment may cause driving stress - Some crash risk - Congestion from intersections	D
Princess St	Main St	Ferguson St	Urban	50 km/h	19945	Medium	Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk - High density of signalised intersections may cause delay	E	- High volume - Moderate speeds - Undivided multilane road - Flush median provides turn facilities - Complicated environment may cause driving stress - Some crash risk - Congestion from intersections	E	- High volume - Moderate speeds - Undivided multilane road - On-street parking - Complicated environment may cause driving stress - Some crash risk - Congestion from intersections	D
Ferguson St	Princess St	Fitzherbert Ave	Urban	50 km/h	15309	Medium	Low Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk - High density of signalised intersections may cause delay	E	- High volume - Moderate speeds - Divided multilane road - Complicated environment may cause driving stress - Some crash risk	C	- High volume - Moderate speeds - Divided multilane road - On-street parking - Complicated environment may cause driving stress - Some crash risk	C
Ferguson St	Fitzherbert Ave	Pitt St	Urban	50 km/h	12460-17693	Medium High	Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk	E	- High volume - Moderate speeds - Two-lane road with flush median - Complicated environment may cause driving stress - Some crash risk	C	- High volume - Moderate speeds - Two-lane road with flush median - On-street parking but not in multi-lane sections - Complicated environment may cause driving stress - Some crash risk	C
Pitt St	Ferguson St	Church St	Urban	50 km/h	8916	Low	Medium	Bus Freight (local access) General traffic					- Moderately high volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk	D	- High volume - Moderate speeds - Divided multilane road - Some turning facilities - Complicated environment may cause driving stress - Some crash risk	D	- High volume - Moderate speeds - Divided multilane road - Some turning facilities - On-street parking - Complicated environment may cause driving stress - Some crash risk	C
Pitt St	Church St	Cuba St	Urban	50 km/h	17808-21548	Medium High	Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk - High density of signalised intersections may cause delay	E	- High volume - Moderate speeds - Undivided multilane road - Complicated environment may cause driving stress - Some crash risk	D	- High volume - Moderate speeds - Undivided multilane road - No on-street parking - Complicated environment may cause driving stress - Some crash risk	D
Bourke St	Cuba St	Walding St	Urban	50 km/h	21710	Low Medium	Low Medium	Bus Freight (local access) General traffic					- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment	E	- High volume - Moderate speeds - Undivided two-lane road - Complicated environment may cause driving stress	C	- High volume - Moderate speeds - Two-lane road - On-street parking - Complicated environment may cause driving stress	C
State Highways																		
SH56	Longburn	Longburn Rongotea Rd	Rural	100km/h	6314	Medium High	Medium	Cycle Freight (interm and long term)	- High-risk environment - Two way shared path well separated from traffic lanes - No specific cycling crossing facilities across side roads or to the other side of the road	C					- Low volume - High speeds - Undivided two-lane road - Priority intersection with Longburn Rongotea Rd - Elevated crash risk	C				
SH56 Pioneer Hwy	Longburn Rongotea Rd	Mangaone Stream	Rural	100km/h	9560	Medium High	Medium	Cycle General traffic	- High-risk environment - Two way shared path well separated from traffic lanes - No specific cycling crossing facilities across side roads or to the other side of the road - Two injury crashes involving cyclists in last five years, including one fatal	C							- Moderate volume - High speeds - Undivided two-lane road - Priority for through traffic along the entire section length/ turning facilities at key intersections - Elevated crash risk	C
SH56 Pioneer Hwy	Mangaone Stream	Botanical Rd	Peri-Urban	50 km/h	9560-12721	Medium High	Medium	Cycle Bus General traffic	- High-risk environment - Two way shared path well separated from traffic lanes - Southbound cycle lane on carriageway - No specific cycling crossing facilities across side roads or to the other side of the road - Two injury crashes involvine cyclists in last five years	C	- High volume - Poor first/last-mile access due to wide road, limited crossing locations - Elevated crash risk	E					- Moderate volume - Undivided two-lane road - Priority for through traffic along the entire section length/ turning facilities at key intersections - Elevated crash risk	C
SH56 Pioneer Hwy/Main St	Botanical Rd	Pitt St	Urban	50km/h	16400	Medium	Low Medium	Cycle Bus General traffic	- High-risk environment - Cycle lanes separated from traffic with kerbs - Three injury crashes involving cyclists in last five years (prior to installation of separated cycle paths)	C	- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk - High density of signalised intersections may cause delay	E					- High volume - Multilane divided road - Several signalised intersections, but assuming some level of signal coordination - Some crash risk	C
SH3 Main St	Princess St	Keith St	Urban	50km/h	14785 - 20133	Medium	Low Medium	Cycle Bus Freight (local access) General traffic	- High-risk environment - No specific cycling facilities - Four injury crashes involving cyclists in last five years	F	- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk	E	- High volume - Multilane divided road - Several signalised intersections, but assuming some level of signal coordination - Some crash risk	C	- High volume - Multilane divided road - Several signalised intersections, but assuming some level of signal coordination - Some crash risk	C
SH3 Main St	Keith St	Macpherson Grove	Peri Urban	50km/h	10770	Medium	Low Medium	Cycle Bus Freight (local access) General traffic	- High-risk environment - Short section cycle lanes and shared path between Keith St and Sutton Pl. No dedicated facilities between Sutton Pl and Macpherson Grove. - Two injury crashes involving cyclists in last five years	F	- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Some crash risk	E	- Moderate volume - Two lane road with flush median - Some crash risk	B	- Moderate volumes - Divided two-lane road - Some crash risk	B
SH3 Napier Road	Macpherson Grove	Roberts Line	Peri Urban	80km/h	10770	High	Medium	Bus Freight (local access) General traffic	- Moderately high volume - Poor first/last-mile access due to high speeds, limited crossing locations, and unattractive walking environment - High-risk environment - No cycling facilities	F	- Moderate volume - Poor first/last-mile access due to limited crossing locations - Elevated crash risk	D	- Moderate volume - Undivided two lane road - Passing lanes provided - Elevated crash risk	D	- Moderate volume - Undivided two lane road - Passing lanes provided - Elevated crash risk	D
SH3 Napier Road	Roberts Line	Ashhurst	Rural	80km/h	7723 - 9490	Medium High	Medium	Freight (local access)							- Moderate volume - Undivided two lane road - Passing lanes provided - Elevated crash risk	D		
SH3 Rangitikei St	Walding Street	Tremain Ave	Urban	50km/h	21130	High	Medium	Bus Freight (local access) General traffic			- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - High crash risk (seven crashes involving buses in last five years) - High density of signalised intersections may cause delay	F			- High volume - Multilane road that is undivided or has flush median - Side friction from commercial/retail land use - Elevated crash risk - Congestion from intersections	F	- High volume - Multilane road that is undivided or has flush median - Side friction from commercial/retail land use - Elevated crash risk - Congestion from intersections	F
SH3 Rangitikei St	Tremaine Ave	Mangaone Stream	Urban	50km/h	11774-20772	High	Medium	Freight (local access) General traffic							- High volume - Multilane road with flush median - Side friction from commercial/retail land use - Elevated crash risk - Congestion from intersections	E	- High volume - Multilane road with flush median - Side friction from commercial/retail land use - Elevated crash risk - Congestion from intersections	E
SH3 Rangitikei Line	Mangaone Stream	City boundary	Rural	100 km/h	11774	High	Medium	Freight (interim) General traffic							- High volume - High speeds - Undivided two-lane road - Elevated crash risk	E	- High volume - High speeds - Undivided two-lane road - Elevated crash risk	E
SH57 Aokautere Dr	Tennent Dr	Pacific Dr	Peri-Urban	70 km/h	11186	Low Medium	Low Medium	Cycle Bus	- High-risk environment - Cycle lanes throughout - One injury crash involving cyclists in last five years	E	- High volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Low crash risk	E						
SH57 Aokautere Dr	Pacific Dr	Johnstone Dr	Peri-Urban	70 km/h	11186	Low	Low	Cycle	- High-risk environment - Cycle lanes/shoulders throughout	E								
SH57	Tennent Dr	Camp Rd	Rural	80 km/h	2717	Medium High	High	Bus Freight (interim)			- Low volume - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - High crash risk	C	- Low volume - High speeds - Undivided two-lane road - Elevated crash risk	D				
SH57	Camp Rd	City boundary	Rural	100 km/h	4637	Medium High	Medium	Freight (interim)					- Low volume - High speeds - Undivided two-lane road - Elevated crash risk	D				
Other Palmerston North Streets																		
McLeavey Dr	Roberts Line	McLeavey Dr	Urban	50km/h	7014	Low	Low	Bus Freight (interim)					- Low traffic - Fair first/last-mile access - bus stop shelters but limited crossing locations - Low crash risk	C	- Moderate volume - Undivided two-lane road - Continuous priority, minimal side friction - Low crash risk	C		
Kelving Grove Rd / Tremaine Ave	McLeavey Dr	Botanical Rd	Urban	50km/h	9131-13857	Medium	Medium	Bus Freight (interim)					- High volume - Poor first/last-mile access due to moderately wide road, limited crossing locations, and unattractive walking environment - Some crash risk	E	- Moderately high volume - Two-lane road with flush median - Long section with a mix of land uses (commercial big box, light industrial and residential). - Some sources of delay at signalised intersections and railway crossing - Some crash risk	C		
Tremaine Ave	Botanical Rd	Amberley Ave	Urban	50km/h	8421	Low Medium	Low Medium	Bus Freight (interim)					- Moderate volume - Poor first/last-mile access due to limited crossing locations - Some crash risk	C	- Moderate volume - Undivided two-lane road - Continuous priority, minimal side friction - Some crash risk	C		
No. 1 Line / Tremaine Ave	Amberly Ave	City boundary	Urban	70 km/h	10952	Medium High	Medium High	Freight (interim)							- Moderate volume - High speeds - Undivided two-lane road - Continuous priority, minimal side friction - High crash risk	C		
Featherston St	Botanical Rd	Aroha St	Urban	50km/h	10203-14677	Medium High	Medium High	Cycle Bus	- High-risk environment (residential street but with high traffic volumes) - Wide shoulder or marked cycle lanes - Two injury crashes involving cyclists in last five years, including one fatal	E	- Moderately high traffic volumes - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Most of route has priority - Elevated crash risk	E						
Featherston St	Aroha St	North St	Urban	50km/h	12965 - 14535	Medium High	Medium High	Cycle Bus	- High-risk environment - On Road cycle lanes through some sections. Where there are marked parallel kerbside car parks, the shoulder is not wide enough to cycle on and cyclists will have to use the traffic lane. The inconsistency in cycle lane marking results in a poor cycling LOS - Two injury crashes involving cyclists in last five years	F	- High traffic volumes - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Most of route has priority - Elevated crash risk	E				
Featherston St	North St	Ruahine St	Urban	50km/h	10631-12965	Medium High	Medium High	Cycle Bus	- High-risk environment (residential street but with high traffic volumes) - Wide shoulder or marked cycle lanes - Four injury crashes involving cyclists in last five years	E	- High traffic volumes - Poor first/last-mile access due to wide road, limited crossing locations, and unattractive walking environment - Most of route has priority - Elevated crash risk	E						
Featherston St	Ruahine St	Vogel St	Urban	50km/h	7266-8657	Medium	Medium	Cycle Bus	- Medium-risk environment (residential street with moderate traffic volumes) - Wide shoulder or marked cycle lanes - Roundabout at Freyberg St adds risk, partially mitigated with cycle lanes	E	- Moderate volume - Poor first/last-mile access due to limited crossing locations - Some crash risk	C						
Botanical Rd	Tremaine Ave	Pioneer Hwy	Urban	50km/h	7990 - 19406	Medium	Medium	Cycle Bus	- High-risk environment (residential street but with high traffic volumes) - Currently used as oversized freight route - Complicated roundabout at Tremaine Ave with no cycle facilities - On road cycle lanes through some sections and in general wide shoulders where cycle lanes are not marked.	E	- High traffic volumes - Poor first/last-mile access due to wide road and limited crossing locations - Most of route has priority - Some crash risk	D				

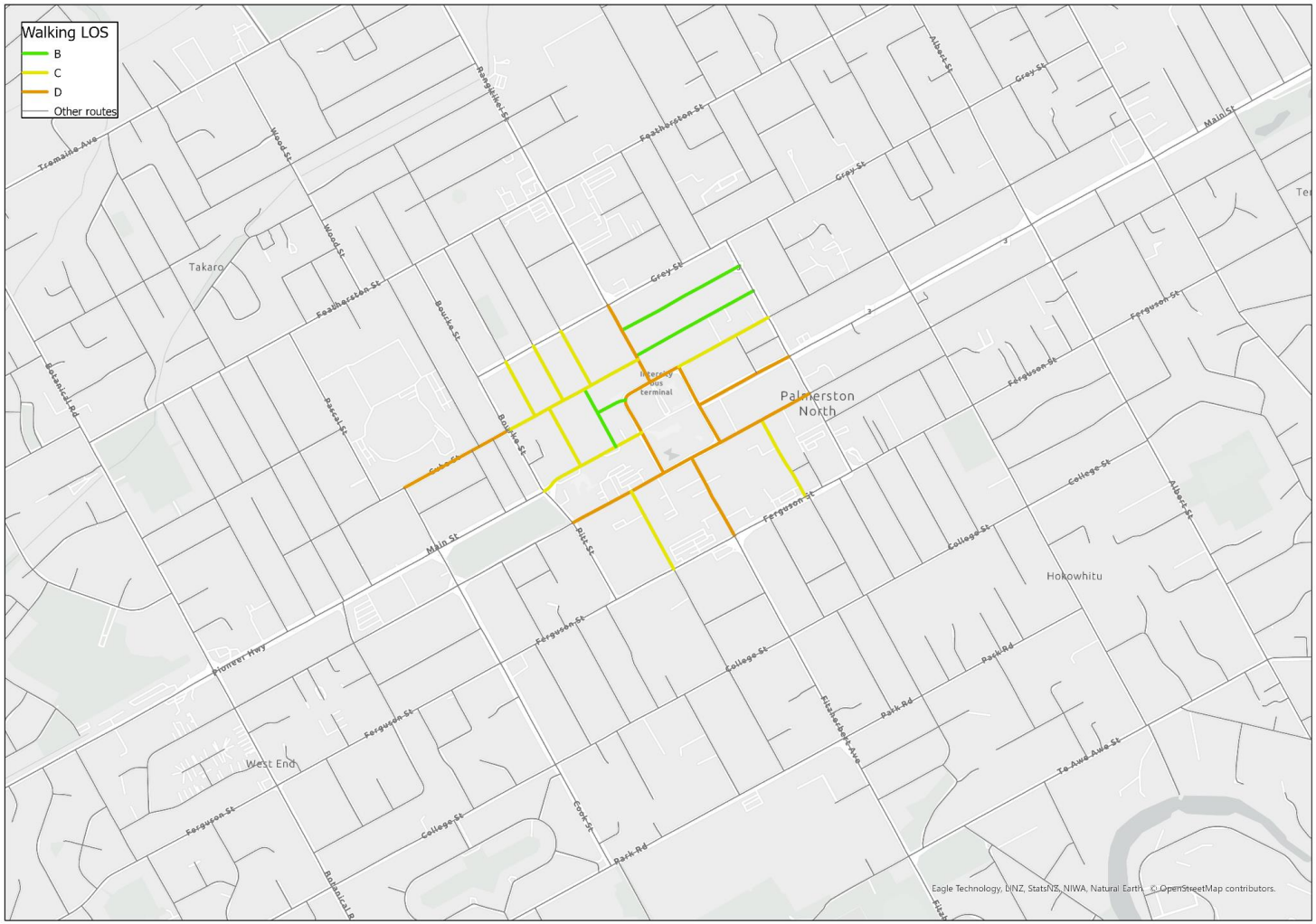
Botanical Rd	Pioneer Hwy	Park Rd	Urban	50km/h	5000 - 11700	Medium	Low Medium	Cycle Bus	- Medium- to High-risk environment (residential street but with moderate to high traffic volumes) - Currently used as oversized freight route - On road cycle lanes through some sections and in general wide shoulders where cycle lanes are not marked. - Four injury crashes involving cyclists in last five years	E	- Moderate traffic volumes - Poor first/last-mile access due to wide road and limited crossing locations - Most of route has priority - Some crash risk	C				
Milson Line	Airport Dr / John F Kenne	Tremaine Ave	Urban	50 km/h	7945-12800	Medium	Medium	Cycle Bus	- Medium- to High-risk environment - Cycle lanes south of Purdie Pl - Narrow shared paths over railway bridge - Two injury crashes involving cyclists in last five years	D	- High volume - Poor first/last-mile access due to moderately and wide road, limited crossing locations - Some crash risk	D				
Ruahine St	Tremaine Ave	Main St	Urban	50km/h	14350 - 19250	Medium	Medium	Cycle Bus	- High-risk environment - On Road cycle lanes with short sections separated by narrow flush median. On road cycle lane marked (as oppose to just wide shoulder) through much of the section length.	E	- High traffic volumes - Fair first/last-mile access - Most of route has priority - Some crash risk (one serious crash involving a bus in last five years)	C				
Ruahine St	Main St	Ferguson St	Urban	50km/h	8839 - 11479	Medium	Medium	Bus			- High traffic volumes - Fair first/last-mile access - Most of route has priority - Some crash risk	C				
Albert St	Featherston St	Main St	Urban	50km/h	3463 - 7017	Low Medium	Medium High	Cycle	- High-risk environment - Currently used as oversized freight route - Wide shoulder and short sections of marked cycle lane towards the south of the corridor section. - Sections of angle parking: cyclists on the shoulder behind cars parked on angled car parks is a safety concern. - Roundabouts are a safety risk	F						
Albert St	Main St	Ferguson St	Urban	50km/h	9076-9802	Medium	Medium	Cycle	- High-risk environment - Currently used as oversized freight route - Short sections of marked on road cycle lanes. - Roundabouts are a safety risk	F						
Albert St	Ferguson St	College St	Urban	50km/h	11229	Medium	Medium	Cycle Bus	- High-risk environment - Currently used as oversized freight route - Short sections of marked on road cycle lanes.	F	- High traffic volumes - Fair first/last mile access - bus stop shelters but limited crossing locations - Roundabout at Ferguson St but uncontrolled at College St - Some crash risk	C				
Albert St	College St	Te Awe Awe St	Urban	50km/h	10206	Medium	Medium	Cycle Bus	- High-risk environment - Currently used as oversized freight route - Short sections of marked on road cycle lanes. - Three injury crashes involving cyclists in last five years - Roundabouts are a safety risk	F	- Route has priority - Poor first/last-mile access due to limited crossing locations and no bus stop shelters - Roundabout at Te Awe Awe Street - Some crash risk	C				
Albert St	Te Awe Awe St	Manawatu Stream	Urban	50km/h	1037-2880	Low	Low Medium	Cycle	- Low-risk environment - No dedicated cycle facilities - Sections of angle parking: cyclists cars parked on angled car parks is a safety concern. - One serious injury crash involving cyclists in last five years	C						
Fitzherbert Ave	Ferguson St	Fitzherbert Bridge	Urban	50 km/h	18439-21975	Medium High	Medium	Bus Cycle Freight (interim) General traffic	- High-risk environment (multilane road with high traffic volumes) - Cycle lanes over full length - Several signalised intersections - 11 injury crashes involving cyclists in last five years	E	- High traffic volumes - Fair first/last-mile access due to frequent crossings - Bus stops have shelters - Many signalised intersections may cause delay - Elevated crash risk	D	- High volume - Moderate speeds - Multilane road with mixture of flush and raised medians - Some turning facilities - Complicated environment may cause driving stress including low lane-widths at intersections and presence of cyclists - Elevated crash risk	E	- High volume - Moderate speeds - Multilane road with mixture of flush and raised medians - Some turning facilities - Complicated environment may cause driving stress including low lane-widths at intersections and presence of cyclists - Elevated crash risk	E
Fitzherbert Bridge	Fitzherbert Ave	Tennent Dr	Urban	50 km/h	18439	Medium High	Medium	Bus Cycle Freight (interim) General traffic	- High-risk environment (multilane road with High traffic volumes) - Shared path is segregated from carriageway by railings, but has a narrow effective width	D	- High traffic volumes - Elevated crash risk	C	- High volume - Moderate speeds - Undivided multilane road - Some driving stress from urban environment and medium lane-width - Elevated crash risk	D	- High volume - Moderate speeds - Undivided multilane road - Some driving stress from urban environment and medium lane-width - Elevated crash risk	D
Tennent Dr	Fitzherbert Ave	Massey Uni	Peri-Urban	60 km/h	10681-18439	Low Medium	Medium	Bus Cycle Freight (interim)	- High-risk environment - Shared paths, but with little separation between shared paths and carriageway along some sections - One serious injury crash in last five years	B	- High traffic volumes - Good first/last mile access - Massey University bus stops have shelters and large amount of layover space - Some crash risk (one serious crash involving a bus in last five years)	C	- High volume - Moderate speeds - Divided multilane road - Some crash risk	B		
	Massey Uni	SH57	Rural	80 km/h	6801	Medium	Medium	Bus Freight (interim)			- Low traffic volumes - Poor first/last-mile access due to high speed, wide road and limited crossing locations - Route has priority - Some crash risk	C	- Moderate volume - High speeds - Undivided two-lane road with shoulders - Right-turn bays at major intersections - Some crash risk	C		
Summerhill Dr	Tennent Dr	Williams Tce	Peri-urban	60 km/h	14871	Medium	Medium	Cycle Bus	- High-risk environment - Cycle lanes throughout, including on Tennant Dr slips in direction of city centre - One serious cycle crash at Tennent Dr intersection in last 5 years	E	- High traffic volumes - Poor first/last-mile access due to high speed, wide road and limited crossing locations - Route has priority - Some crash risk	E				
	Williams Tce	SH57	Urban	60 km/h	11972	Medium	Medium	Cycle Bus	- High-risk environment - No dedicated cycle facilities - Wide shoulder / on-street parking space useable by cyclists - Cycle warning signage	F	- High traffic volumes - Poor first/last-mile access due to high speed, wide road and limited crossing locations - Route has priority - Some crash risk	E				
	Pitama Rd	Botanical Rd	Urban	50 km/h	5419-8601	Low Medium	Medium	Bus			- Moderate traffic - Fair first/last-mile access but limited crossing locations and no bus stop shelters - Route has priority over most of length - Some crash risk	C				
College St	Botanical Rd	Cook St	Urban	50 km/h	4833	Low	Low Medium	Bus			- Moderate traffic - Fair first/last-mile access but limited crossing locations and no bus stop shelters - Route has priority over most of length - Some crash risk	C				
	Cook St	Victoria Ave	Urban	50 km/h	4833-7549	Medium	Medium	Bus			- Moderate traffic - Fair first/last-mile access but limited crossing locations and no bus stop shelters - Route has priority over most of length - Some crash risk	C				
	Victoria Ave	Albert St	Urban	50 km/h	2831	Low	Low	Bus			- Low traffic - Fair first/last-mile access but limited crossing locations and no bus stop shelters - Stop controlled intersection with Albert Street - Low crash risk	C				
Park Rd	Botanical Rd	Fitzherbert Ave	Urban	50 km/h	5013-10787	Low Medium	Low Medium	Cycle	- Medium- to High-risk environment - Currently used as oversized freight route - Cycle lanes past Ongley Park, but these pass behind angle parking - No dedicated cycle facilities elsewhere	F						
	Fitzherbert Ave	Victoria Ave	Urban	50 km/h	3991-5474	Low Medium	Low Medium	Cycle	- Medium-risk environment - Currently used as oversized freight route - No dedicated cycle facilities	F						
Ruha St	Park Rd	He Ara Kotahi	Urban	50 km/h	1274	Low	Low	Cycle	- Low-risk environment - No dedicated cycle facilities - Some traffic calming	B						
Cook St	Cuba St	SH3 Main Street	Urban	50 km/h	5389-6340	Medium	Low Medium	Cycle	- Medium-risk environment - Cycle lanes behind angle parking	D						
Cook St	SH3 Main Street	Park Rd	Urban	50 km/h	4087-8915	Low	Low	Cycle	- Medium-risk envrionment - Cycle lanes - Roundabouts (Last 5 years: 7 crashes involving cyclists at Church St, 5 at Ferguson St, 7 at College St) - Major signalised intersection at SH3 - One minor crash at Park Rd	D						
Te Awe Awe St	Fitzherbert Ave	Albert St	Urban	50 km/h	10038-10733	Medium	Medium	Bus			- Fair first/last-mile access but limited crossing locations and no bus stop shelters - Route has priority over most of Length - Some crash risk	C				
Ferguson St	Albert St	Ruahine St	Urban	50 km/h	8291	Low Medium	Medium	Bus			- Moderate traffic - Fair first/last-mile access but limited crossing locations - Roundabouts at either end assist with turning - Some crash risk	C				
Roberts Line	McLeavey Dr	Mihaere Dr	Urban	50 km/h	6678	Low Medium	Low Medium	Bus Freight (interim)			- Moderate traffic - Fair first/last-mile access - bus stop shelters but limited crossing locations - Route has priority over most of length - Some crash risk	C	- Low volume - Undivided two-lane road - Roundabout at Mihaere Dr / Fernlea Ave - Low crash risk	C		
	Mihaere Dr	SH3	Urban	50 km/h	3999	Low	Low	Bus Freight (interim)			- Low traffic - Fair first/last-mile access - bus stop shelters but limited crossing locations - Give way right-turn onto SH3 - Low crash risk	C	- Low volume - Undivided two-lane road - Railway crossing with lights and barriers - Low crash risk	C		
Other Rural Roads																
Longburn Rongotea Rd	SH3 Pioneer Hwy	No.1 Line	Rural	100 km/h	2878	Low Medium	Low Medium	Freight (interm)					- Low volume - High speeds - Undivided two-lane road with no shoulders - Give-way right turns - Some crash risk	D		

Appendix D. Modal level of service mapping

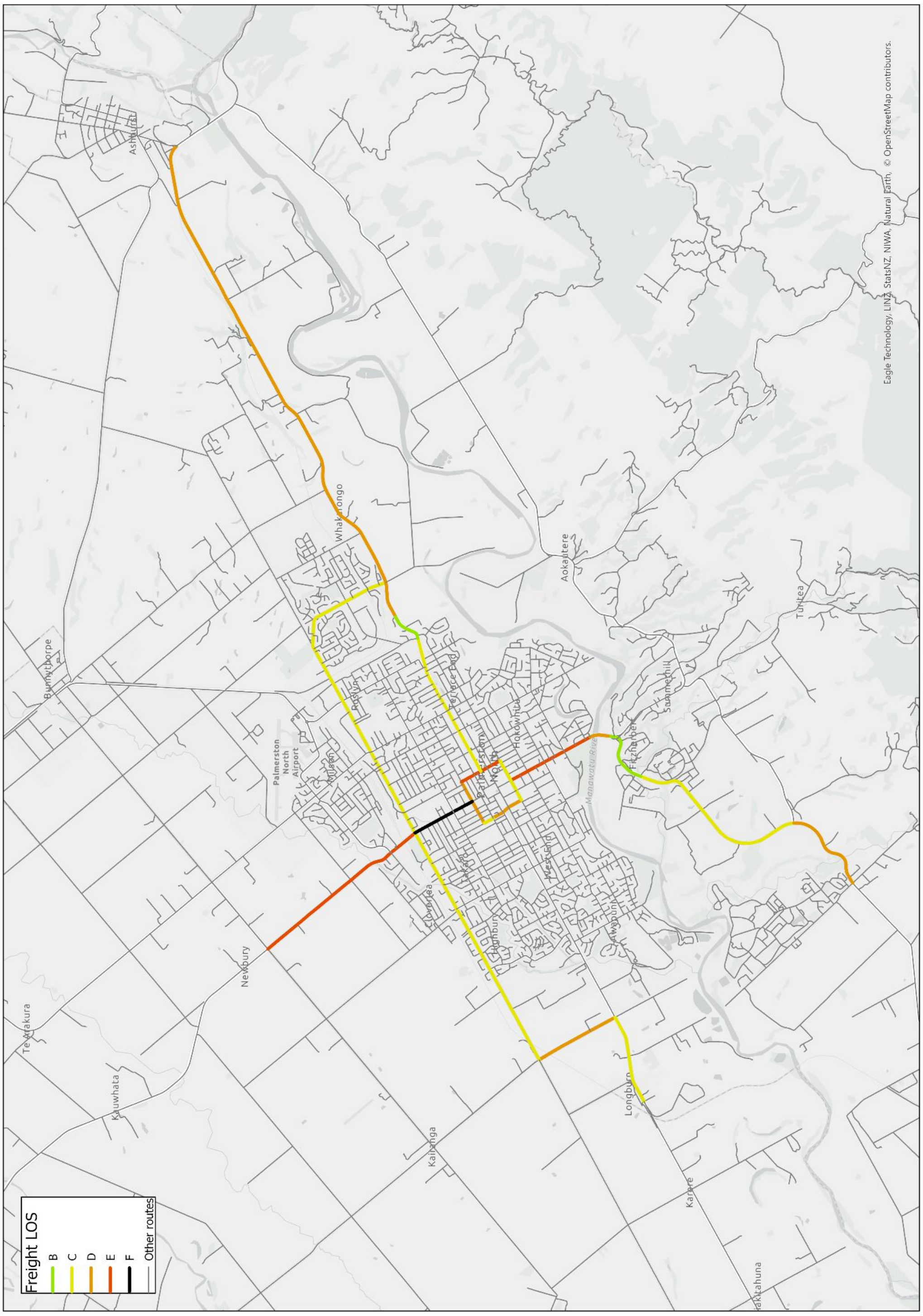


ITEM 7 - ATTACHMENT 3


Cycling LOS
B
C
D
E
F
Other routes
Off road paths
Whakarongo
Kelvin Grove
Roslyn
Terrace End
Hokowhitu
Palmerston North
Aokautere
Summerhill
Fitzherbert
Manawatu River
West End
Takaro
Awapuni
Highbury
Cloverlea
Milson
Palmerston North Airport
Longburn
Kairanga
Karere
Turitea
Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.



ITEM 7 - ATTACHMENT 3


Freight LOS
B
C
D
E
F
Other routes
Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.
Ashhurst
Whakarongo
Bunnythorpe
Palmerston North Airport
Newbury
Aokautere
Fitzherbert
Summerhill
Turitea
Longburn
Kairanga
Kauwhata
Karere
Hokowhitu
Roslyn
Cloverlea
Highbury
Awapuni
Manawatu River

ITEM 7 - ATTACHMENT 3

Appendix E. Proposed interventions

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
0	All	Palmerston North Urban Area		- City-wide speed management programme to reduce speed limits on all urban streets to 40 km/h, with the exception of: o Streets prioritised for general traffic (Inner City Loop, Pioneer Highway / Main Street West, Main Street East / Napier Road, Fitzherbert Avenue, Rangitikei Street) and Tremaine Avenue to remain at 50 km/h o Streets prioritised for walking to be 30 km/h	n/a	n/a	n/a	n/a
1	City Centre	All roads within the Inner City Loop	Walk	- Adopt a speed limit of 30 km/h (or less) through the City Centre area that is reinforced by traffic calming measures and streetscape upgrades. - Discourage/prevent through traffic in the City Centre area by using modal filters that limit vehicle movements while maintaining permeability for active modes - Increase crossing opportunities using frequently spaced raised pedestrian crossings - Increase footpath widths by taking space from carriageway and/or parking - Increase wayfinding materials and landmarks - Increase points of 'pause' and improve public realm such as front facing cafes etc. - Promote activities that extend activity hours - Concentrate and rationalise parking activity in consideration of off-street availability to reduce and simplify vehicle trips in the City Centre - Upgrade intersections to reduce vehicle speeds and improve pedestrian safety (e.g., using raised intersections or raised pedestrian crossings). If vehicle flows are sufficiently reduced, it may be possible to remove existing signalised intersections. Alternatively, pedestrian-focused solutions like Barnes Dances could be considered.	Walk	B-D	A-B	High – Defined City Centre area provides opportunity for area-wide reductions in vehicle flows and speeds
2	Cuba Street	Pascal Street to Bourke Street / Pitt Street	Walk	- Adopt a speed limit of 30 km/h that is reinforced by traffic calming measures and streetscape upgrades. - Streetscape improvements to increase greenery and incorporate existing trees into the space. - Improve signalised crossings at Bourke Street / Cuba Street / Pitt Street intersection - Increase crossing opportunities using frequently spaced raised pedestrian crossings - Increase footpath widths by taking space from carriageway and/or parking - Increase wayfinding materials and landmarks - Reduce carriageway width to reduce crossing distance by removing flush median. Remove angle parking or convert to parallel parking. - Concentrate and rationalise parking activity in consideration of off-street availability. - Upgrade priority intersections to reduce vehicle speeds and improve pedestrian safety (e.g., using raised intersections or raised pedestrian crossings).	Walk	D	B	Low – May be difficult to limit vehicle movements due to limited route choice for vehicles accessing the showgrounds / arena area.
3	Inner City Loop	Walding Street, Grey Street, Princess Steet, Ferguson Street, Pitt Street, Bourke Street	Bus, General traffic, Freight (local)	- Synchronise traffic signals during peaks to limit impediments to free movement, whilst ensuring speeds are maintained. - Provide bus priority measures at intersections and reallocate parking space to bus lanes in key locations. - Improve bus stop infrastructure to provide increased amenity for passengers - Improve pedestrian crossings at signalised intersections. Provide additional signalised crossings to reduce spacing between controlled crossing locations. Relocate bus stops to be located next to controlled crossing locations. - Remove / restrict on-street parking to reduce side friction and likelihood of crashes - Limit right turning movements into accesses by providing a raised median with breaks only for major intersections / accesses. Possibility of modal filters being added to some minor intersections, particularly those accessing the City Centre.	Bus	D-E	B	Medium – Dependent on effectiveness of signal synchonisation
					General traffic	C-D	C	Medium – Dependent on effectiveness of signal synchonisation
					Freight (local)	C-E	C	Medium – Dependent on effectiveness of signal synchonisation

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
4	No.1 Line	Longburn Rongotea Road to Tremaine Avenue	Freight (Interim)	- Reduce speed limit from 100/70 km/h to 80/60 km/h to achieve safe and appropriate speed for the road environment. Note that PNITI recommends 70 km/h throughout, which are discouraged in the Land Transport Rule: Setting of Speed Limits 2022 - Implement safety treatments to reduce crash risk. These could include seal widening (e.g., paved shoulders and a wide centreline) and barrier improvements. - Provide safety treatments at the No.1 Line / Longburn Rongotea Road intersection. Improvements could include provision and channelisation of turning lanes, lighting improvements, removal of roadside hazards, and visibility improvements. Possibility of full intersection upgrades, in which case a roundabout would be the recommended form unless grade separation can be justified.	Freight (interim)	C	A	High – Safety is primary factor affecting LOS
5	Tremaine Avenue, Kelvin Grove Road, McLeavey Drive, Roberts Line	No.1 Line to Napier Road	Bus, Freight (interim)	- Provide bus priority measures at intersections and reallocate parking space to bus lanes in key locations - Improve bus stop infrastructure to provide increased amenity for passengers - Provide improved pedestrian crossings that are rationalised with bus stop locations - Upgrade Napier Road / Roberts Line intersection to improve travel times for public transport and freight movements exiting from Roberts Line. Both the PNITI and the UCNM recommend signalisation, and this is within the 2021-24 NLTP. - Rationalise on-street parking activity.	Bus	C-E	B	Low – Frequency of accesses may limit LOS in terms of safety and side friction
					Freight (Interim)	C	B	Low – Frequency of accesses may limit LOS in terms of safety and side friction
6	Featherston Street	Botanical Road to Vogel Street	Bus, Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Upgrade Russell Street roundabout to improve safety for cyclists (e.g. raised pedestrian / cycle crossings)	Bus	C-E	B	High
					Cycle	E-F	B	High
7	Main Street (W) / Pioneer Highway	Longburn to Longburn Rongotea Road	Cycle	- Reduce speed limit to 80 km/h to achieve safe and appropriate speed for the road environment. This reflects PNITI recommendations. - Provide safety treatments at the Longburn Rongotea Road intersection. Improvements could include provision and channelisation of turning lanes, lighting improvements, removal of roadside hazards, and visibility improvements. Possibility of full intersection upgrades, in which case a roundabout would be the recommended form unless grade separation can be justified. - Widen bidirectional shared path to reduce likelihood of cyclist/cyclist and pedestrian/cyclist conflicts. - Give priority to shared path at intersections to side streets and accesses using a raised crossing with give way markings for vehicles. Note that adequate space must be provided between the crossing and the main road for vehicles to give way without obstructing mainline traffic. - Increase wayfinding, signage and lighting on shared path. - Increase road crossing opportunities for cyclists, with the necessary traffic calming measures.	Cycle	C	A	High – Space available to achieve high cycling infrastructure provision

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS Mode	Base	Post-intervention	Confidence
		Longburn Rongotea Road to Maxwells Line	Cycles, General traffic	- Reduce speed limit to 60 km/h. Note that PNITI recommends 70 km/h, which are discouraged in the Land Transport Rule: Setting of Speed Limits 2022 - Widen bidirectional shared path to reduce likelihood of cyclist/cyclist and pedestrian/cyclist conflicts. - Give priority to shared path at intersections to side streets and accesses using a raised crossing with give way markings for vehicles. Note that adequate space must be provided between the crossing and the main road for vehicles to give way without obstructing mainline traffic. - Increase wayfinding, signage and lighting on shared path. - Increase road crossing opportunities for cyclists, with the necessary traffic calming measures.	Cycle	C	A	High – Space available to achieve high cycling infrastructure provision
					General traffic	C	C	High – Unlikely to change
		Maxwells Line to Botanical Road	Bus, Cycle, General traffic	- Widen bidirectional shared path to reduce likelihood of cyclist/cyclist and pedestrian/cyclist conflicts. - Give priority to shared path at intersections to side streets and reinforce with raised crossings and give way markings for vehicles. - Increase wayfinding, signage and lighting on shared path. - Improve bus stop infrastructure to provide increased amenity for passengers. - Upgrade Botanical Road signalised intersection to provide cyclist protection and bus priority measures, if possible. Improve transition between shared path west of the intersection to one-way cycle paths east of the intersection. - Provide pedestrian crossing points at regular spacings - Upgrade painted cycle lane on south side to a separated facility and rationalise bus stop forms to consider interactions between passengers and cyclists	Bus	E	B	Medium
					Cycle	C	A	High – Space available to achieve high infrastructure provision
					General traffic	C	C	High – Unlikely to change
		Botanical Road to Pitt Street	Bus, Cycle, General traffic	- Make temporary separated cycle paths permanent - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible. - Provide pedestrian crossing points at regular spacings	Bus	E	B	Medium
					Cycle	C	B	Medium
					General traffic	C	C	High – Unlikely to change
8	Main Street (E) / Napier Road	Princess Street to Roberts Line	Cycle, Bus, Freight (local access), General traffic	- Extend 50km/h speed limit to Roberts Line intersection to achieve safe and appropriate speed for the road environment. This reflects PNITI recommendations. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Synchronise traffic signals during peaks to limit impediments to free movement, whilst ensuring speeds are maintained. - Upgrade Napier Road / Roberts Line intersection to improve travel times for public transport and freight movements exiting from Roberts Line. Both the PNITI and the UCNM recommend signalisation.	Bus	D-E	B	High
					Cycle	F	B	High
					Freight (Local)	B-D	B	High
					General traffic	B-D	B	Medium
		Roberts Line to Ashhurst	Freight (local / interim)	- Reduce speed limit from 100 to 80 to achieve safe and appropriate speed for the road environment. This reflects PNITI recommendations. - Implement safety treatments to reduce crash risk, as recommended in the PNITI. Possible treatments include a wide centreline.	Freight (local access)	D	A	High – Safety is primary factor affecting LOS

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
9	Ferguson Street	Albert Street to Ruahine Street	Bus	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. - Reduce side friction by removing angle parking or converting to parallel parking - Improve bus stop infrastructure to provide increased amenity for passengers. - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations	Bus	C	B	Low – Vehicle movements may remain high and may be difficult to limit
10	College Street	Botanical Road to Albert Street	Bus	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy - Upgrade College Street / Albert Street / Churchill Avenue to a roundabout to reduce delays for buses entering and exiting College Street - Upgrade signalised intersections to provide bus priority measures - Improve bus stop infrastructure to provide increased amenity for passengers - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations	Bus	C	B	Low – Vehicle movements may remain high and may be difficult to limit
11	Park Road	Botanical Road to Victoria Avenue	Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. PNITI recommends a 40 km/h speed limit to decrease attractiveness to freight movements. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Upgrade signalised intersections to provide cyclist protection. Remove give way slip lane from Fitzherbert Avenue / Park Road intersection - Improve Park Road / Victoria Avenue intersection to improve safety for cyclists, e.g. using a raised intersection with clear cyclist crossing points - Remove on-street angle parking in front of the recreation and parks area - Reduce road width and provide streetscape upgrades to reduce speeds and attractiveness as a freight route	Cycle	F	B	Medium – Interactions with parks and leisure area may be difficult to reconcile
12	Te Awe Awe Street	Fitzherbert Avenue to Albert Street	Bus	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. PNITI recommends a 40 km/h speed limit to decrease attractiveness to freight movements. - Upgrade signalised intersections to provide bus priority measures - Improve bus stop infrastructure to provide increased amenity for passengers. - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Remove flush medians, reduce road width, and provide streetscape upgrades to reduce speeds and attractiveness as a freight route	Bus	C	A	Medium
13	Longburn Rongotea Road	Pioneer Highway to No.1 Line	Freight (local / interim)	- Reduce speed limit from 100 to 80 in order to provide a safe and appropriate speed for the road environment. - Implement safety treatments to reduce crash risk. The PNITI recommends seal widening (e.g., paved shoulders and a wide centreline) and relocation of roadside hazards like power poles. - Provide safety treatments at the Pioneer Highway and No.1 Line intersections. Improvements could include provision and channelisation of turning lanes, lighting improvements, removal of roadside hazards, and visibility improvements. Possibility of full intersection upgrades, in which case a roundabout would be the recommended form unless grade separation can be justified.	Freight (interm and long term)	D	A	High – Safety is primary factor affecting LOS
14	Botanical Road	Tremaine Avenue to Mangaone Stream	Bus	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. - Upgrade signalised intersections to provide bus priority measures - Improve bus stop infrastructure to provide increased amenity for passengers. - Investigate upgrades to the Tremaine Avenue / Botanical Road intersection to reduce delay for buses - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Reduce road width and provide streetscape upgrades to reduce speeds and attractiveness as a freight route	Bus	D	B	Medium – Dependent on ability to reduce delay at Tremaine Ave / Botanical Rd roundabout

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
		Mangaone Stream to College Street	Bus, Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Reduce road width and provide streetscape upgrades to reduce speeds and attractiveness as a freight route	Bus	C	B	Low – Vehicle movements may remain high and may be difficult to limit
					Cycle	E	B	Low – Vehicle movements may remain high and may be difficult to limit
15	Ruha Street	Park Road to Dittmer Drive (He Ara Kotahi)	Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. - Provide cycle lanes to connect the river pathway with Park Road. This may require removal of parking on one or both sides of the road - Upgrade Henare St intersection to provide a raised platform to limit vehicle speeds	Cycle	B	A	High – Low-risk environment
16	Cook Street	Cuba Street to Te Awe Awe Street	Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Upgrade signalised intersections to provide cyclist protection. - Upgrade roundabouts to improve safety for cyclists (e.g. raised pedestrian / cycle crossings, removal of left-turn slip lanes) - Provide continuous raised median island to reduce right-turn movements south of Cook Street.	Cycle	D	B	Low – Cyclist safety at roundabouts is a key concern
17	Rangitikei Line / Rangitikei Street	Kairanga Bunnythorpe Road to Tremaine Avenue	Freight (local access), General traffic	- Reduce speed limit from 100 to 80 in order to provide a safe and appropriate speed for the road environment - Implement safety treatments to reduce crash risk, for example, wide shoulders, rumble strips a wide centreline and/or barriers - Upgrade intersection with Kairanga Bunnythorpe Road to improve safety. This is in line with PNITI recommendations. Given the speed environment, a roundabout would be the recommended form unless grade separation can be justified. - Improve lighting at key intersections	Freight (local access)	E	A	High – Safety is primary factor affecting LOS
					General traffic	E	A	High – Safety is primary factor affecting LOS
		Tremaine Avenue to Walding Street	Bus, Freight (local access), General traffic	- Synchronise traffic signals during peaks to limit impediments to free movement, whilst ensuring speeds are maintained. - Provide bus priority measures at intersections and reallocate parking space to bus lanes in key locations - Improve bus stop infrastructure to provide increased amenity for passengers - Improve pedestrian crossings at signalised intersections. Provide additional signalised crossings to reduce spacing between controlled crossing locations. Relocate bus stops to be located next to controlled crossing locations. - Remove / restrict on-street parking to reduce side friction and likelihood of crashes - Limit right turning movements into accesses by providing a raised median with breaks only for major intersections and accesses	Bus	F	B	Medium – Dependent on effectiveness of signal synchonisation
					Freight (Local)	F	C	Medium – Dependent on effectiveness of signal synchonisation
					General traffic	F	C	Medium – Dependent on effectiveness of signal synchonisation

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
18	Milson Line / Ruahine Street	John F Kennedy Drive / Airport Drive to Main Street (W)	Bus, Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations	Bus	C-D	B	Low – Vehicle movements may remain high and may be difficult to limit
					Cycle	D-E	B	Low – Vehicle movements may remain high and may be difficult to limit
		Main Street (W) to Ferguson Street	Bus	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. PNITI recommends a 40 km/h speed limit to decrease attractiveness to freight movements. - Upgrade signalised intersections to provide bus priority measures - Improve bus stop infrastructure to provide increased amenity for passengers. - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations	Bus	C	B	Low – Vehicle movements may remain high and may be difficult to limit
	Vogel Street / Upper Main Street	Tremaine Avenue to Napier Road	None	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. - Introduce traffic calming measures to decrease attractiveness as a vehicular route. These measures could include: o Raised pedestrian crossings in midblock locations o Raised intersection treatments in locations with higher walking and cycling activity, for instance at the intersection with Featherston Street, which is a priority bus and cycle route, and around the Roslyn local centre between Kipling Street and Milton Street. o Localised road narrowing using buildouts with, for example, vegetation. - Deemphasise movements in and out of Vogel Street at its intersection with Tremaine Avenue, and adjust signals to favour alternative routes. - Reduce width of Upper Main Street at its intersection with Napier Road and provide raised cycle platform across it as part of upgrades to Napier Road. Consider removing right-turning movements by extending or reconfiguring the central raised median,	n/a	n/a	n/a	n/a
19	Albert Street	Featherston Street to Ferguson Street	Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. PNITI recommends a 40 km/h speed limit to decrease attractiveness to freight movements. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Upgrade signalised intersections to provide cyclist protection. - Upgrade roundabouts to improve safety for cyclists (e.g. raised pedestrian / cycle crossings, removal of left-turn slip lanes) - Change angle parking to parallel parking or remove - Reduce road width and provide streetscape upgrades to reduce speeds and attractiveness as a freight route	Cycle	F	B	Low – Cyclist safety at roundabouts is a key concern
		Ferguson Street to Te Awe Awe Road	Bus, Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce differential between cyclist and vehicle speeds. PNITI recommends a 40 km/h speed limit to decrease attractiveness to freight movements. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction	Bus	C	B	Low – Vehicle movements may remain high and may be difficult to limit

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
				- Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade roundabouts to improve safety for cyclists (e.g. raised pedestrian / cycle crossings, removal of left-turn slip lanes) - Reduce road width and provide streetscape upgrades to reduce speeds and attractiveness as a freight route.	Cycle	F	B	Low – Vehicle movements may remain high and may be difficult to limit
		Te Awe Awe Road to Manawatu River Path	Cycle	- Reduce speed limit to 40 km/h as part of city-wide speed management strategy. This will reduce the differential between cyclist and vehicle speeds. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line - with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles.	Cycle	C	A	High – Low-risk environment
20	Fitzherbert Avenue	Ferguson Street to Fitzherbert Bridge	Bus, Cycle, Freight (interim), General traffic	- Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations - Synchronise traffic signals during peaks to limit impediments to free movement, whilst ensuring speeds are maintained. - Limit right turning movements into accesses by providing a raised median with breaks only for major intersections and accesses - Remove / restrict on-street parking to reduce side friction and likelihood of crashes	Bus	D	B	Low – Vehicle movements may remain high and may be difficult to limit, dependent on effectiveness of signal synchonisation
					Cycle	E	B	Low – Vehicle movements may remain high and may be difficult to limit
					Freight (Interim)	E	C	Low – Vehicle movements may remain high and may be difficult to limit, dependent on effectiveness of signal synchonisation
					General traffic	E	C	Low – Vehicle movements may remain high and may be difficult to limit, dependent on effectiveness of signal synchonisation
21	Tennent Drive		Bus, Cycle,	- Reduce speed limit to safe and appropriate speed of 50 km/h. This reflects PNITI recommendations. The PNITI also recommends engineering changes to ensure this	Bus	C	A	High
					Cycle	B-D	A	High

ID	Corridor	Bounds	Priority modes	Description of intervention	LOS			
					Mode	Base	Post-intervention	Confidence
		Fitzherbert Bridge to Main Drive	Freight (interim)	reduction. This could include reduction of lane widths and conversion of flush median to raised median to encourage lower speeds and improve safety. - Depending on future public transport demand, consider providing peak-hour bus lanes in each direction using an existing traffic lane in order to provide bus priority and support lowered speed limit. - Widen shared paths and provide separation between them and the live carriageway. - Improve Main Drive and Dairy Farm Road intersections to improve cycle and bus interactions. - Rationalise bus stops and upgrade pedestrian connections to improve access between the bus stops, Massey University, and FoodHQ.	Freight (Interim)	B-D	B	Medium
		Main Drive to Camp Road	Bus, Freight (interim)	- Improve bus stop infrastructure to provide increased amenity for passengers - Improve pedestrian crossings around bus stops - Implement safety treatments to reduce crash risk, for example, wide shoulders, rumble strips a wide centreline and/or barriers - Upgrade intersection with Tennent Road / Camp Road / Hewitts Road to improve safety. This is in line with PNITI recommendations. Given the speed environment, a roundabout would be the recommended form unless grade separation can be justified. - Improve lighting at key intersections	Bus	C	A	Medium – Considerable improvement to pedestrian environment around bus stops required
					Freight (Interim)	C-D	A	High – Safety is primary factor affecting LOS
22	Summerhill Drive	Tennent Drive to Old West Road	Bus, Cycle	- Reduce speed limit from 60 km/h to 50 km/h to achieve safe and appropriate speed for the road environment and reduce speed differential between cyclists and vehicular traffic. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Improve bus stop infrastructure to provide increased amenity for passengers. Bus stop forms should be carefully designed to consider interactions between passengers and cyclists - Upgrade signalised intersections to provide cyclist protection and bus priority measures, if possible - Provide pedestrian crossing points at regular spacings that are rationalised with bus stop locations	Bus	E	B	Low – Vehicle movements may remain high and may be difficult to limit
					Cycle	E-F	B	Low – Vehicle movements may remain high and may be difficult to limit
23	Aokautere Drive	Old West Road to Johnston Drive	Cycle	- Reduce speed limit from 70 km/h to 50 km/h to achieve safe and appropriate speed for the road environment and reduce speed differential between cyclists and vehicular traffic. - Reallocate road space to provide cycle paths that are physically separated from vehicular traffic in each direction - Reinforce cycle priority at intersections to side streets in a manner that is in line with current legislation. Ideally, intersections should include raised pedestrian / cycle crossings to slow turning vehicles. - Provide improved crossing locations for cyclists (and pedestrians) - Change flush median to a raised median with right-turn bays for accesses and intersections - Remove left-turn slips into Summerhill Shopping Centre and Ruapehu Drive	Cycle	E	B	Low – High-speed, high-risk environment requires considerable change to make appropriate for an urban environment

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Palmy Transport System Improvement Plan

Palmerston North City Council | Waka Kotahi

January 2022

PALMY

WAKA KOTAHI NZ TRANSPORT AGENCY

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Introduction

The Palmy Transport System Improvement Plan (PTSIP) is a journey based blueprint to improve the city's transport system over the short and medium terms. Developing the PTSIP is one of the key recommendations from the approved Palmerston North Integrated Transport Initiative (PNITI) programme which outlines several significant transport improvements for Palmerston North and the wider Manawatū Region.

The PTSIP brings together existing transport plans to form an integrated multi-modal view of place and movement priorities, including key customer destinations and journeys, to best support the city's transport system. In particular when coupled with the One Network Framework (ONF), the PTSIP provides an opportunity to achieve better integration between land use and transport outcomes for Palmerston North City where growth, accessibility, and place are considered and balanced accordingly.

This report is the technical appendix to the PTSIP key journeys map, and records and summarises the overall background and methodology adopted by partners to develop the plan.

Context to the PTSIP

The transport systems contribution to the city's vision and strategic goals

Council's long-term plan[1] 2021-31 has a vision of making the most of Palmy's small city benefits, while offering the region's communities the lifestyle, education, and business opportunities available in much larger metropolitan cities.

Within the plan, Council recognises that relying on typical small city advantages such as quality of life and affordability will not be enough to compete with other cities. Council intends to be ambitious, agile, and innovative in actively promoting and positioning the city to take advantage of opportunities available, while retaining the strengths and values that give Palmerston North its character. Supporting the Council's vision are five strategic goals, as shown in Figure 1, which provide further detail on Council's focus areas.

The transport system in terms of design, accessibility, and the way we travel to and from our destinations, relates directly to Council's ability to achieve the targets supporting these goals. For example, achieving a 30% reduction in CO_2 emissions by 2031 will be challenging and is likely to require a notable change in how people and goods move about the city and their communities.

Council's vision, goals and targets have been considered and incorporated into the key journeys map with a particular focus of supporting low carbon transport, improving access to key destinations including the river, and where possible reducing and/or avoiding severance issues particularly in new growth areas. These outcomes and objectives are well aligned to the transport outcomes the government prioritises and invests for via the National Land Transport Fund and Programme.

Figure 1 | Palmerston North's strategic direction

[1] Available at https://www.pncc.govt.nz/media/3134098/10-year-plan-2021-31.pdf

PNITI and the PTSIP

The recently approved PNITI programme contains eight initiatives (see Figure 2) to be completed over the next 30 years. These initiatives include significant projects such as:

- investigating an outer ring route to improve inter-regional access for people and goods
- improving multi-modal access and choice
- supporting place making through the Enabling Streets for People programme
- better integrating land use and transport planning to improve liveability and transport outcomes.

Much of the PNITI programme has been designed to support the Manawatū/ Whanganui region and government's economic development aspirations and plans which contains a significant investment programme across several sectors.

A sizeable proportion of the investment is not envisaged to be required in the short to medium-term.

Significant state highway investment included in PNITI is not envisaged to be required until the KiwiRail regional freight hub comes online in 10-15 years' time.

Figure 2 | Summary of the PNITI programme

The PTSIP[2] is one of the first initiatives in the PNITI programme and is required to inform and shape short-term investment priorities and projects.

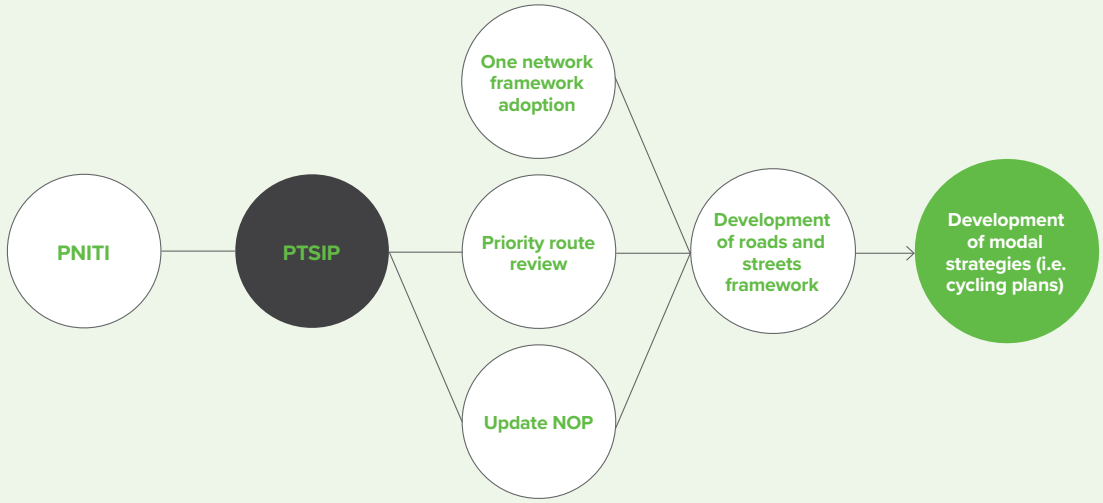
Doing so:

- better integrates the long-term PNITI programme with the more immediate improvements necessary to support key journeys and destinations
- guides the development and delivery of safety improvements and low cost, low risk activities by setting out an agreed template for key journeys within the transport system.

With the PTSIP to help guide and integrate several different programmes, the consequences of the forecast increase in transport movements, such as safety and maintenance, can be better managed. The connections between PNITI, the PTSIP, and other transport related tools and strategies is outlined in as illustrated in Figure 3.

[2] called the Palmerston North Regional Transport system improvement plan (PNRTSIP) in PNITI

Figure 3 | Connection between PNITI, the PTSIP and other key transport frameworks and tools



Palmerston North's transport system supports inter-regional and local journeys

With its central location and connections to several state highways and rail lines, Palmerston North is unique in providing a transition between north-south and east-west road and rail movements for New Zealand (see Figure 4). As such, Palmerston North has a critical function in being a national distribution hub for many freight journeys within the North Island and particularly the lower and central North Island logistic supply chains.

In addition, Palmerston North has a well-defined city and retail centre which is supported by significant primary and educational industries. Palmerston North is an important regional service centre for the wider Manawatū/ Whanganui region with many of the primary industries located within the peri-urban and rural surrounds of Palmerston North, Horowhenua, and Manawatū districts. This means the city's transport system needs to cater for more than just the people who reside and work in Palmerston North.

Combined there are approximately 22,000 traffic movements per day into and through the city.[3] These movements are to access jobs, education facilities, and other social opportunities such as retail, health services, recreation, and community facilities, along with the several industrial areas located within and on the outskirts of the city. All these journeys and different modes need to be considered when planning the transport system.

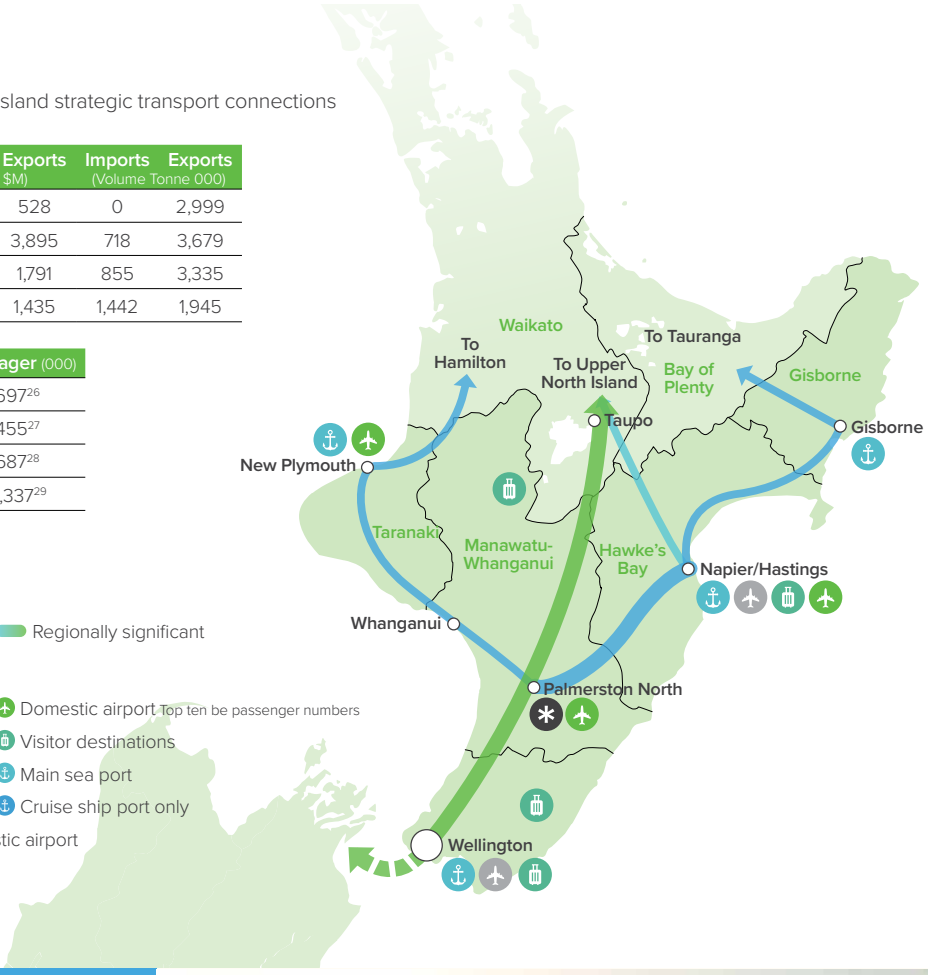
Based on Council's 2018 freight demand study, heavy vehicles are permeating through the city's urban and rural streets to find the easiest and most convenient route to reach their destinations. This suggests the freight hierarchy is not well defined, and there are opportunities to explore and encourage freight vehicles to use particular routes. The PTSIP help clarify the street hierarchy to better support freight movements and helps to avoid heavy vehicles travelling through residential areas where mode conflicts are more likely.

[3] Horizons 2015-2025 2018 RLTP Section 3.3 - highlights growth is a key issue for the region's transport system, including Palmerston North.

Figure 4 | Lower North Island strategic transport connections

Port[28] (2018)	Imports (Value $M)	Exports (Value $M)	Imports (Volume Tonne 000)	Exports (Volume Tonne 000)
Eastland Port	0	528	0	2,999
Napier Port	913	3,895	718	3,679
Port Taranaki	271	1,791	855	3,335
CentrePort	2,539	1,435	1,442	1,945

Airport (2018)	Passager (000)
Napier	697[26]
New Plymouth	455[27]
Palmerston North	687[28]
Wellington	6,337[29]



Population growth

Palmerston North's population has been steadily increasing, with further ongoing growth expected. The effect of growth is starting to be felt across the city's transport system in terms of maintenance and demand, and transport customer levels of service, particularly during peak periods when people travel to and from work and education facilities.[4]

With significant transport investments planned throughout Palmerston North and the Manawatū/ Whanganui region over the next 10 years as part of PNITI, planning for growth is necessary to help maintain reliable and effective transport connections to and within the city. Smart integration between land use and transport planning will be critical to ensure Palmerston North continues to deliver on its vision for the city and aspirations of its communities.

[4] ibid

Community insights about what is valued and why

Great communities have transport systems where the balance between people, place and movement has been successfully achieved. With a growing population, an increased demand for goods and services, and increasing community expectations of government, a transport system must deliver more than just roads and footpaths.

Community feedback

In developing the PTSIP, recent community engagement and consultation processes were reviewed to help inform what the community currently likes and dislikes about Palmerston North. The key themes included below are a collation of the common and recurring messages to the Council from these recent engagements. Appendix A contains a more detailed synopsis.

The comments have been summarised from the following Palmerston North City Council documents and community engagement processes.

Palmerston North annual residents survey 2021/2021

Annual resident's survey undertaken by Palmerston North City Council to ascertain community satisfaction levels across Council's significant infrastructure and regulatory services.

Palmerston North draft Long Term Plan 2021-31 - summary of submissions

Palmerston North City Council's 10-year Plan (long-term plan) outlines how the Council wants the city to develop and sets out the projects and services they will provide over a 10-year period. Public submissions are received on the draft Plan that detail community ideas, insights, concerns, and aspirations.

The key themes and supporting examples identified, outline how important the Palmerston North community views 'transport' in delivering or supporting many of their life values and community aspirations. It outlines the important role transport plays in helping people live, work, learn, play, and move.

The importance of having well maintained public infrastructure, feeling safe no matter how they choose to travel, having good access to key places and centres, ensuring people respect others and 'share' the system, and wanting a reliable and consistent travel experience, were common themes throughout the feedback.

Summary of key themes

The key themes and supporting examples are written as statements of what the community 'would like to see or experience' in their city and neighbourhoods, based off the common messages from the feedback.

1 Well maintained roads, paths, and street lighting

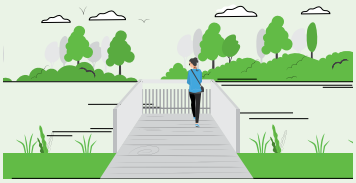
The community would like to have:

- Roads that are well maintained and of good quality, and when issues arise i.e., potholes, these are fixed in a timely manner.
- Shared paths, footpaths and cycleways that are well kept, with the berms mown, rubbish removed, and the surrounding flora pruned and maintained.
- Streetlights that are all working and well-lit to support safe travel whether driving, walking, or cycling at night.

2 High quality travel choices

The community would like to:

- Move freely around their neighbourhood and city centre by having easy access to a range of different travel options for work, study, or leisure.
- Rely on how long each trip will take and how much it will cost, so they can make an informed choice.
- Use a well-connected public transport system to access neighbourhoods, shopping centres, schools, employment, and the city.
- Travel on buses that are comfortable, run frequently, and are a comparative cost to driving their car.
- Have easy access to parking facilities, that are comparatively priced, and are well connected to activity centres and other modes of transport.



3 Strong connections to the river

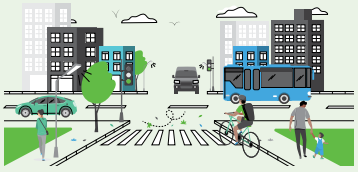
The community would like to:

- Have easy access to the Manawatū River from multiple points across the city and via all modes of travel.
- Use high-quality shared pathways along the river, that are well connected to the city centre, University and surrounding town and neighbourhood centres.
- Have many opportunities to socialise and enjoy the Riverfront including walking their dogs, cycling, running, and playing along the waterway.

4 Shared space where everyone wins

The community would like to see:

- Walking, cycling and shared paths within the city and neighbourhoods that are well used and enjoyed.
- Good signage and road treatments that clearly show and support different transport users.
- People take their time and share the road, lane, or path, so that everyone is safe and enjoys their experience.
- Children cycling safely to school with good choices of using shared paths or dedicated cyclelanes.
- Footpaths, roads, and crossings within the city centre that are well designed to ensure pedestrians feel safe and can move about freely.
- A city centre where cars and bikes take their time, slow down, and give way to people walking and enjoying the inner precinct.



5 The right mode on the right road

The community would like to see:

- Different transport journeys that are well designed to encourage different modes of travel to avoid conflict on main roads and shared pathways, such as for large trucks, cycling or pedestrians.
- Cycleways and shared paths that are clearly marked and signposted, so they are safe to travel on with other traffic.
- Different treatments on different journeys to support cyclists whether they are commuting to work, biking to school, or cycling for recreation.
- Local goods and services have easy access to distribution points around the city, through dedicated journeys, to access business, industry, and neighbouring centres.

6 Future focused infrastructure

The community would like the:

- City to be well planned for growth, including provision for critical infrastructure.
- Planning of the transport system to be aligned with land use development so that new housing and businesses are well integrated and support existing people's lifestyles and livelihoods.
- City's new growth areas to be supported by multi-model transport options, including good public transport, and connected walkways and cycleways, so that people have a choice, rather than just private vehicles.

Developing the PTSIP

The PTSIP defines the transport routes for strategic journeys and key destinations within Palmerston North by mode (passenger transport, active modes, trucks, and cars) and customer (freight, commuter, education, and general public and traffic). The focus of the PTSIP is to define the function of key transport corridors from a mode and customer perspective, rather than technical analysis, to provide a more integrated transport perspective. The strategic journeys and associated routes described are for a future state and assume necessary changes have taken place to support and enable these routes within the city's transport system.

Identifying strategic journeys, key destinations, and places

The strategic journeys, key destinations, and places have been defined primarily through qualitative methods. The starting point for determining Palmerston North's strategic journeys was the:

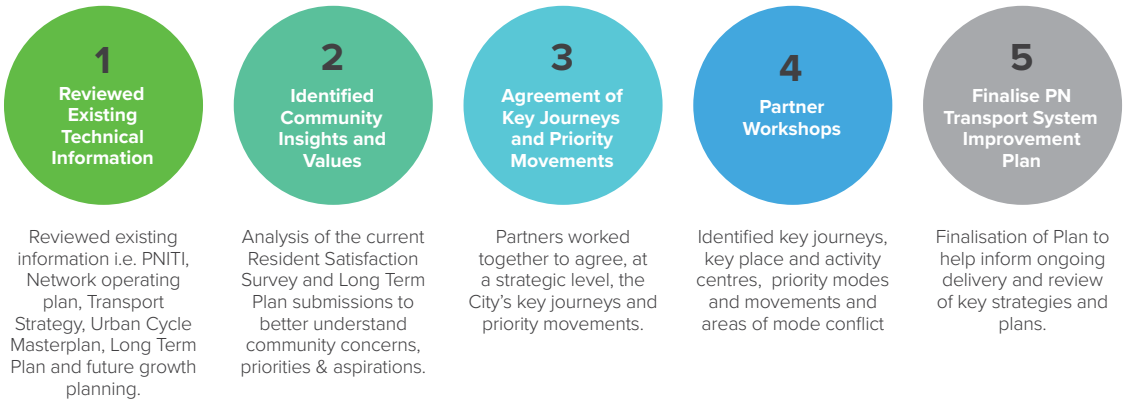
- One Network Framework (ONF)
- Palmerston North Network Operating Plan (NOP)
- Urban Cycle Network Masterplan
- Council's Long Term Plan
- Council's current and future land use plans (particularly future industrial and residential zones) within the city.

Analysis and modelling data from the recently completed PNITI business case was also used where applicable. These plans and documents provide a framework to identify key destinations within the city and potential strategic journeys and routes to access these by mode and customer.

Council and Waka Kotahi staff input was used to confirm the key destinations and places, including significant employment areas such as Massey, Linton, the Defence Force, and industrial areas, as well as the primary, secondary, and tertiary educational facilities. These destinations are important as they generate peak demand for access during the weekday mornings and evenings peak. Other recreational, industrial, and retail destinations were also identified and included where relevant. These destinations can generate significant traffic movements during the day and on weekends. Finally, future residential and industrial growth areas were identified where known, as these are future destinations people will want and need to access.

Once the key places and strategic journeys and routes were identified, staff input was used to consider which mode and movement should have priority over another in each corridor. Freight, PT, cycling, walking, and general traffic were the key modes considered in terms of prioritisation, including where multiple modes are using the same corridor for particular strategic journeys at the same time. The purpose of this exercise was to identify where current mode conflicts are occurring within the transport system, and whether alternatives could be found. A summary of the process followed is included in Figure 5.

Figure 5 | How the PTSIP was developed



Insights that arose from the workshops

From the discussion and mapping exercises, the following issues and insights were identified, and further explored.

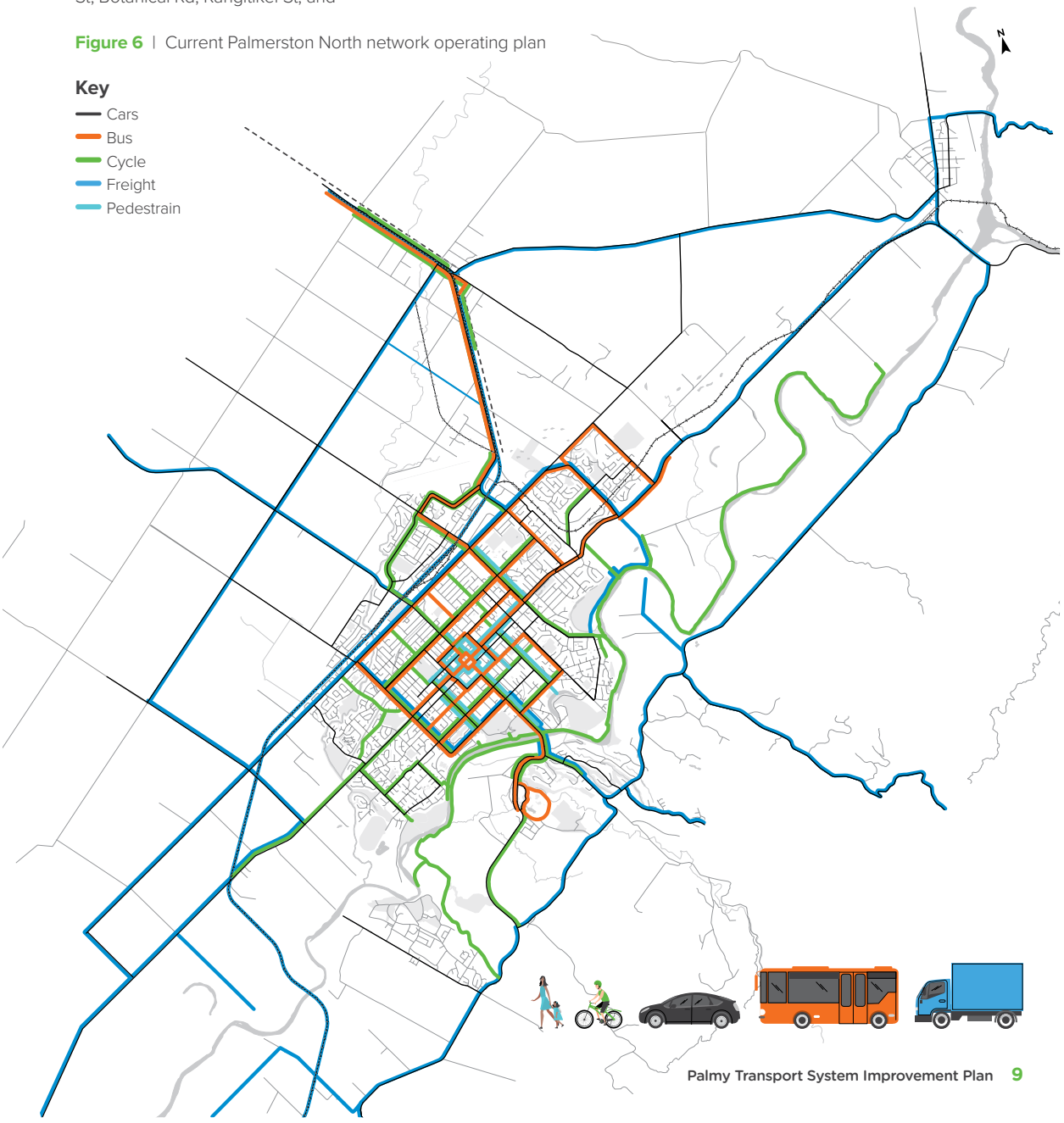
Network operating plan (NOP)

When the modal routes are combined based on the current NOP, it is clear some corridors are catering to multiple modes and are working hard (see Figure 6). In particular, Tremaine Ave, Main St, Fitzherbert St, Botanical Rd, Rangitikei St, and Railway Rd support all modes and carry significant volumes of traffic.

For freight, the NOP outlines preferred freight routes primarily based on accessing and going through the city from SH56, 57, and 3.

Based on traffic data, there are inconsistencies between the nominated freight routes in the NOP and current use that can be addressed and resolved. The most significant is the departure from the NOP preferred freight routes of Fitzherbert/ Park/ Botanical onto Tremaine when coming from SH56/ Tennent Drive. Traffic data suggests freight movements are greater on Te Awe Awe and Albert Streets, which is a shorter and more direct route to Main Street/ SH3, and/or Tremaine Ave, and key freight-based destinations in the north-eastern aspects of the city.

Figure 6 | Current Palmerston North network operating plan



While Te Awe Awe/ Albert Streets are a nominated over-dimension route, it is also a residential area with parking on either side, provides access to multiple schools and sports fields, and are key and popular access points to the river. Additionally, the preferred freight route of Park and Botanical Roads also provides access to multiple schools and recreational areas, and bike access to the recreational route via He Ara Kotahi. These roads currently have bike lane markings and are also used by heavy commercial vehicles (HCVs), which creates potential inconsistencies and unsafe mode conflicts (real and perceived).

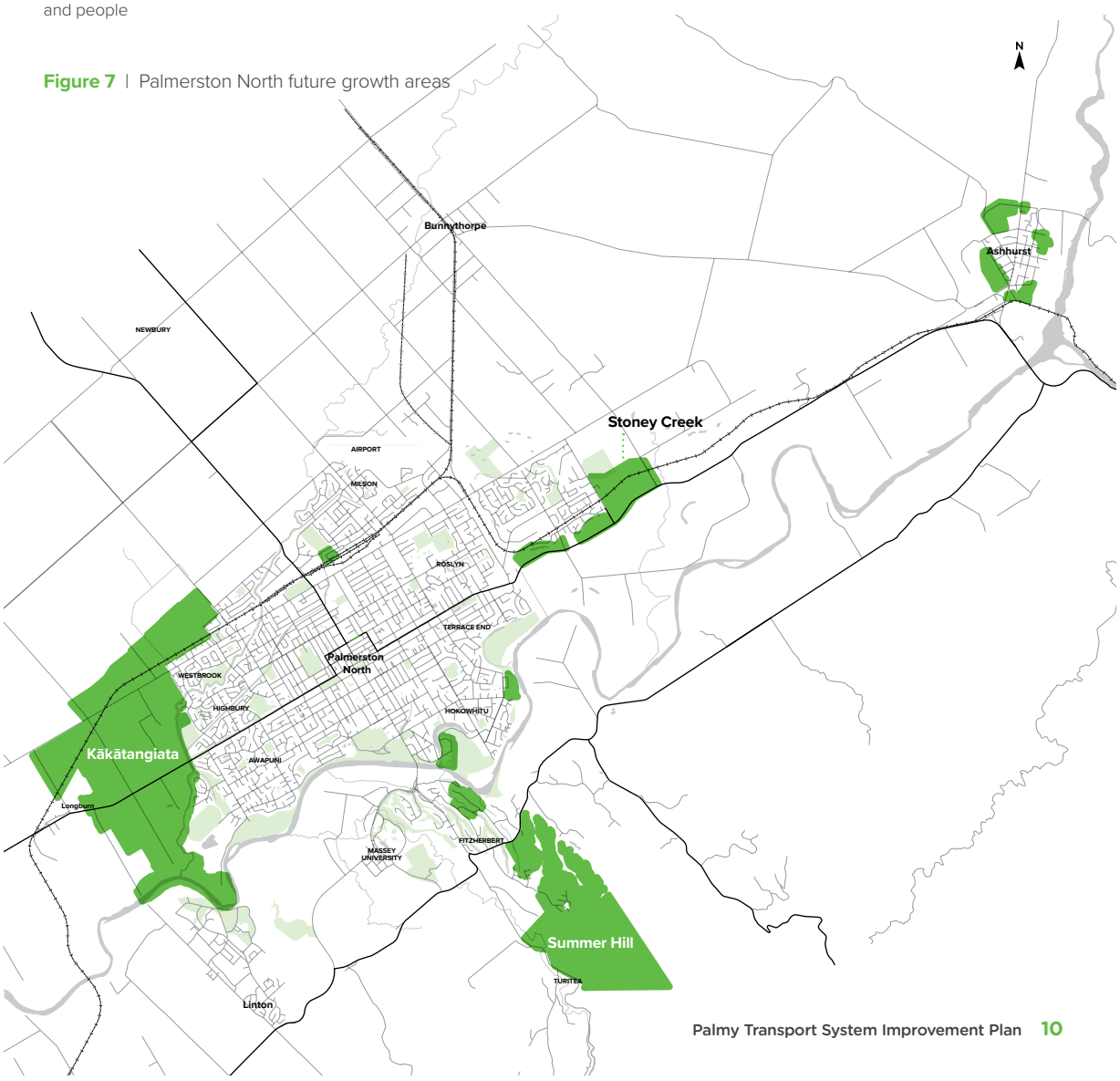
Based on modelling completed through PNITI, freight growth is expected to occur on SH56 and Tremaine Ave. Less freight growth is expected on SH57 and Fitzherbert Ave. It is worth noting that the modelling does not include the KiwiRail regional freight hub nor any additional freight trips that the hub may generate. Addressing the mode conflicts between freight and other modes where practical, and providing greater clarity about the preferred freight route, was identified as a key focus when developing the PTSIP.

Land use and liveability

In discussions with staff, it became apparent achieving liveability outcomes for some of the future growth areas (such as Summer Hill, Kākātangiata, Kelvin Grove, and Stoney Creek) is likely to be reliant on managing the severance and other associated transport impacts of adjacent state highways or key arterials (see Figure 7). While noise and other negative transport impacts can be managed through buffer zones and other mitigations, reducing the community severance impact[5] is often more complex and challenging.

[5] Community severance occurs where transport infrastructure or the volume and/or speed of traffic limit people's access to good, services and people

Figure 7 | Palmerston North future growth areas



These issues are further complicated by the need to balance the Manawatū/ Whanganui's economic development aspirations for Palmerston North to be a premier freight distribution centre servicing New Zealand's logistic supply chains. Both are necessary to support each other.

Maintaining the complementariness between these growth aspirations is necessary to ensure future economic growth and liveability. Considered trade-offs that balance liveability and freight efficiency are likely particularly where future growth areas are adjacent and/or bisected by current and future state highways and arterials.

The final aspect is the strategic function of the proposed new southern river crossing. The crossing is included in PNITI, connecting the north-eastern and southern sides of the proposed ring route. Consideration via future business cases, as to the purpose, function, and use of the ring route and river crossing, will be important particularly in terms of providing inter-regional access.

Given the proximity of the potential route and crossing, land designation is likely to be necessary within the planned Kākātangiata development to help avoid future adverse impacts and community severance issues. The land designation is an aspect to consider through the development and approval of the Kākātangiata structure plan.

Considering planned and future development areas within the city and their accessibility is a core component of the PTSIP, particularly when considering future key journeys within the city.

Accessibility

From an accessibility perspective, the following aspects were identified through the workshop:

- The inner-city route as a concept is not clear or reinforced with signage and/or traffic management initiatives to encourage use of this route. The result is multiple traffic movements coming into or near to the Square and the central business district. As a result, there is a confluence with people accessing the Square and surrounding retail and hospitality outlets, which reduced accessibility for all.
- Access is limited into and from the city's north-eastern quadrant. People living in this quadrant have limited modal choice, likewise for those accessing jobs at the numerous businesses located in adjacent industrial precincts.
- Transport planning and the city's strategic direction are not always well-aligned which causes confusion. For example, access via key routes to the river is identified as being important to the community and is part of the Council's strategy. However, the communities' desire and Council's strategic direction are yet to be reflected in the transport plan and network operating plan (NOP).

These aspects have been considered when developing and prioritising the key journeys by mode and customer.

Key places and movements within the city

As part of the workshop, key places such as employment areas, areas for recreation, schools and education facilities, industrial and commercial areas, retail and so forth were identified and movements mapped. These are summarised in Figure 8, and are based on:

- The most significant freight destinations are in the north-eastern quadrant of the city, which is expected to expand. There are limited direct routes enabling access.
- The Higgins' Hokowhitu site is a significant origin/destination for heavy vehicles. There are future plans for this site to be rezoned and Higgins to move to the north-eastern quadrant of the city.
- The central business district within the inner-city ring route and Rangitikei Street are key areas for employment, retail, and hospitality, and provide a critical sub-regional function.
- Schools are a key destination and generator of trips, particularly in peak times.
- Linton and the Massey Campus are significant employment areas and generator of trips to the south-west quadrant of the city. While access and travel choices to Massey are good, Linton has limited travel choices available.

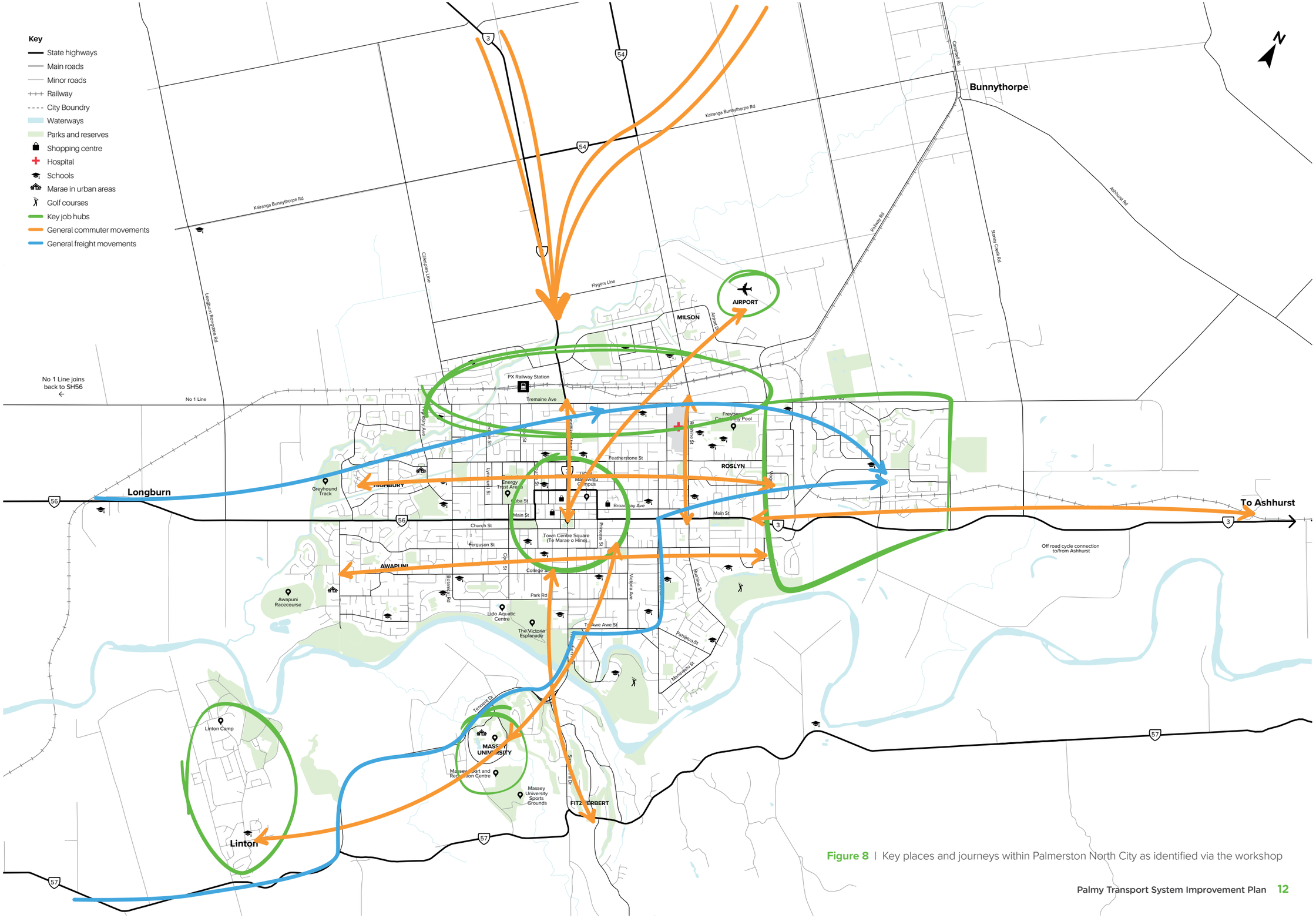


Figure 8 | Key places and journeys within Palmerston North City as identified via the workshop

The PTSIP key journeys and routes

Different transport journeys need to deliver different customer experiences across a city and district's network. The critical journeys need to work as a system to ensure the right mix and balance of modes, time, and place, to move people and goods, is achieved.

Place and movement principles

Within Palmerston North, many transport journeys involve travelling through urban, peri-urban, and rural areas, reflecting the breadth of the city's economic activity and the different key destinations within the city. It is important that the function of these journeys support the adjacent land uses and community expectations for access which means that trade-offs are required to be made at different points of the journey in terms of connectivity, amenity, speed, and priority. For example, town centres are typically designed for people with slower speeds, pedestrian friendly street design that is well integrated with the retail or urban land use. In contrast, journeys that are focused on the efficient movement of people and goods, such as motorways, key arterials, or rail, prioritise regional access over local access and only integrate with land use at managed intersections or key nodes/stations.

In developing the key routes, the following principles were applied:

1. Where possible avoid mode conflicts particularly between active modes (walking, cycling, micro mobility) and trucks and buses by using alternative routes and/or time of day options.
2. Where mode conflicts cannot be avoided, road safety is prioritised first before other outcomes.
3. Different customers have different requirements. Where possible, catering to these requirements, across different journeys, helps influence route choice.
4. The balance between movement and place is necessary particularly for places, centres, and areas that are important to the community such as the Square and having access to the Manawatū River.
5. Using the Waka Kotahi transport intervention hierarchy[6] to maximise and optimise first before considering new infrastructure options.

These principles helped shape the key routes particularly where trade-offs were made between modes.

The Palmy transport system improvement plan - key journeys map

With a predominantly grid-based transport system, several opportunities to improve movements through the city are possible through the implementation of considered interventions to encourage and where necessary disincentivise particular modes and customers.

For example, parking management (pricing, time, turn-over, location and number of available parks) can be used to both encourage and disincentivise movements into the city centre. Likewise, cycling routes that look safe and provide access to schools, help encourage use.

The final *PTSIP Key Journeys Map* (see Figure 9) outlines the key places/ destinations within the city and the future journeys and routes that could be encouraged. The map is based on technical information reviewed, community insights gained, and workshops and discussion with Council and Waka Kotahi staff.

Most key journeys will have both a place and movement function and at least one priority movement/mode. This defines the movement and placemaking focus of the journey and helps to inform decisions on allocating space to the different modes to move people and goods as well as access to adjacent land uses.

[6] The Waka Kotahi intervention hierarchy is available at https://invest.nzta.govt.nz/mod/page/view.php?id=329

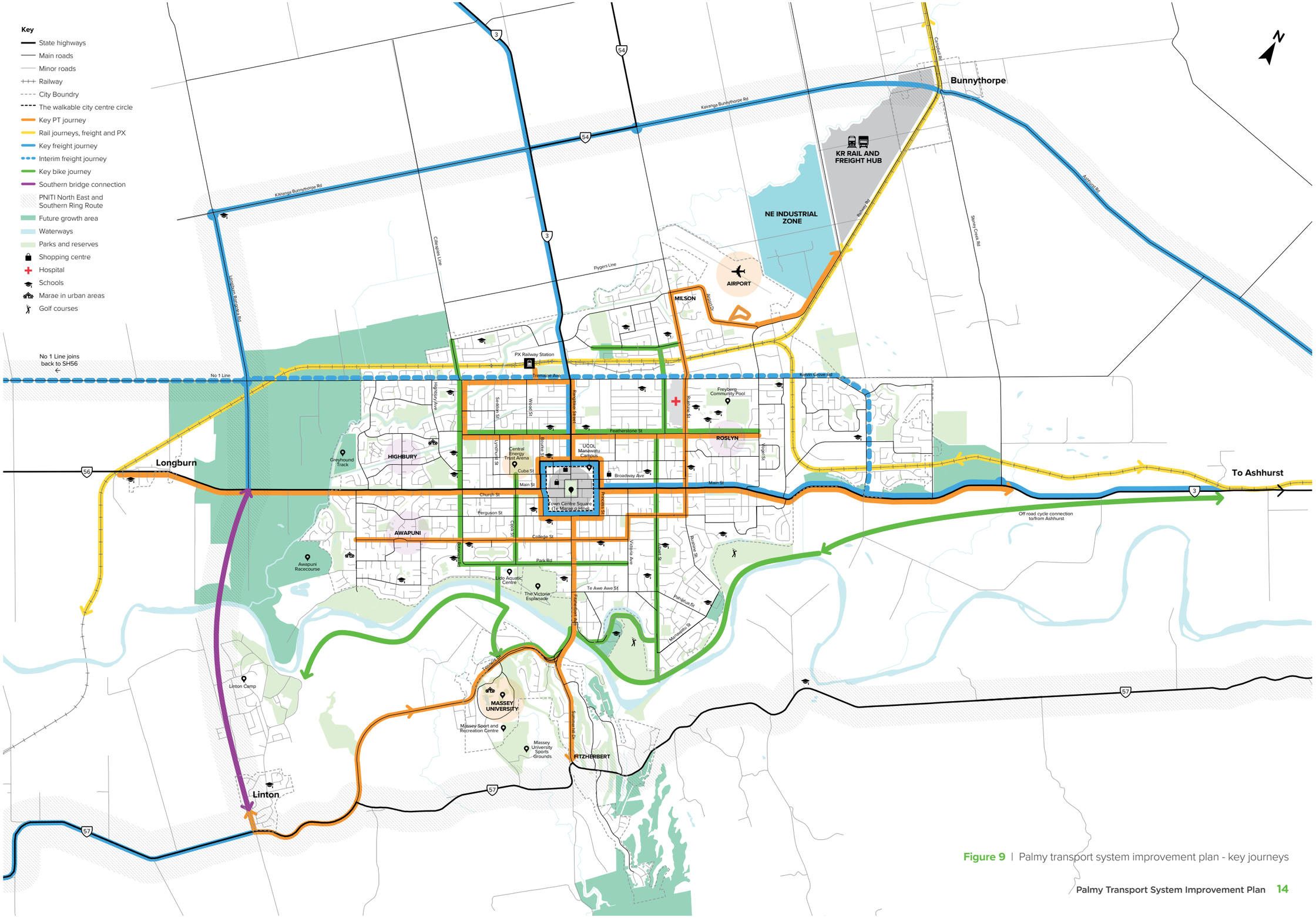


Figure 9 | Palmy transport system improvement plan - key journeys


Photo credit: ManawatuNZ.co.nz

The main changes from the current network operating plan are:

- Using SH56/ No. 1 Line/ Tremaine Ave as an interim freight route to the longer term solution (SH57 with a new bridge and connection to Kairanga Bunnythorpe Rd) to direct freight heading to the north eastern industrial areas away from accessing the city from via Tennent Drive.
- Using the inner-city ring route to support public transport journeys and increase the public transport connections and access to the airport, train station, hospital, Linton, and the industrial areas – current and future.
- Using Park and Botanical Roads for bike journeys to support safe and direct access to the schools and recreational facilities along this journey.
- Extending the public transport journey to improve access to Linton, particularly during peak periods to support commuter demand.

The rationale for the journeys in the PTSIP is to:

- Free up and reduce mode conflicts for most of the city's transport system.
- Enable freight to have more direct access to freight-based destinations, mainly along Tremaine Ave and the Kelvin Grove industrial area. This is supported by modelling completed for PNITI which suggests that future freight movements are likely to be greater on SH56, Tremaine Ave and Railway Rd, and more modest in the southern part of the city such as Fitzherbert Ave.
- Reduce the need for inter-regional freight using Fitzherbert/ Park/ Botanical, Te Awe Awe/Albert, Rangitikei Street, Featherstone or Main to access/leave freight destinations which reduces conflicts.
- Provide increased South/North and West/East access via public transport and active travel modes.
- Enables the 'inner-city loop' to support public transport, general traffic movements and inner-city local freight distribution.
- Support Council's plans to enhance the city centre for safer and friendlier pedestrian and bike access within the Square and inner-city loop precinct.
- Support Food HQ/ Massey's plans for improvements to the university precinct and reduce the severance impacts currently experienced with Tennent Drive.
- Supports future access to the KiwiRail Regional Freight hub and northeast industrial area and the longer-term plan of a ring route as per the PNITI business case.

A summary for each of the priority modes and movements, key journeys and support principles envisaged is outlined in Table 1. For mode priority/ movement, it is important to note that priority can be defined on a time-of-day basis where one mode is prioritised at certain time and a different mode prioritised at other times i.e., during peak periods and outside of the peak periods.

Table 1 | Summary of the Palmy key journeys

Freight

Key journeys	Key principles
Access to industrial areas and distribution centres (current and future) • Interim freight access via SH56/ No. 1 Line – Tremaine Ave – Kelvin Grove Rd/ SH3 • Longer term connecting to the KiwiRail Freight Hub and NE Industrial via PNITI improvement of a SH ring route alignment connecting SH57 via a new bridge crossing to Kairanga Bunnythorpe Rd/ Ashhurst Rd/ SH3 • SH1/ SH3/ Tremaine – Kelvin Grove Rd/ SH3 **Internal city access** Tremaine Ave/ Rangitikei St/ Inner City Loop/ Main St **Rail freight** Freight in, through and out of Palmerston North, via the rail line.	• Freight vehicles can avoid delays and travel at a consistent and safe speed. • The journey is predictable and takes the same amount of time, most of the times travelled. • In urban areas such as the town centre, a level of freight priority is provided for local deliveries through space allocation that may be shared with buses and have appropriate end of trip facilities e.g., loading, parking areas. • Freight and passenger rail services are well planned and integrated, to ensure access and efficiency outcomes are achieved.

Public transport

Key journeys	Key principles
Buses Inner City ring route connecting/ distributing bus journeys **West/East journeys** • Longburn to Ashhurst (anticipating the Kākātangiata, and Stoney Creek developments) via Pioneer Highway – Main Street – around outer city square (Pitt St, Bourke St, Walding St, Princess St, Ferguson St) – Main Street – SH3. • Awapuni via College to Victoria, connecting to Ruahine St • Highbury to Roslyn via Featherstone St • Linton/ Massey to City via Tennent Dr/ Fitzherbert Ave **North/South journeys** • Railway Station via Rangitikei Street, city ring route, Fitzherbert, Massey/ Summerhill **Passenger rail** Passenger rail journey between Palmerston North and Wellington via the 'Capital Connection'.	• Dedicated and consistent priority for passenger transport vehicles through space allocation/ prioritisation and other measures to improve reliability and reduce time delay (e.g., bus lanes and prioritisation at intersections such as priority signals). • Journey times are consistently reliable to aid comparability with other modes. • Good quality facilities to support ease of transition between passenger transport and other modes i.e., covered bus shelters, allocated bus stops, timely services. • Stops and interchanges are functional and provide high amenity and personal security for users. • Transfers between public transport services including passenger rail are integrated and easily accessible i.e., buses arrive and leave in line with other bus service connections or train times.

Table 1 | Summary of the Palmy key journeys continued

Cycling (and micro-mobility)

Key journeys	Key principles
• Gillespies Line/ Botanical Rd – Park Rd to Victoria Ave • Cook St (from Park Rd to Cuba St) • Featherston St (from Botanical Rd to Vogel St) • Langley Ave/ Heretaunga St (across the rail line) to Albert St to river cycle/ shared path • Across river connection to off road cycleway connecting to Linton and existing shared paths • Off road cycle connection along the river connecting Ashhurst – Massey University – Linton and the City	• Dedicated facilities that enable a consistent travel speed in a legible, comfortable, and safe environment. • Mix of on and off-road facilities that encourage safe travel for all ages and abilities. Travel speed may be variable to support mixed modes such as e-bikes. • End of trip facilities are provided as necessary to support active travel and are designed to be safe and secure.

Walkable neighbourhoods

Key journeys	Key principles
• Town centre inner precinct, loosely bounded by the inner-city ring route. • Multiple shared paths, walking tracks and footpaths across the city.	• Urban/ inner centre streets and footpaths encourage pedestrian movement through direct access, prioritisation, and good urban design i.e., place-making, street design treatments, and easy crossing facilities. • Neighbourhood streets and footpaths are well designed (using CPTED[1] and urban design principles) to encourage people to walk safely to key destinations i.e., shops, schools, parks, and the river. • Paths and walkways are interconnected so the entirety of a journey can be undertaken safely by foot.

General traffic

Key journeys	Key principles
• All other routes with differing levels of priority mode and movements.	• Safety for all road users is the highest priority. • Journey times can predictable slow if travelling at peak. • Parking and transport policies encourage parking turn over to support centre city retail/ hospitality sectors

[7] Crime prevention through environmental design (CPTED), see for example https://www.justice.govt.nz/assets/Documents/Publications/cpted-part-1.pdf which contains the National Guidelines

Implementing the PTSIP

There are several interventions that can be implemented over time to encourage the key routes for the different modes and customers as per the PTSIP key journeys map. Many of the transport interventions outlined in Table 2 can be delivered through additions to existing activities such as the Low Cost, Low Risk, Safety Intervention, and Maintenance and Renewals programmes. For these actions a more detailed description of the action is included.

Several interventions that enable the key journeys are already planned for and included in these programmes. Other interventions will need to be investigated further, and upon approval, included into appropriate programmes for implementation. In addition, the PNITI programme includes several initiatives including the Streets for People Project, and the more detailed investigations of the outer ring route connecting the Regional Freight Hub to the state highway network.

The starting point for implementing the PTSIP key journeys is changing the way freight accesses destinations along Tremaine and within the Kelvin Grove industrial area. This change frees up much of the city transport system for other modes and customers to use. Many of the initial actions support the primary freight journey, with support actions to implement other journeys within the PTSIP following.

Table 2 | Initial actions to implement the PTSIP key journeys

What	Why	Existing or new	Who
Immediate actions			
Refine and update the Palmerston North Network Operating Framework,	Quantitatively validate the identified strategic journey routes and mode prioritisation to test the feasibility of the functions. Refine the strategic journeys as required. System will function as intended.	New	PNCC/ Waka Kotahi
Review and refine Council's plan/ strategies (i.e., Urban Cycling Network Masterplan) to reflect the PTSIP key journeys	Ensure consistency across Council's plan and strategies is maintained	New	PNCC
Refine the City's parking strategy to support Council's inner-city development plans	Parking management is an important tool to help influence mode choice	Existing	PNCC/ Waka Kotahi
Develop a M&O funding MOU to support the interim use of No. 1 Line/ Tremaine Ave until the PNITI SH ring route improvements are in place	Helps share the M&O cost associated with No. 1 Line/ Tremaine providing a SH function for inter-regional movements	New	Waka Kotahi/ PNCC
Review and refine the low cost, low risk programme	Include improvements to support the PTSIP key journeys	Existing	PNCC/ Waka Kotahi
Work with Horizons Regional Council to consider bus routes and maximise multi-modal accessibility and choice	Ensure the service review and the identification of bus priority and public transport infrastructure is aligned	Existing	Horizons/ PNCC/ Waka Kotahi

What	Why	Existing or new	Who
Refine development planning for future residential growth areas	Ensure community, liveability aspirations and transport outcomes are maximised and adverse effects are minimised	New	PNCC
Actions within the 2021/24 National Land Transport Programme			
Change the layout of SH57/SH56 intersection to encourage use of SH56	SH56 flow to get priority, particularly when turning in SH57	New activity	Waka Kotahi
Intersection improvement at Robert Lines	Support safe access and movement onto/ off SH3	Existing – Vision Zero programme	Waka Kotahi
Change the layout of SH57/SH56 intersection to encourage use of SH56	SH56 flow to get priority, particularly when turning in SH57	New activities (?) within the travel demand management programme	PNCC/ Horizons with Waka Kotahi support
Intersection improvement at Robert Lines	Support safe access and movement onto/ off SH3		
Refine the speed management programme to support the PTSIP journeys	Speed management is an important tool to help influence route choices	Existing	PNCC/ Waka Kotahi
Review and refine the safety improvement programme (Vision Zero)	Identify where safety issues are present, and the form required to help support the PTSIP key journeys	Existing	Waka Kotahi/ PNCC
Longer term actions			
Investigate improvement to SH56 and elevate importance of maintenance and renewal where possible	SH56 is prone to slumping due to soil conditions and hydrology	M&O / New activity	Waka Kotahi
Intersection improvements to turn off SH56 onto No. 1 Line before or after Longburn as per PNITI	Support safer access onto No. 1 Line	PNITI / New activity	Waka Kotahi
Intersection improvements along No. 1 Line	Support safer access along No. 1 Line	Vision Zero programme/ PNITI	PNCC/ Waka Kotahi
Investigate bridges upgrades on SH56 where required	Support heavier vehicles	PNITI/ New activity	Waka Kotahi
Complete a SH review including investigation of revocation of the SH status for Rangitikei St (from Tremaine to Square), and Pioneer Highway/ Main St	Support ability and ease to use for PT journeys	New activity	Waka Kotahi/ PNCC

Reviewing and refining existing transport tools and frameworks to help embed the PTSIP and the strategic journeys

Several of the immediate actions are based on reviewing and updating transport based plans and frameworks to help validate the strategic journeys and embed them into PNITI and operation plans. This is important, as many of the interventions and initiatives to enable the strategic journeys can be completed via the low cost, low risk, safety, and maintenance, operations and renewals programme. The key updates and summary of what is necessary is described below.

One network framework (ONF)

The ONF is New Zealand's national transport classification system and has evolved from the One Network Road Classification into a framework that recognises that integrated planning approaches result in better community and transport outcomes. A key feature of the ONF is the tools to help consistently define the road function across New Zealand based on a movement and place matrix. The ONF will be used to determine the function of each road within the City's transport system and is expected to be adopted by Council through a staged approach to inform the 2024-27 Regional Land Transport Plan and the National Land Transport Programme.

Priority route review

Undertaking a review of priority routes used across Council's strategies and plan is necessary to ensure a consistent and coherent approach is applied through operational plans, and which future strategies and plans can build upon. The journeys and mode priorities identified in the PTSIP will be validated through additional analysis including (but not limited to) interfaces between transport and land use, feasibility of routes for each mode, and identification of key technical and operational constraints.

Network operating plan (NOP) update

The Palmerston North Network Operating Plan (NOP) outlines the operational deficiencies across the transport system by comparing existing operational performance (demand across different modes and capacity) against aspirational levels of service. Going forward there is need to use the NOP level of servic comparison tool to help valididate the strategic journeys outlined in the PTSIP. Doing so allows that NOP to be updated and kept relevant for future improvements and maintenance and operation programmes.

Development of the Roads and Streets framework

The Roads and Streets framework defines the function of streets across Palmerston North's transport system according to a move and place matrix. Council will develop a roads and streets framework as part of the 2021-31 Long Term Plan which will supersede the Streets Design Manual which provides design guidance. The roads and streets framework will build upon the ONF adoption and Waka Kotahi's Aotearoa Streets Guide.

Implementing the actions outlined in Table 2 and those described in more detail above over time will help improve the city's transport system and aid the achievement of Council's community outcomes. The PTSIP provides a useful tool for engaging with communities about how individual projects connect together to improve the city's transport system. Updating the PTSIP journey map regularly to reflect progress and refinements will help ensure the PTSIP continues to remain relevant and support the movement of people and goods throughout the city and region.


Photo credit: ManawatuNZ.co.nz

Appendix A – Community insights

Well maintained roads, paths and streetlighting

The community would like to have:

- Roads that are well maintained and of good quality, and when issues arise i.e., potholes, these are fixed in a timely manner.
- Shared paths, footpaths and cycleways that are well kept, with the berms mown, rubbish removed, and the surrounding flora pruned and maintained.
- Streetlights that are all working and well-lit to support safe travel whether driving, walking, or cycling at night.

Summary of the community insights

- Strong support to increase road and footpath maintenance including timely, good quality fixes i.e., “do it once, do it right”.
- Strong support to increase and improve connected walkways, cycleways, and shared paths.
- Support for marking of cycleways to be clear and bright to increase use and improve safety.
- Support for improved lighting of streets and footpaths so are well lit to improve safety.

Specific community feedback

- We did a lot of cycling around the streets during lockdown. Found there were a lot of potholes and roads needing repairs.
- Regular checking of potholes and infrastructure would help in avoiding major disruptions to flow of traffic.
- Rough road surfaces, manholes, potholes, slippery footpaths, and water ponding on footpaths.
- Street lighting needs to be improved; the new lighting is terrible in most streets.
- Poor lighting on new cycle track on Massey side means zero visibility at night.
- There needs to be a real look at the state of footpaths around the place, they can be problematic for those with a disability or the elderly.
- The green designated bike tracks to the side of the roads are at times in extremely poor condition.
- I cycle to work every day and often into the city. The bikeway down Summerhill has very uneven pavement and is often full of debris. This is quite dangerous as we get going fast downhill.
- Roads and cycleways on the main roads have too much broken glass on them.

68% **of road related comments in annual resident’s survey were on the need to better maintain roads and footpaths.**


Photo credit: ManawatuNZ.co.nz

High quality travel choices

The community would like to:

- Move freely around their neighbourhood and city centre by having easy access to a range of different travel options for work, study, or leisure.
- Rely on how long each trip will take and how much it will cost, so they can make an informed choice.
- Use a well-connected public transport system to access neighbourhoods, shopping centres, schools, employment, and the city.
- Travel on buses that are comfortable, run frequently, and are a comparative cost to driving their car.
- Have easy access to parking facilities, that are comparatively priced, and are well connected to activity centres and other modes of transport.

Summary of the community insights

- Walkways, cycleways, and shared paths are seen as significant assets to the community.
- Strong support to create more separated and safer cycle routes.
- Support for more frequent and extended public transport services.
- Support for increased inter-regional rail connectivity, service quality and affordability.

Specific community feedback

- It would be more attractive if there are more walkways in the city,
- Recent changes to bus schedules have been inconvenient. Definitely need better options for the road now that traffic has increased.
- We are lucky to have such easy flat open roads in Palmerston North compared to other New Zealand cities. They allow for much more cycleway development. There is much more potential for cycling which should really be considered.
- I try to avoid riding on the marked bicycle only lanes as much as possible. I'd rather ride the footpath in the areas I consider dangerous or a safety hazard for example the cycle lane on Pioneer Highway.
- Approaching roundabouts when cycling can be dangerous as cycle lanes cease and one has to merge with cars and large vehicles.
- The network of cycle ways is poorly implemented and not well integrated. Pedestrians are poorly served with legally defined pedestrian crossings.
- The development of the cycle lanes throughout the city feels positive and effective.
- Needs to be safer for pedestrians to cross Featherston Street between Russell Street and the PNBHS Crossing. There is no crossing at all between these two.

43%

of residents in the annual survey indicated that they use a walkway or shared path more than once a week.


Photo credit: ManawatuNZ.co.nz

Strong connections to the Manawatū River

The community would like to:

- Have easy access to the Manawatū River from multiple points across the city and via all modes of travel.
- Use high-quality shared pathways along the river, that are well connected to the city centre, University and surrounding town and neighbourhood centres.
- Have many opportunities to socialise and enjoy the Riverfront including walking their dogs, cycling, running, and playing along the waterway.

Summary of the community insights

- Strong support for the many connected walkways, shared paths, and pedestrian bridge to and along the river. Support for increased access including additional walkways, shared paths connecting to the river.
- Strong support for the Manawatū River Plan.
- Highly valued community asset that sees extensive public use.

Specific community feedback

- The Riverside walkway is fantastic. Looking forward to the extension to Ashurst. Love the Esplanade, the bush and fern walks are beautiful.
- The esplanade is the jewel in Palmerston North's crown and much love for the new pedestrian bridge over the river.
- Love the walking bridge.
- My children and I love going to the various parks, playgrounds and walking along the walkways and river.
- Excellent to keep improving the walkways by the river.
- The new cycle track to Linton and the bridge over the river are fantastic

Shared spaces where everyone wins

The community would like to see:

- Walking, cycling and shared paths within the city and neighbourhoods that are well used and enjoyed.
- Good signage and road treatments that clearly show and support different transport users.
- People take their time and share the road, lane, or path, so that everyone is safe and enjoys their experience.
- Children cycling safely to school with good choices of using shared paths or dedicated cyclelanes.
- Footpaths, roads, and crossings within the city centre that are well designed to ensure pedestrians feel safe and can move about freely.
- A city centre where cars and bikes take their time, slow down, and give way to people walking and enjoying the inner precinct.

Summary of the community insights

- Strong desire to have 'users' safely sharing the paths and roads i.e., walkers and cyclists on shared paths, and cyclists and cars/trucks on roads.
- Strong support for city centre streets to be more pedestrianised and become brighter, and more interesting and engaging for people i.e., activation designs and events.
- Desire for an 'Eat Street' experience in city centre streets.
- Support for low-speed neighbourhoods (including around school zones).
- Support for removal of trucks off urban roads.

Specific community feedback

- The bikers on the shared walkways seem to think they own them, and the walkers are just a pain.
- Walkways need to be made wider for people and bikes.
- The general attitude of road users are not overly respectful of cyclists.
- It would be good to see the cycleways prominent like in Hawkes Bay, the whole lane is painted not just sections of the lane.
- Broadway, Main St East, and George St should be pedestrianised and covered.
- I totally agree with Palmerston North City Councils vision of reducing traffic and parking in the central city to make it a more pedestrian and bike-friendly area.
- I am permanently in a wheelchair. A lot of kerbside gutter crossings are very difficult.
- Improve city centre streetscape, Broadway, Square etc, to be more people friendly (or pedestrianised) and to provide a better outdoor shopping experience.

The right mode on the right road

The community would like to see:

- Different transport journeys that are well designed to encourage different modes of travel to avoid conflict on main roads and shared pathways, such as for large trucks, cycling or pedestrians.
- Cycleways and shared paths that are clearly marked and signposted, so they are safe to travel on with other traffic.
- Different treatments on different journeys to support cyclists whether they are commuting to work, biking to school, or cycling for recreation.
- Local goods and services have easy access to distribution points around the city, through dedicated journeys, to access business, industry and neighbouring centres."

Summary of the community insights

- Concerns about freight vehicles frequently being in urban areas and on urban streets.
- Strong support for safe, and where appropriate separated, cycle lanes on roads.
- Strong support for enabling higher use and access to public transport i.e., clearer timetables and routes, higher frequencies.
- Support for spending less on public transport and active modes and putting higher emphasis on general traffic and parking.
- Support for the 'Streets for People' programme.
- Concern that existing parking will be removed.

Specific community feedback

- I would feel safer biking if there were dedicated cycleways along the street, physically separated from traffic.
- Too many heavy trucks move through inner-city streets, tearing up sealing and creating potholes.
- Very scary as a cyclist coming from the Square on Main Street with free turn on Pitt Street traffic block. Get caught between merging trucks and cars behind.
- There is no coherent signage to avoid the square and consequently lots of traffic jams up the Square.
- It would be good if traffic lights along stretches of road such as Main Street could be synchronised so that a vehicle travelling at the speed limit doesn't get a red light. Currently you encounter several red lights with some drivers speeding to avoid the next one.


Photo credit: ManawatuNZ.co.nz

Future focused infrastructure

The community would like the:

- City to be well planned for growth, including provision for critical infrastructure.
- Planning of the transport system to be aligned with land use development so that new housing and businesses are well integrated and support existing people's lifestyles and livelihoods.
- City's new growth areas to be supported by multi-model transport options, including good public transport, and connected walkways and cycleways, so that people have a choice, rather than just private vehicles.

Summary of the community insights

- Good support for how the city is developing.
- Support for more medium and high-density housing to attract and drive new opportunities.
- Desire for city zoning to plan for development clusters around active and public transport.
- Desire for Council to ensure basic infrastructure is in place to support growth i.e., water, transport, pipes, footpaths, and parks.
- Concerns that new greenfield expansion will increase car dependency.
- Requests for mitigation from increased noise, pollution and freight movements perceived by the new regional freight hub.
- Support for a new river crossing/ bridge to accommodate growth.

Specific community feedback

- Make sure that all infrastructure is keeping up and is considered with all the increased in and out build of Palmerston North.
- The roading seems to be slowing at peak times moving forward the city should not look at expanding its size till the road infrastructure improves.
- Traffic tends to really block up at main arterial routes, for example Tremaine and Featherston at rush hours. The intersection of Featherston and Rangitikei is particularly bad. Traffic seems to have got worse over the past couple of years, don't know if this is population growth or what, but it seems noticeable.
- The Railway Land could be developed to encourage walking and socialising.
- Zone key parts of the city centre to ensure mixed use outcomes.
- Motor vehicles need to be the last priority for transport to enable places where people want to be.

PALMY

WAKA KOTAHI NZ TRANSPORT AGENCY

MEMORANDUM

TO: **Economic Growth Committee**

MEETING DATE: **22 February 2023**

TITLE: **Process and options to establish and enforce heavy vehicle routes**

PRESENTED BY: **Vinuka Nanayakkara, Senior Transport Planner; Peter Ridge, Senior Policy Analyst**

APPROVED BY: **David Murphy, Chief Planning Officer**

RECOMMENDATION TO ECONOMIC GROWTH COMMITTEE

1. **That the Committee receive the memorandum titled 'Process and options to establish and enforce heavy vehicle routes' of 22 February 2023 to the Economic Growth Committee.**

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1. ISSUE

On 24 November 2021, the Finance & Audit Committee resolved that the "Process and options, including the use of bylaws, to establish and enforce heavy vehicle routes in the city's transport network" be presented to the Planning & Strategy Committee.

2. BACKGROUND

Palmerston North is home to a regionally and nationally significant hub for freight, logistics and distribution activities with aims to build on the existing activities to remain competitive as the primary freight distribution hub in the lower North Island. This provides a significant economic opportunity for the city, while also placing pressures on existing infrastructure. Increases in the number of heavy vehicle movements associated with this growth are creating safety and efficiency issues on the transport network as well as impacting road quality. The strategic response to these issues has been slow and uncertainty remains over when improvements will be delivered and when growth will occur.

As Palmerston North has grown, residential areas have developed in and around industrial areas resulting in access, safety, and amenity issues, particularly due to freight movements. A key reason for this is the lack of an explicit and coherently implemented road hierarchy – i.e. obvious differences between high order and low order. While traffic volumes are still relatively moderate, growing demand is expected to further exacerbate these issues.

The quality of Palmerston North's road surfaces has been steadily decreasing over the past five-years, with particularly high deterioration rates observed on the city's busiest roads. Several factors have contributed to this, including increases in the volume and weights of heavy vehicles on Palmerston North's roads, poor underlying ground conditions, service and utility trenches and a lack of investment for many years, particularly in inter-regional routes for heavy traffic.

Mixed residential and industrial areas, road network deficiencies on sections of the identified freight route and a lack of suitable (i.e. optimised) routes for freight movements results in heavy vehicles often re-routing through residential areas. This results in higher than expected freight volumes on streets that were never intended to cater for such demands. Modelling undertaken to inform the PNITI Network Options Report showed relatively high volumes of truck movements through predominantly residential streets, including past schools and community facilities.

Heavy freight movements tend to be governed by functions of time taken and distance travelled, and Council's 2018 freight demand study suggested that heavy vehicles are permeating across the city's network to find the easiest and most convenient route to reach their destinations, regardless of the suitability of the roads chosen.

Figure 1 presents the weekday Heavy Commercial Vehicle (HCV) demand across Palmerston North's transport network in March 2018, sourced from EROAD fleet data. The highest volumes of heavy freight traffic are generally observed on Tremaine Avenue / Number One Line, across Kelvin Grove, the North East Industrial Zone and along the numerous State Highway (SH3, 54, 56 & 57) corridors across the city. In addition, increased heavy vehicle traffic was also observed along streets with higher emphasis on residential land-use such as Park Road, Maxwells Line, Te Awe Awe Street, Albert Street, Ruahine Street and Botanical Road, suggesting the freight hierarchy is not well defined. Opportunities therefore exist to further encourage freight traffic to use particular routes that are currently more suitable, implement changes to the network to make certain routes more attractive, or to disincentivise freight traffic from using certain routes across the network.

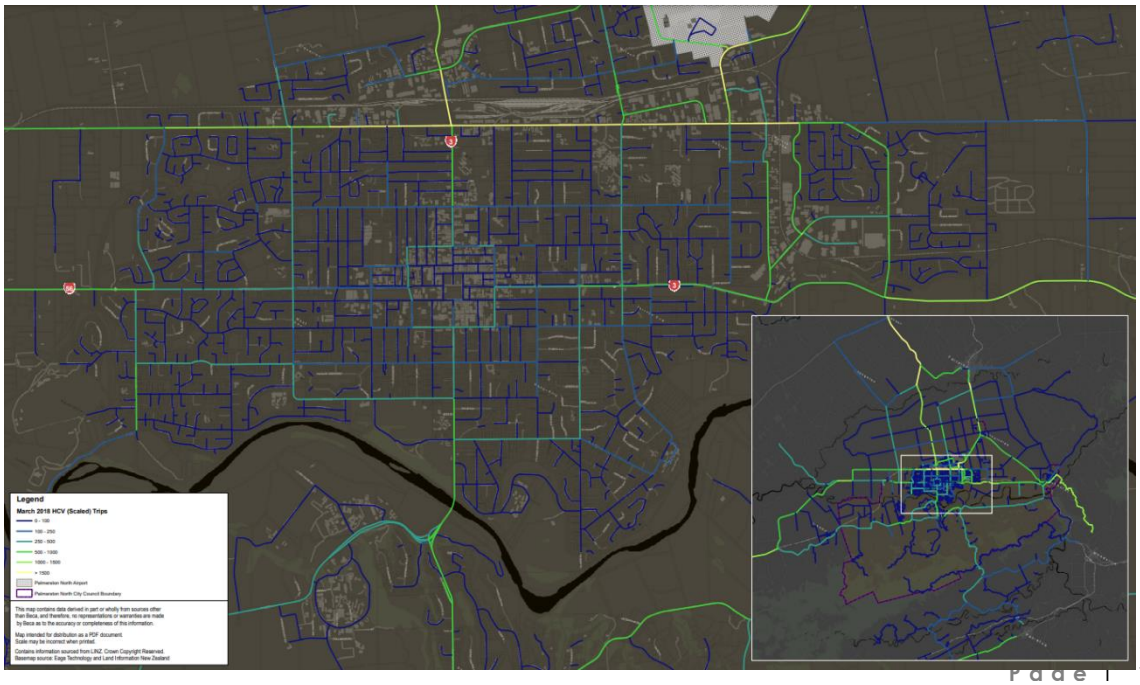


Figure 3 - Weekday Heavy Commercial Vehicle Demand in March 2018

3. OPTIONS TO ESTABLISH HEAVY VEHICLE ROUTES

The identification and establishment of "heavy vehicle routes" or any other priority routes based on mode can't be done without considering a number of parameters such as current and future land-use, strategic city-wide goals, speed limits, roading hierarchy, engineering feasibility and condition of road assets among others.

As freight movements will utilise the quickest, most direct and most reliable routes regardless of the types of activities occurring on or along any particular road, it's likely that heavy vehicle traffic will not utilise any specified priority freight routes unless there are significant time, distance and/or efficiency benefits for operators. Therefore, maintaining a route that is appealing for heavy vehicle traffic is largely attributed to the infrastructure along a route.

While the roading infrastructure along priority freight routes may support heavy vehicle traffic, other factors need to also be considered and evaluated. For example, land-use (i.e. residential properties or school entrances fronting onto a road), asset condition (i.e. understrength pavements) and other transport priority routes (i.e. buffered cycleways or bus priority routes) may mean certain corridors are unsuitable as a freight priority route.

Standard transport planning practice will seek to determine whether adverse impacts will be generated by placing unreasonable demands for what street may be able to safely and realistically accommodate, and then seek to mitigate these impacts across the network.

Council has requested advice on the available tools that can be used to manage the impacts of heavy traffic. As it stands, there are two distinct approaches available to identify and establish heavy vehicle routes:

Option 1: Palmerston North Integrated Transport Initiative (PNITI)

PNITI is Palmerston North's overarching and integrated land-use/transport plan containing a series of actions across the short, medium and long term to manage the impacts of heavy vehicle traffic across the city's urban network. It balances Palmerston North's aspirations of being a strategic cog in the national freight supply chain with the need to ensure that amenity, road safety, transport emissions and liveability aspects are also improved across the city.

PNITI aims to achieve several benefits across the short, medium and long term, including:

- Reduction of heavy vehicle movements on residential (place-based) streets by up to 50%;
- Reduction in the number of congested intersections by 50%;
- Improvements in journey times on key freight routes by up to 10 minutes; and

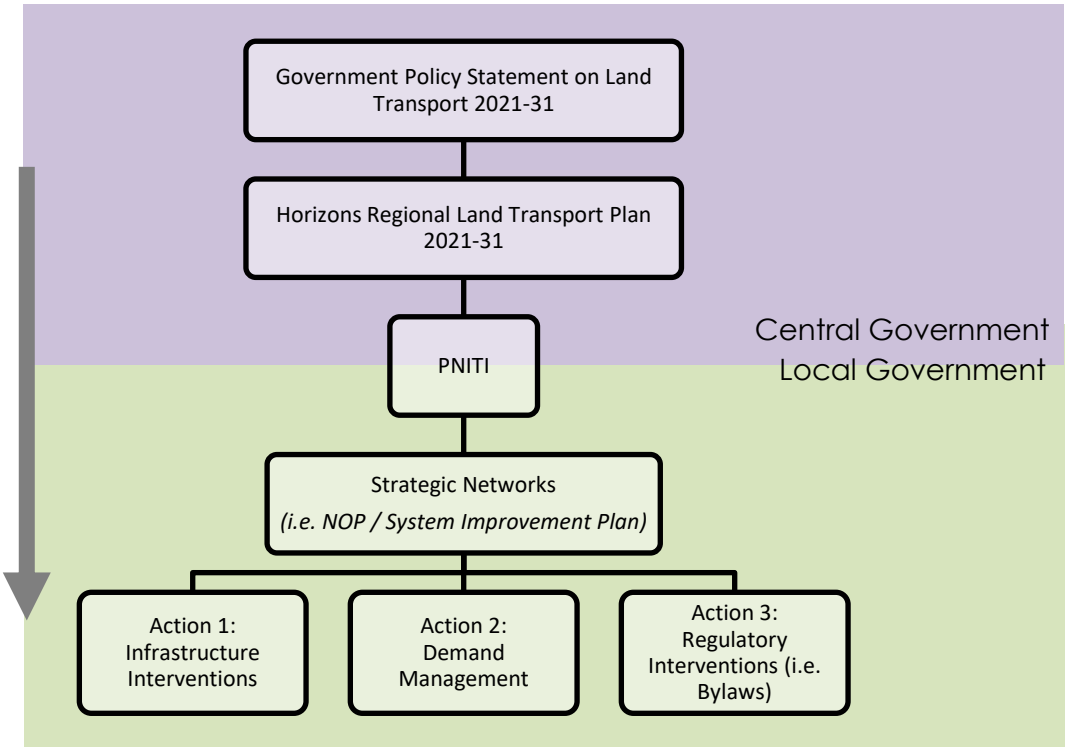
- Supporting economic development around the North East Industrial Zone (incl. KiwiRail Freight Hub).

The first step in PNITI is the development of strategic priority routes for the different modes of transport across Palmerston North – referred to as the System Improvement Plan, delivered within Waka Kotahi's Network Operating Planning (NOP) process. The NOP is a nationally recognised process for prioritising different modes along streets, which in turn informs where interventions/investment should be focused. It also identifies where potential trade-offs may be required to achieve the intended strategic transport outcomes.

Palmerston North's newest NOP – referred to as the **Strategic Networks** – identifies the core functions of key routes and significant places across the city by accounting for the outputs of several existing transport plans and strategies (i.e. District Plan, Urban Cycle Network Masterplan, City Centre Framework etc.). This then allows for an objective and evidence-based process to establish the most appropriate routes for heavy vehicles while also effectively balancing access, place, and transport amenity.

The use of a Waka Kotahi planning process is highly beneficial to the city as direct links can be drawn between Waka Kotahi's funding processes and Council's strategic transport plans.

The development of Palmerston North's Strategic Networks (NOP) commenced in early 2021 and featured close collaboration with officers from Waka Kotahi and Horizons Regional Council (HRC). The Strategic Networks will be brought to committee in 2023, alongside this report.



Option 2: Provisions within the Traffic & Parking Bylaw 2018

The Traffic and Parking Bylaw sets out the controls and restrictions that the Council can impose on how roads are used and is made pursuant to Section 22AB of the Land Transport Act 1998. The Bylaw sets out Council's right to define and restrict the use of local roads (i.e. those that are not private or State Highways) and defines the methods of signifying controls on the use, stopping, standing and parking of vehicles on roads and Council controlled places in Palmerston North.

With respect to the use of local roads, the Bylaw enables Council to:

- *"Prohibit or restrict, absolutely or conditionally, any specified class of traffic or any specified motor vehicles or class of motor vehicle that, by reason of its size or nature or the nature of the goods carried, is unsuitable for use on any road or roads."*
- Restrict the driving of livestock "*along or across any road in the urban area of the district*" unless "*the person driving the stock holds a permit issued by the Council, and complies with the conditions of that permit."*
- Restrict the transportation of stock in heavy motor vehicles across all roads within the "Inner Ring Road" – bounded by Princess Street, Ferguson Street, Pitt/Bourke Street and Walding/Grey Street – at all times.

With respect to parking restrictions on local roads, the Bylaw currently enables Council to:

- *"Limit the stopping, standing or parking of vehicles on any road to vehicles of any specified class or description of vehicle"*
- *"Prohibit or restrict the parking of heavy motor vehicles, or any specific class or description of heavy motor vehicle, on any specified road during specified hours for a period that exceeds a specified period."*

Changes to the existing Bylaw can be made at any time by Council provided appropriate consultation occurs in accordance with the decision-making requirements of Section 82 of the Local Government Act 2002 and with sufficient justification and supporting evidence – albeit possibly less than a transport planning approach if appropriate planning work has not been undertaken.

If an absence of strategic transport plans existed alongside a desire to implement interventions prior to completing the necessary technical analysis, the relatively quick (6-12 month) process of pursuing a regulatory approach to solve the issue would have merit.

Bylaws are not the principal instrument for setting strategic direction or establishing policy. Instead, they are best reserved for implementing regulatory approaches that support strategic or policy direction. A bylaw that imposes restrictions without the necessary supporting strategic considerations is more likely to be ad hoc and lead to unintended consequences and poor outcomes, such as are inconsistent with

wider strategic transport planning, land-use planning and/or the rest of Council's transport infrastructure delivery programme

Furthermore, any prohibitions/restrictions on specific routes because of the size of the class of traffic raises the risk of legal challenges on the grounds that it may be unreasonable. A bylaw which is based on a sound strategic evaluation of the transport network and was able to show evidence of the unsuitability of that route for that class of traffic, then it is more likely to withstand a legal challenge. However, it could still be argued that an individual vehicle alone is suitable, even if the class of traffic is creating an unreasonable burden on the route. A regulatory approach alone, therefore, may not be the most effective way of redirecting heavy vehicles to use priority routes.

Analysis of Options 1 & 2

	Option 1: PNITI	***Option 2: Bylaw***
Pros	- Any priority routes are considered within the city's existing strategic context, therefore more likely to achieve the intended outcomes - Identified priority routes can be included in the existing work programme focused on resolving negative impacts of heavy vehicle traffic, hence no added requirement for staff/resources - Maintains alignment with other ongoing transport interventions & land-use planning/projects - Opportunities exist to receive Waka Kotahi co-funding for planning & operational work	- Provides a very clear and concise way of identifying the routes on which heavy vehicles are restricted.
Cons	- No official/legal status designated to specific roads	- Potential legal issues with imposing restrictions on routes that are technically able to accommodate heavy vehicles

		- Independent of the existing strategic transport context, therefore more likely to have wider strategic implications if interventions aren't appropriately evaluated, tested and consulted on - Bylaw amendment process is additional to existing workload and will require specific funding or existing work to be reprioritised

4. IMPLEMENTATION & OPERATION OF HEAVY VEHICLE ROUTES

Regardless of how priority routes for heavy vehicles are identified, achieving compliance with the routes is critical to ensuring the intended outcomes are met. Ensuring a high degree of compliance with heavy vehicle routes can be done through two approaches:

Option 1: Infrastructure Detuning/Optimisation

Disincentivising certain routes while optimising others for heavy vehicles is the most effective way to achieve desired changes to the routes chosen by heavy vehicle traffic. The former can be achieved in a number of ways such as the narrowing of roads, installation of speed bumps / raised tables (Figure 2), tighter turns (Figure 3) and the signalisation of currently uncontrolled intersections (Figure 4).

Figure 2 - Example of raised pedestrian / cycling crossing (Bike Auckland)

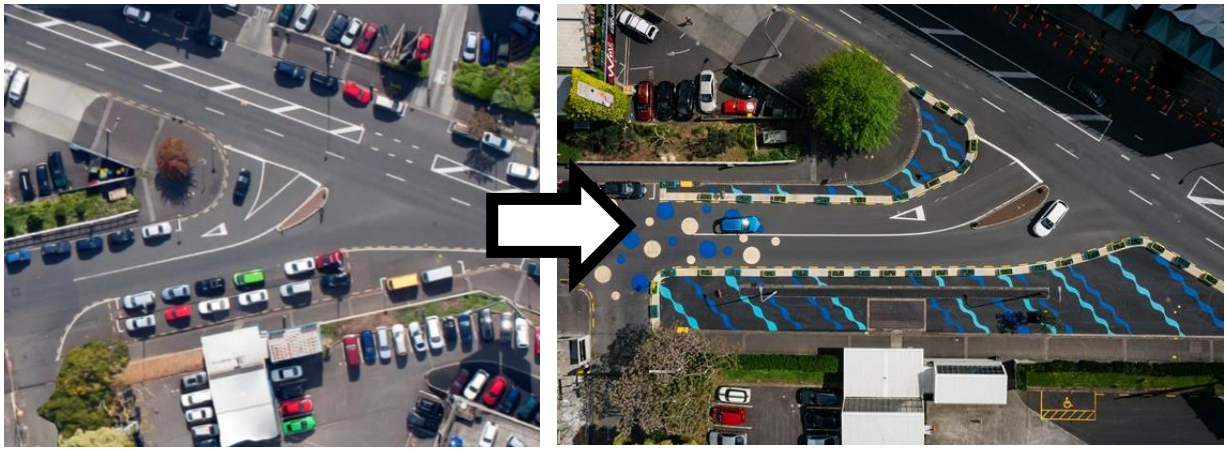


Figure 3 - Example of curve radii tightening (Auckland Council)

Figure 4 - Example of signalised intersection (PNCC)

Infrastructure interventions generally provide valuable new opportunities to improve the quality of urban realm for pedestrians and people on bikes since road space can be reallocated in favour of active modes, existing safety risks can be reduced, and road space is repurposed for treatments such as increased vegetation.

While infrastructure interventions have a relatively high capital cost for implementation, they benefit from not requiring significant operational expenditure for additional ongoing compliance monitoring and active enforcement.

However, the degree to which treatments can provide the intended outcomes is highly contextual and requires specific technical analysis for each location. Any infrastructure changes implemented to re-route heavy vehicle traffic will need to cause significant increases to either the distance travelled, or additional time incurred by heavy vehicle movements for the interventions to have any tangible

return on investment. This can be highly unpopular since any impacts on heavy vehicle movements are likely to also affect general traffic.

The effectiveness of any interventions will also depend on whether more suitable and/or preferable routes for heavy vehicles exist. The optimisation of traffic signals and installation of slip lanes and (rural) roundabouts among other interventions along preferred freight priority routes alongside any detuning efforts is key to ensuring that the outcomes Council are trying to achieve are realised. It's also critical that all interventions be aligned to existing strategic (national, regional and local) transport plans so the likelihood of changes to Palmerston North's transport network contradicting each other is fully mitigated.

Improving the efficiency of traffic flow along routes more appropriate for heavy vehicles – i.e. Tremaine Avenue, Fitzherbert Avenue, Pioneer Highway and State Highway 3 – may achieve similar outcomes to attempting to slow freight traffic on more "place-based" streets. The optimisation of through movements at existing signalised intersections and reduction of "side-friction" (e.g. on-street carparking) among other interventions all contribute to the reduction or reliability of travel time and/or distance, making certain routes far more attractive for operators to use.

Improving the efficiency of certain routes is likely to have a significantly more positive public and operator response in addition to the relatively low ongoing operational monitoring and enforcement resourcing requirements. Any such interventions should still be aligned to all local and regional strategies to ensure that the intended outcomes are achieved while minimising any unintended impacts to residents along certain routes.

Option 2: Regulatory Approaches

All regulatory approaches that are employed by Council to implement heavy vehicle priority routes will be governed by the Traffic and Parking Bylaw – in turn governed by Section 22AB of the Land Transport Act 1998 – and will require ongoing active monitoring and enforcement to ensure a high degree of compliance.

Under Section 128E of the Land Transport Act 1998, Parking Officers have the authority to enforce stationary vehicle offences only (i.e. parking violations and expired WOF / Registration offences). While the Police can legally enforce both stationary and moving vehicle offences (i.e. speed limits & state highway weigh-stations), they tend to leave the former to councils unless an event poses a significant safety hazard to the public.

Therefore, the responsibility of enforcing any future bylaw amendment would lie with the Police. Effective enforcement would also require a new monitoring programme to identify offending vehicles (either officers physically observing compliance or installation of traffic cameras) and collect evidence of breaches of the bylaw for prosecution. However, the cost of prosecution combined with typically small fines set by the Court following conviction would likely make this a cost-inefficient approach for Council.

No resources – both staff and equipment – or budgets currently exist to undertake the active enforcement of heavy vehicle routes across Council staff, and the capacity for the Police to enforce any future heavy vehicle restrictions has not been evaluated for this memo.

Additionally, using Clause 10 to prohibit or restrict certain routes for specified types of vehicle could be impractical and expensive to enforce. Signage along the route would be required to communicate the prohibition or restriction, and if the intent is to divert heavy vehicles to a preferred route, then it would likely require signage across all the other roads across the city deemed not suitable for heavy vehicles.

The installation of signage requires technical analysis to identify safe and appropriate locations for signs, as well as extensive engagement and consultation with operators and the general public, in addition to targeted engagement with adjacent property owners where existing infrastructure may not currently exist. While the unit cost of signage will be relatively low, the number of signs that may be required along certain routes in addition to supporting infrastructure (i.e. poles, lights, footings) and the purchase of land if required likely means the use of signage may be a cost-intensive process. Budget and resources do not currently exist for the installation of signs restricting heavy vehicle traffic, hence both will need to be sought from the reallocation of other existing activities.

Analysis of Options 1 & 2

	Option 1: ***Infrastructure Detuning/Optimisation***	***Option 2: Regulatory Approaches***
Pros	- Many infrastructure interventions likely require little to no active and/or ongoing enforcement - Considered within the city's existing strategic context, therefore more likely to achieve the intended outcomes - Included in existing work programme focused on resolving negative impacts of heavy vehicle traffic, hence no added requirement for staff/resources - Maintain alignment with	

	other ongoing transport interventions & land-use planning/projects - Co-funding opportunities exist from Waka Kotahi for capital new and maintenance work - Interventions are likely to have the intended effects over the life of the assets (i.e long-term)	
Cons	- Some interventions will be dependent on the delivery of preceding projects, hence achieving the intended outcomes may be dependent on Council's commitment to the wider programme - Interventions are likely to have high capital costs and require further technical analysis & design work before implementation	- Council has no ability to enforce moving vehicle offenses - Enforcement sits with the Police whose capacity and willingness to take on the responsibility is unknown - Likelihood of compliance is low, as low fines are unlikely to act as deterrent to operators - High ongoing costs & officer time attributed to ongoing monitoring and prosecution

5. ADDITIONAL OPTION FOR CONSIDERATION

Engagement with Freight Operators

A cost-effective approach which will likely achieve similar or better outcomes than the regulatory or infrastructure approaches outlined would be to proactively engage and collaborate with the largest freight operators and other identified heavy vehicle operators across Palmerston North to develop preferred routes for heavy freight. While involvement from industry would be voluntary, operators may either consider voluntarily changing their routes if the Council can present valid reasons for the removal of heavy vehicle traffic along certain routes. Collaborating with operators also provides a valuable opportunity to test and evaluate potential future interventions before implementation and maximise the possibility of success.

This approach is already being undertaken for the development of the Te Utanganui – Central New Zealand Distribution Hub Masterplan and will form a key role for the continuation of the PNITI programme.

6. COMPLIANCE AND ADMINISTRATION

Does the Committee have delegated authority to decide? If Yes quote relevant clause(s) from Delegations Manual	**Yes**
Are the decisions significant?	**No**
If they are significant do they affect land or a body of water?	**No**
Can this decision only be made through a 10 Year Plan?	**No**
Does this decision require consultation through the Special Consultative procedure?	**No**
Is there funding in the current Annual Plan for these actions?	**No**
Are the recommendations inconsistent with any of Council's policies or plans?	**No**
The recommendations contribute to Goal 1: An Innovative and Growing City	
The recommendations contribute to the achievement of action/actions in Transport	
Contribution to strategic direction and to social, economic, environmental and cultural well-being	Options developed in this report will assist in achieving the action prioritise transport programmes that deliver on Council goals, the purpose of the Transport Plan, and the Government Policy Statement on Transport.

ATTACHMENTS

Nil

Report

TO:	**Economic Growth Committee**
MEETING DATE:	**22 February 2023**
TITLE:	**Main Street Cycleway - Permanent Solution Decision**
PRESENTED BY:	**Hamish Featonby - Group Manager Transport and Development**
APPROVED BY:	**Sarah Sinclair, Chief Infrastructure Officer**

RECOMMENDATION TO COUNCIL

1. **That Council endorse Option 1: Retain the existing Pioneer Highway shared pathway infrastructure until it reaches the end of its useful life and replace it and progress the remaining pieces as a permanent solution to create a complete and safe cycleway along that route.**

RATIONALE FOR THE RECOMMENDATIONS

1. OVERVIEW OF THE PROBLEM OR OPPORTUNITY

1.1 The cycleway infrastructure that replaced the planter boxes on Main Street West was intended as semi-permanent until a permanent solution could be designed. An opportunity exists to keep that infrastructure in place until it reaches the end of its' useful life, rather than replace it now, as it is proving effective in place.

1.2 This would reduce the scope of the planned permanent and route completion work to include only the construction of the missing pieces between that cycleway and the shared path on Pioneer Highway.

2. BACKGROUND AND PREVIOUS COUNCIL DECISIONS

2019 Urban Cycle Network Masterplan, 2021-31 10 Year and Transport Plans

2.1 Council adopted an Urban Cycle Network Masterplan in 2019. Its purpose is to map out an investment programme for the urban cycle network and to create an environment and culture that encourages more people in Palmerston North to choose cycling more often. The Urban Cycle Network Masterplan commits Council to (but not limited to):

- Expand the network of cycle lanes, including physically separated cycleways

2.2 The implementation of the Urban Cycle Network Masterplan was endorsed in the most recent 10 Year and Transport Plans. The Transport Plan signals that

one of the key measures of success for the plan is an increase in walking and cycling. The Transport Plan also highlights that in Palmerston North only a small proportion of total trips incorporate active transport, that fatal and serious injury crashes involving cyclists continues to increase and that the perception of cycling as unsafe is a key barrier to an increase in cycling uptake.

2.3 The Innovating Streets for People was a Waka Kotahi NZ Transport Agency initiative during 2019-21 period that aimed to make it easier for councils to create safer, healthier and more people-friendly towns and cities. The Innovating streets pilot fund supported quick, low-cost interim improvements focused on delivering streets that put people first. The projects involved users, businesses, residents, iwi and stakeholder groups to ensure the design was appropriate. One of the outcomes of the programme was to build capability in this approach across the country so more councils could start to take this approach to street changes, making the necessary alterations in a faster and more responsive way.

Innovating Streets – Main Street West "Planter Boxes"

2.4 Following public consultation, the Urban Cycle Network Masterplan 2019 confirmed Main Street West/Pioneer Highway as a priority route for the development of a separated cycleway.

2.5 In April 2021, Council successfully gained 90% co-funding from Waka Kotahi (NZTA) Innovating Streets programme to trial a cycleway along Main Street West, between the intersection of Pitt Street and Botanical Road, using coloured planter boxes and other materials as separators.

2.6 Although extensive engagement was conducted with the community prior to installation, previous Council reports have reported on the mixed success of the planter boxes.

2.7 Many cyclists were satisfied with the increased safety they enjoyed along the physically separated cycleway, while other road users and members of the public voiced their concerns about a range of issues, both through social media and the contact centre. The boxes were subjected to some vandalism, and created some operational issues to manage them, many of which were resolved.

2.8 A road safety audit conducted by BECA in June 2021 recommended improvements to some moderate and minor issues. This focussed predominantly on risk to life, and found that while the cycleway generally worked well, several issues required resolving. These issues related to intersection conflicts, planter box stability and visibility, narrow cycle lane and on street parking/loading conflicts, drainage maintenance and refuge collection access. The visibility issue in particular resulted in several vehicle to box conflicts.

2.9 Cycle count monitoring showed that user numbers almost tripled within the first month of operation (from 6/hr in November 2020 to 17/hr in May 2021), a

notable result given the seasonal differences. Follow up user surveys found that 90% of intercepted cyclists rated it highly positively (overwise neutral), compared with 0% previously (overwise neutral or negative).

2.10 Officers recommended to Council that whilst the trial of the cycle lane was a success, plastic planter boxes were not a viable solution alongside live traffic and would not be used again in a roadway environment in Palmerston North.

Figure 1: Planter Boxes on Main St West

Temporary Solution

2.11 At the Council meeting on 6 April 2022 Council resolved "That Council removes the 'planter boxes' as soon as practicable and replaces immediately with an alternative solution before the permanent cycleway is in place."

2.12 Fulton Hogan were instructed and subsequently installed just under $60k worth of Vanguard separators and posts in place of the Planter Boxes and stored the Planter boxes at the Depot. The majority of the Planter Boxes were subsequently donated to the public through an expression of interest process.

Figure 2: Temporary Vanguard separators and posts

3. OPTIONS

3.1 The tables below describe the options being considered for Main Street West from Pitt Street through to Pioneer Highway. The pictures below the tables provide context to the options discussed.

OPTION 1:	**(a) Keep the infrastructure already there until it reaches the end of its useful life and then replace it** **(b) Construct the remaining pieces as a permanent solution to create a complete and safe cycleway along that route**		
Community Views	Not recently tested. Parts of the community will be expecting a decision consistent with the previous resolution of council to construct a permanent solution.		
Benefits	The community will receive a complete and cohesive cycleway with investment only required to fill the gaps. Deferral of replacement costs of existing infrastructure for approximately 5 years.		
Risks	Existing infrastructure not lasting as long as expected so requiring replacement or upgrade sooner. Not seen to be delivering on the previously signalled permanent solution.		
Financial	Existing Infrastructure	Completing the Route	Operational on existing cycleway
	$0	$750k	$5k per year
Permanence of Decision	Can change decision in the future to permanent solution. Cannot easily change decision to complete the route.		

OPTION 2:	**(a) Keep the infrastructure already there until it reaches the end of its useful life and then replace it** **(b) Do not construct the missing pieces of that route.**		
Community Views	Not recently tested. Parts of the community will be expecting a decision consistent with the previous resolution of council to construct a permanent solution.		
Benefits	No capital investment required until end of useful life of the infrastructure in approximately 5 years.		
Risks	An incomplete cycle route leaves a safety risk and a potential for a lower uptake of cycling. Not seen to be delivering on the previously signalled permanent solution.		
Financial	Existing Infrastructure	Completing the Route	Operational on existing cycleway
	$0	$0	$5k per year
Permanence of Decision	Can change decision in the future to a permanent solution and to complete the route.		
OPTION 3:	**Replace the infrastructure already built with a more permanent solutionConstruct the missing pieces as a permanent solution to create a complete and safe cycleway along that route.**		
Community Views	Not recently tested however this is the option the public are expecting currently given the earlier resolution passed by Council. There is potential for a negative reaction to replacing infrastructure at that location again so soon.		
Benefits	A more permanent solution now would mean a longer timeframe before renewal is required and less operational maintenance over the short to medium term. The community will receive a complete cohesive cycleway along that route.		
Risks	Reputational risk from removing functioning infrastructure to replace it with a similar but longer lasting solution.		
Financial	$470k to replace the existing infrastructure with a more permanent solution and $750k spent on the gaps.		
Financial	Existing Infrastructure	Completing the Route	Operational on existing cycleway
	$470k	$750k	$0
Permanence of Decision	Cannot easily change decision to replace with permanent infrastructure and complete the route.		

3.2 Plan view of the existing temporary infrastructure in blue, a new signalised crossing in red and the missing pieces to connect the route to the rest of the network in green.

3.3 Location of the new signalised crossing. This location would create no material impact on the entrance to the shopping centre and would provide a safe crossing for cyclists and pedestrians to either continue away from the city centre along a shared pathway but also to access Burns Avenue. It would replace the pedestrian refuge currently in place.

3.4 Example location of the new sections of shared path that will complete the route. Note that current design will avoid removal of any trees but may require some minor pruning in some instances.

3.5 Possible permanent solution example. In a similar manner to the intersection of Main and West Street, a permanent solution would likely include concrete separators because of the risk.

4. FINANCIAL

4.1 Operational

The temporary separators require some ongoing maintenance, specifically to replace the posts as they are damaged occasionally. Based on the costs since installation, officers predict a $5k investment required per year from the Traffic Services Maintenance budget. This requirement will be included in the LTP discussions for future budgets but for the 2022/23 financial year it can be accommodated.

4.2 Capital Renewal / New

When the temporary separators have reached the end of their useful life in approximately 5 years a decision will be required on whether to replace with similar or to improve to a more permanent solution such as concrete. Based on todays' prices a like for like replacement would cost $60k plus installation of approximately $40k and a permanent one closer to approximately $470k including installation. At this time there is no budget for this work in the 2022/23 budget or signalled for the 2023/24 budget. Depending on the decision to move to concrete or not the budget could be Renewal or Capital New.

To complete the shared pathway section requires approximately $350k which can be accommodated within the existing 2022/23 Capital New budget 2121 City-wide – Footpath Improvements if the recommended option is implemented. It should be completed during this construction season by Fulton Hogan.

The signalised crossing requires further design and expected delivery timeline is during the 2023/24 financial year. The expected cost is approximately $300k from the Capital New budget 2121 City-wide – Footpath Improvements which can be accommodated within currently proposed funding.

5. CONCLUSION AND RECOMMENDATION

5.1 The temporary cycle barrier now installed along Main street is proving effective and has a remaining life of five years. It is therefore recommended that this is kept in place, as a cost-effective solution, until the end of its useful life.

5.2 To create a link into the city, some further elements of the cycle lane are needed to connect with the existing off-road cycle lane on Pioneer Highway. It is recommended that this is done, to maximise the effectiveness of the cycle lane provision and hence maximise the effectiveness of the investment made to date.

5.3 Option 1 is therefore recommended to Council.

6. NEXT ACTIONS

6.1 If the recommended Option One is endorsed, implementation will be confirmed with Fulton Hogan. Designs are almost complete for the extension of the shared pathway and will be delivered by Fulton Hogan during the 22/23 financial year and design for the crossing will be started in time for a 23/24 delivery.

6.2 The Annual Plan and Long Term Plan (LTP) will be updated to include the maintenance cost for the Vanguard solution.

6.3 The LTP proposal next year will include a provision for the development of a new barrier once the Vanguard reaches the end of its useful life.

7. OUTLINE OF COMMUNITY ENGAGEMENT PROCESS

7.1 If the option to implement a signalised crossing is endorsed, then engagement and consultation will occur with affected parties such as the shop owners and residents within the vicinity in order to allow them an input into the outcome.

7.2 Notification will occur prior to any physical works occurring.

COMPLIANCE AND ADMINISTRATION

Does the Committee have delegated authority to decide? If Yes quote relevant clause(s) from Delegations Manual	**No**
Are the decisions significant?	**No**
If they are significant do they affect land or a body of water?	**No**
Can this decision only be made through a 10 Year Plan?	**No**
Does this decision require consultation through the Special Consultative procedure?	**No**
Is there funding in the current Annual Plan for these actions?	**Yes**
Are the recommendations inconsistent with any of Council's policies or plans?	**No**
The recommendations contribute to Goal 1: An Innovative and Growing City	
The recommendations contribute to the achievement of action/actions in Transport The action is: Increase walking and cycling	
Contribution to strategic direction and to social, economic, environmental	The Transport Plan signals that one of the key measures of success for the plan is an increase in walking and cycling. The Transport Plan also highlights that in Palmerston North only a small proportion of total trips incorporate active transport, that fatal and serious injury crashes involving cyclists continues to increase and that the perception of cycling as unsafe is a key

and cultural well-being	barrier to an increase in cycling uptake. This project works towards creating a safe and inclusive cycling core network.

ATTACHMENTS

Nil

WORK SCHEDULE

TO: Economic Growth Committee

MEETING DATE: 22 February 2023

TITLE: Work Schedule - February 2023

RECOMMENDATION TO ECONOMIC GROWTH COMMITTEE

1. **That the Economic Growth Committee receive its work schedule for February 2023.**

COMMITTEE WORK SCHEDULE 2023

	Estimated Report Date	Subject	Officer Responsible	Date of Instruction & Clause no.
1	~~22 Feb 2023~~	~~Process and options, including the use of bylaws, to establish and enforce heavy vehicle routes in the city's urban transport network~~	~~Chief Planning Officer~~	~~Finance & Audit Committee 24 Nov 2021 Clause 82-21~~
2	12 April 2023	Update on infill lighting required to achieve compliance in P and V categories (update for Programme 1367)	Chief Infrastructure Officer	16 March 2022 Clause 3-22
3	12 April 2023	International Relations 6 Monthly report	Chief Planning Officer	Terms of Reference
4	12 April 2023	Quarter 2 Economic Report Oct-Dec 2022	Chief Planning Officer	Terms of Reference
5	12 April 2023	PN Airport – Interim report (6 months to 31 December 2022)	Chief Financial Officer	Terms of Reference
6	12 April 2023	PN Airport - Draft Statement of Intent for 2023-26	Chief Financial Officer	Terms of Reference
7	12 April 2023	CEDA - Draft Statement of Intent for 2023-26	Chief Planning	Terms of Reference

	Estimated Report Date	Subject	Officer Responsible	Date of Instruction & Clause no.
			Officer	
8	12 April 2023	Recommended options to improve safety at College Street and Botanical Road	Chief Infrastructure Officer	17 Aug 2022 Clause 13-22
9	12 April 2023	CEDA - Six Month Performance Report (to 31 Dec 2022)	Chief Planning Officer	Terms of Reference
10	12 April 2023	Te Utanganui Master Plan	Chief Planning Officer	Terms of Reference
11	21 June 2023	Streets for People Update (6 monthly)	Chief Infrastructure Officer	Terms of Reference
12	21 June 2023	Presentation of Square East Stage 3 and 4 final design plan	Chief Infrastructure Officer	17 Aug 2022 Clause 17-22
13	21 June 2023	Quarter 3 Economic Report Jan-March 2023	Chief Planning Officer	Terms of Reference
14	21 June 2023	Streets for People - Options for delivery of the construction stage of the programme (Square East Stage 3+4).	Chief Infrastructure Officer	Council 5 Oct 2022 Clause 119-22
15	21 June 2023	Tamakuku Terrace Six Monthly Update	Chief Infrastructure Officer	Terms of Reference
16	21 June 2023	PNAL - Final Statement of Intent for 2023/24	Chief Financial Officer	Terms of Reference
17	21 June 2023	Road Maintenance Contract (six-monthly report on work programme and performance)	Chief Infrastructure Officer	16 March 2022 Clause 4-22
18	30 Aug 2023	Quarter 4 Economic Report April-June 2023	Chief Planning Officer	Terms of Reference
19	25 Oct 2023	PN Airport – Annual Report for 2022/23	Chief Financial	Terms of Reference

	Estimated Report Date	Subject	Officer Responsible	Date of Instruction & Clause no.
			Officer	
20	25 Oct 2023	CEDA – Annual Report for 2022/23	Chief Planning Officer	Terms of Reference
21	25 Oct 2023	PN Airport –Statement of Expectation for 2024/25	Chief Financial Officer	Terms of Reference
22	25 Oct 2023	Streets for People Update (6 monthly)	Chief Infrastructure Officer	Terms of Reference
23	6 Dec 2023	Quarter 1 Economic Report July-Sept 2023 **Present to Council**	Chief Planning Officer	Terms of Reference
24	6 Dec 2023	Tamakuku Terrace Six Monthly Update **(to Council)**	Chief Infrastructure Officer	Terms of Reference
25	TBC	Sector Profiles: Construction (full and summary) Agriculture (full and summary) Manufacturing (full and summary) Education (full and summary) Defence (summary) Non-Profit (summary) Research, Science & Innovation (full and summary)	Chief Planning Officer	

ATTACHMENTS

Nil