

Impacts of PNITI on Key Regional Projects

February 2021

FRESH INFO

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1 Executive summary

1.1 Introduction

Waka Kotahi/NZTA is developing a business case for a package of roading interventions collectively known as the Palmerston North Integrated Transport improvement (PNITI) project. The centrepiece of PNITI is the Regional Freight Ring Road (Ring Road), which will run around the outskirts of Palmerston North, connecting key industrial areas such as the North East Industrial Zone, the planned KiwiRail Freight Hub, Feilding and state highways to the north, and Longburn and Linton Military Camp to the south.

The Ring Road is a critical component of Palmerston North City Council’s (PNCC) plan for growing economic prosperity and liveability in the city. By redirecting freight vehicles around rather than through Palmerston North’s City Centre and inner-city suburbs, the Ring Road will increase transport efficiencies, improve safety, and lift amenity values in urban areas.

The Ring Road will deliver benefits to Palmerston North both as a result of its impacts on the “business as usual” activities of households and businesses and by enabling or enhancing major growth projects in and around the city. PNCC has commissioned Fresh Info to examine the second category of impacts. Specifically, Fresh Info has been asked to identify, and potentially quantify, the impacts that the Ring Road is expected to have in relation to the following major projects:

Major projects
<ul style="list-style-type: none">• Central NZ Distribution Hub, encompassing:<ul style="list-style-type: none">- North East Industrial Zone growth- KiwiRail Freight Hub- Airport development• Longburn industrial growth• Linton Army Camp• Food HQ transformation• Residential growth in major greenfield sites:<ul style="list-style-type: none">- Kakatangiata- Aokautere- Whakarongo• Streets for People (Central City Streetscape Masterplan)• Urban cycle network masterplan

NZTA’s draft PNITI Network Options Report (NOR) identifies many of these projects as factors that strengthen the case for the Ring Road, however there is limited understanding or articulation of how the value of these projects will be affected by the Ring Road and the materiality of the Ring Road’s impacts in

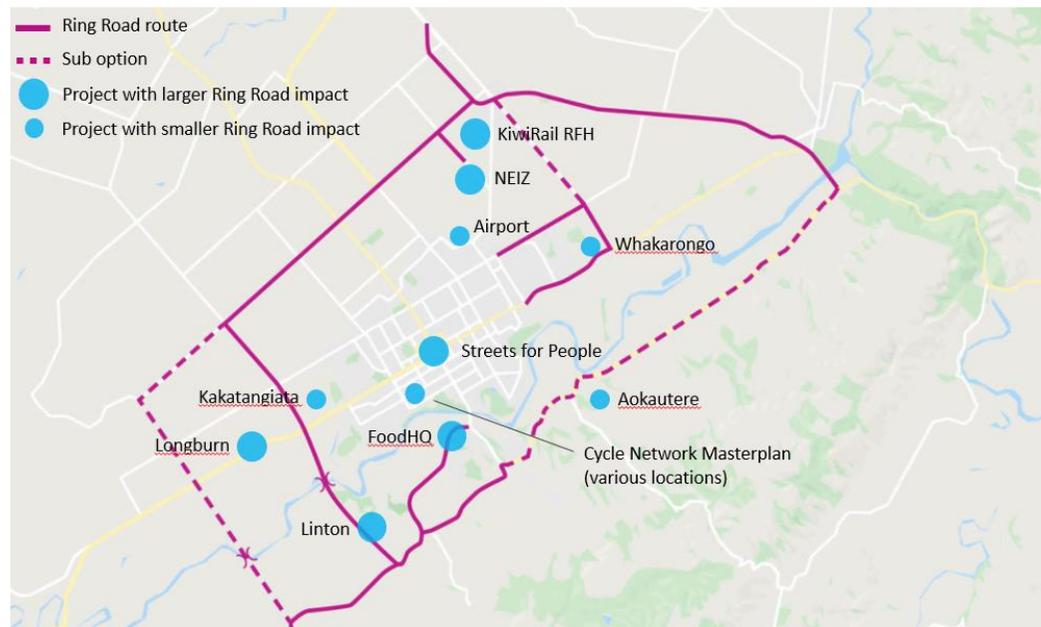
relation to them. This project seeks to fill these gaps, with the aim of ensuring that the impacts of the Ring Road and the value it will deliver regionally and nationally are understood by decision makers.

This report provides a qualitative review of the major projects and the ways in which their outcomes are likely to be affected by the Ring Road. It adopts a largely narrative-based approach that describes the expected impacts of each project with and without the Ring Road and provides an evaluation framework that could be used to guide the design of a quantification process for each project.

A subsequent quantification phase could be added to estimate the value of the relevant costs and benefits of each project with and without the Ring Road, using quantification processes that respond to the findings in this report.

Figure 1 below indicates the location of each of the major projects relative to the proposed Ring Road route. The size of the circles indicates the relative impact of the Ring Road on each project; a larger circle reflects an expectation that the Ring Road would have a bigger effect on the value of the project relative to a smaller circle. This is an approximate assessment only, based on the qualitative work presented in this report.

Figure 1 Ring Road route and major projects



A summary of each of the projects and the ways in which they would be impacted by the Ring Road is provided in section 1.2 below. More detailed project overviews and evaluation frameworks are provided in the body of the report.

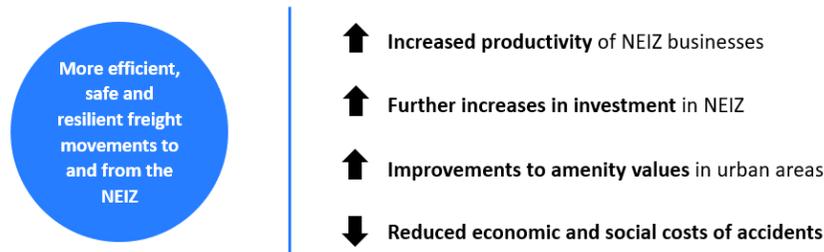
1.2 Summary of Ring Road impacts by project

1.2.1 North East Industrial Zone (NEIZ) growth

The NEIZ project involves the rezoning and development of approximately 230ha of land in the north east of the city to house large-format transport, warehousing and logistics operations. By providing a large amount of suitable land adjacent to key existing and planned future transport connections, the NEIZ is expected to stimulate investment by freight & distribution businesses in the region, leading to growth in the sector and associated increases in economic activity and employment.

The Ring Road is expected to pass within 1-2 kms of the NEIZ and will provide resilient, fit-for purpose roading connections for vehicles traveling between the NEIZ and other industrial nodes in the region. This will increase the safety and efficiency of freight movements to and from the NEIZ and reduce heavy vehicle volumes on existing urban arterials, helping to relieve congestion and mitigating any negative traffic effects of the NEIZ's growth. Resulting benefits will include higher productivity for businesses based at NEIZ, which may result in further increases in investment, and improved safety and amenity for residents living near traffic dampened arterials.

Figure 2 Main impacts of Ring Road on value of NEIZ growth project to the region



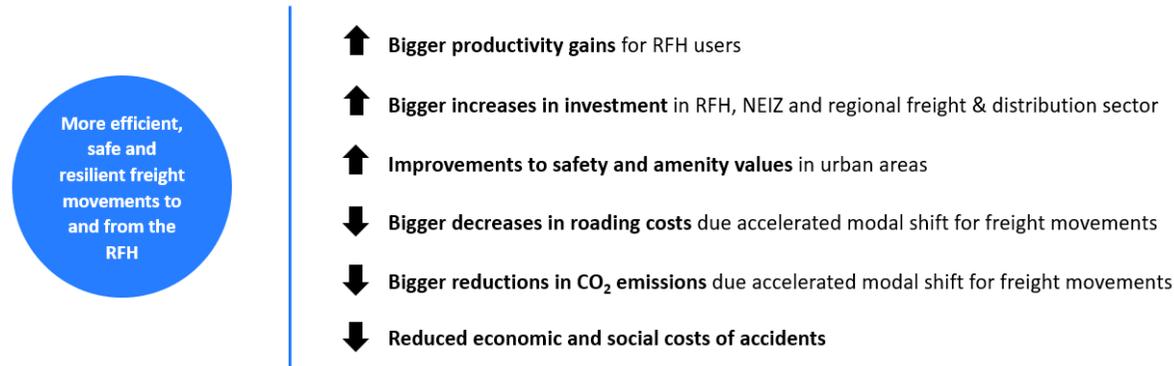
1.2.2 KiwiRail Regional Freight Hub (RFH)

KiwiRail plans to build a new, state-of-the-art, rail freight facility in the north east of the city to replace its current rail yard which is located on a growth-constrained site in the existing urban area. The RFH site is strategically located adjacent to the NEIZ and the future planned Ring Road route, bringing the City closer to realising its vision of a major multi-modal freight precinct in the NEIZ area. The new KiwiRail facility will be able to process significantly larger volumes of freight than the existing railyard and will provide improved facilities for transferring freight between rail and road.

Expected outcomes of the RFH project include increased efficiency in rail freight handling, decreased reliance on the national roading network for moving freight and an enhanced reputation for Palmerston North as a significant freight & distribution centre. Associated benefits will include productivity gains for firms using the RFH, increased investment by freight & distribution business in the region, and reduced roading costs and CO₂ emissions resulting from the modal shift in national freight movements from road to rail. On the negative side, the RFH has the potential to exacerbate congestion on urban arterials and will take up around 37% of the land in the NEIZ, reducing the amount of large format industrial land available for other uses.

Current plans have the Ring Road alignment passing within approximately 500 metres of the proposed northern entrance to the RFH and approximately 2 km from the proposed southern entrance. The Ring Road will enable businesses to move freight safely and efficiently to and from the RFH without the need to travel through the city centre. This will reduce congestion on urban arterials and strengthen many of the benefits delivered by the RFH, e.g. increased productivity and investment in the freight & distribution sector, reduced roading costs and CO₂ emissions associated with the modal shift of road freight to rail, and improved safety and amenity values in urban areas.

Figure 3 impacts of Ring Road on value of KiwiRail Regional Fright Hub (RFH) project to the region



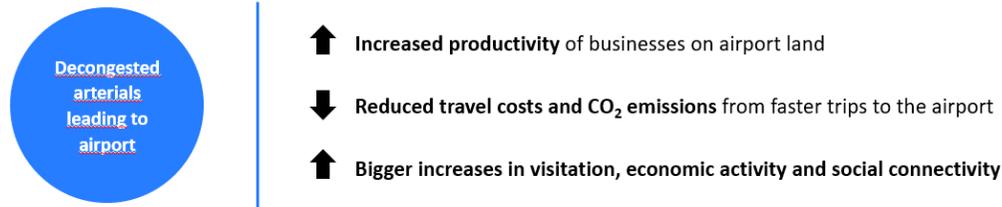
1.2.3 Airport development

Palmerston North Airport Limited (PNAL) plans to upgrade the airport passenger terminal and develop approximately 30 ha of its non-aeronautical land for sale or lease to other businesses. The latter includes an opportunity to develop a significant freight & logistics operation on a 5 ha parcel of land north of the runway that borders the NEIZ.

PNAL's development projects will increase the stock of business land available in Palmerston North, including sites that will be highly attractive to freight & distribution businesses given their location adjacent to the airport, thus helping to boost investment in the city. The terminal upgrade will enable more air passengers to travel through the airport, potentially resulting in higher levels of visitation, economic activity, and social connectivity.

By diverting a significant proportion of the region's freight traffic onto the Ring Road, the PNITI project will help to relieve congestion on key airport access routes, speeding up journey times for people using the upgraded passenger terminal or traveling to the new airport business zones. This will increase the productivity of businesses based at the airport and reduce travel costs and CO₂ emissions associated with trips to the airport. This may, in turn, stimulate additional passenger demand, driving further increases in visitation, economic activity, and social connectivity.

Figure 4 Main impacts of Ring Road on value of Airport development projects to the region

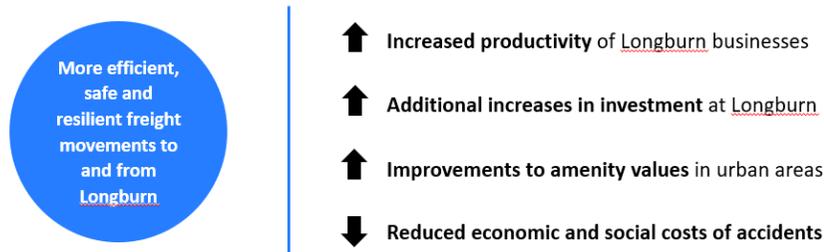


1.2.4 Longburn Industrial Area growth

The Council has rezoned around 85 ha of land in the Longburn area for wet industry (e.g. dairy) and general industrial uses, including freight and distribution activities. This includes the 33 ha Braeburn Industrial Area (rezoned in 2016) which is an extension of Fonterra’s existing operations at Longburn and aims to support Fonterra’s ongoing operational and growth needs. The proximity of Longburn to SH56, the North Island Main Trunk (NIMT) rail line and the future Ring Road makes it a suitable area for industrial growth. By significantly increasing the stock of high-quality industrial land in the region, the Longburn growth project is expected to stimulate investment in dairy, freight & distribution, and other sectors of the regional economy, with associated increases in economic activity and employment.

The development opportunity at Longburn is expected to be significantly enhanced once the Ring Road comes online, providing safer and more efficient connections with the NEIZ, KiwiRail RFH and state highways to the north and east. As a result, the Ring Road would be expected to increase the productivity of businesses at Longburn, driving additional investment into this location, and ease congestion on key urban arterials as Longburn freight traffic migrates away from the city centre and onto the Ring Road.

Figure 5 Main impacts of Ring Road on value of Longburn Industrial Area growth project to the region

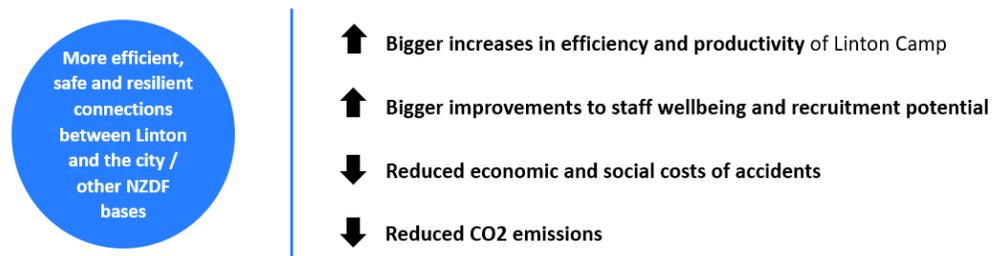


1.2.5 Linton Military Camp regeneration

As part of the Government's \$2.1 billion investment in defence infrastructure, Linton is scheduled for a \$200m+ programme of upgrades over the next 10 years. The regeneration projects will deliver more integrated camp infrastructure, increasing the efficiency of key functions. They will also improve the quality of the camp environment for staff, which will lift wellbeing and the ability to recruit and retain high-quality personnel, with potential positive impacts on inward migration for the region.

The Ring Road is expected to have significant benefits for Linton Camp. The preferred PNITI programme includes a new Manawatu River crossing between Longburn and Linton. This new connection will provide Linton traffic with a faster, safer route to the city using SH56 instead of the often-congested Tennent Drive. It will also enable Linton military vehicle convoys to access SH1 and northern NZDF bases more directly via the Ring Road rather than their current circuitous route via Ashhurst (or through the city), saving up to 10 mins in travel time per journey.¹ The significant time and cost savings enabled by the Ring Road will further lift the productivity of the Camp and help to reduce CO₂ emissions. In addition, shorter commutes for staff living north of the River will generate further improvements in wellbeing and recruitment potential, reinforcing those delivered by the regeneration projects.

Figure 6 Main impacts of Ring Road on value of Linton Military Camp regeneration project to the region



1.2.6 FoodHQ transformation project

FoodHQ is a partnership between New Zealand's largest public and private sector organisations working in New Zealand's food science and innovation sector.² FoodHQ is currently seeking co-funding for a programme of work designed to enhance the effectiveness of research, development, and deployment (RD&D) in New Zealand's Food & Beverage (F&B) sector. A key part of the programme will be transformation of the existing F&B Science Park in Fitzherbert into an internationally recognised F&B science and innovation 'super campus' that hosts top researchers and provides specialist facilities and advice to businesses. The project involves the development of new fit-for-purpose facilities, and upgrades to the campus that will make it easier to move around.

¹ According to traffic modelling provided in NOR.

² FoodHQ partners include AgResearch, Fonterra, Massey University, Plant & Food Research, Cawthron, ESR, the New Zealand Food Safety Science and Research Centre, B.linc (formally Lincoln Hub), The Riddet Institute and The Factory, along with local authorities in Palmerston North and Manawatū, and the Central Economic Development Agency.

The FoodHQ transformation project is expected to lift the efficiency and effectiveness of RD&D in the New Zealand F&B sector by lifting the standard of specialist facilities and expertise available to firms. This will lead to the development of more high-value products, more successful start-ups and higher levels of productivity and growth in the F&B sector.

FoodHQ's plan envisages an integrated, well-connected campus that facilitates collaboration and attracts high-quality talent. The existing Science Park is bisected by Tennent Drive, which is a four-lane arterial with heavy traffic volumes, high vehicle speeds, limited facilities for walkers and cyclists and little space for parking. In its current state, Tennent Drive effectively severs the campus into two distinct "islands", creating suboptimal conditions for collaboration.

The Ring Road will have a significant traffic dampening effect on Tennent Drive by diverting a portion of the north-south traffic currently using it to the new downstream bridge. Traffic modelling in the NOR indicates that traffic volumes on Tennent Drive are expected to fall by around 40% as a result of the Ring Road programme including speed reductions, or by around 25% without speed reductions. This is expected to help reduce the level of severance created by Tennent Drive, enabling higher levels of collaboration among Science Park participants. It is also expected to ease congestion levels on Tennent Drive, reducing the time it takes to travel between the Science Park and the city. Both outcomes will have positive impacts on park efficiencies, staff wellbeing and recruitment potential.

Overall, the changes brought about by the Ring Road are expected to materially improve the effectiveness of the Science Park, enhancing its impacts on F&B sector productivity and growth.

Figure 7 Main impacts of Ring Road on value of FoodHQ transformation project to the region



1.2.7 Major Residential growth projects

The City's three biggest greenfield housing projects, Kakatangiata, Aokautere and Whakarongo, are together expected to meet around 50% of Palmerston North's new housing requirements over the next 10 years, providing approximately 5,000, 1,200 and 600 new homes respectively.³ This significant increase in residential land stocks is expected to help curb recent growth in house prices and lift the supply of affordable housing in the city. All three housing areas have existing state highways running through them. Pioneer Highway/SH3 runs through a portion of Kakatangiata, Napier Rd/SH3 runs through Whakarongo, and Aokautere Drive/SH57 runs through Aokautere.

The Ring Road is expected to have the following impacts on the three housing areas:

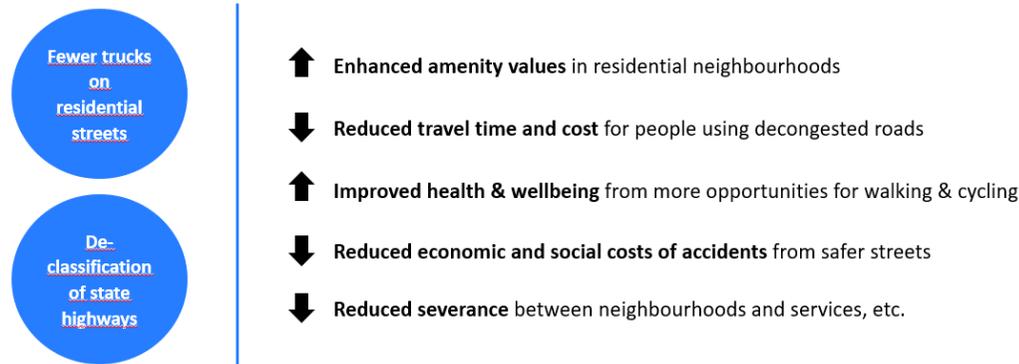
- it will divert significant numbers of heavy vehicles away from the three state highways, reducing noise, air pollution, etc. in the three neighbourhoods and making it easier and safer for residents to cross the road (reducing severance) – HCV reductions are expected to be more significant on Pioneer Highway/SH3 and Napier Rd/SH3 than on Aokautere Drive/SH57;⁴
- it will allow Pioneer Highway/SH3 and Napier Rd/SH3 to be declassified as state highways and redeveloped as high-quality urban corridors with lower speed limits, better urban frontage, more access roads, etc.;
- it will reduce congestion on the key arterials that connect the developments with the City Centre (including Pioneer Highway/SH3 and Napier Rd/SH3 in relation to Kakatangiata and Whakarongo, and Tennent Drive in relation to Aokautere);
- it will provide better roading connections between Kakatangiata and key employment areas and state highways to the north and south (via the Ring Road itself); and
- it will increase heavy traffic volumes on Longburn Rongotea Road, which borders Kakatangiata to its west (the impacts of which are expected to be able to be reduced via the use of set-backs, etc.).

Overall, the changes brought about by the Ring Road are expected to result in significant benefits for the three housing areas, including enhanced amenity values, reduced severance and better safety outcomes. They will also increase opportunities for walking and cycling in these communities and make it easier for residents to move around the city. The impacts of the Ring Road on Kakatangiata and Whakarongo are expected to be more significant than the impacts on Aokautere.

³ PNCC and developers are also working on a number of smaller residential growth projects, e.g. Ashhurst (400 new dwellings), Flyers Line (200 new dwellings) and Napier Road (50 new dwellings), as well as assorted other infill, brownfield and medium density developments.

⁴ According to traffic modelling provided in NOR.

Figure 8 Main impacts of Ring Road on value of major residential growth projects to the region



1.2.8 Streets for People

Streets for People (the renamed Central City Streetscape Masterplan Project) is a key component of PNCC’s urban development strategy. It aims to attract more people to the City Centre by transforming it into a vibrant, pedestrian-friendly commercial and entertainment hub. Initiatives include lowering vehicle speed limits, reducing the number of carparks and carriageway widths, and providing improved ‘human scale’ and walkability conditions, e.g. reduced crossing widths, wider footpaths, more seating, accessible art, etc. Streets for People is guided by several Council strategies, including the Urban Design Strategy, the City Centre Framework and the Street Design Manual.

The changes planned as part of Streets for People will reinforce the City Centre as a destination, making it a more appealing place for people to live, work and play. This will have multiple important benefits including lifting amenity values, enhancing safety and city perception, increasing the amount of time and money spent in the city by visitors, and stimulating investment by businesses.

While we would expect to see these types of benefits occur with or without the Ring Road, they will be significantly weakened if the Ring Road is not built. The City Centre currently experiences large volumes of freight trucks using its streets to travel from one side of the city to the other. This creates noise, severance and safety issues that discourage people from spending time there. The desired City Centre transformation depends critically on reducing this traffic.

If the project is completed without the Ring Road in place, it will fall short of the desired reduction in traffic volumes and have the unintended effect of pushing much of the traffic that is currently using inner City Centre streets out to the next ring of commercial and residential streets, creating issues for road-users in these areas. By providing an efficient alternative roading network, the Ring Road will significantly reduce the volumes of heavy vehicle and commuting through-traffic on City Centre streets while minimising any spillover impacts on surrounding areas. This will allow the Council to implement the full suite of Streets for People changes with maximum support from motorists and City Centre businesses, enabling the creation of a truly people-centric town centre.

All the benefits of Streets for People will be magnified by the traffic dampening effects of the Ring Road and the impact this will have on the City Centre environment. The result will be bigger improvements in amenity values, safety and city pride with associated stronger gains in visitation and investment.

Figure 9 Main impacts of Ring Road on value of Streets for People to the region



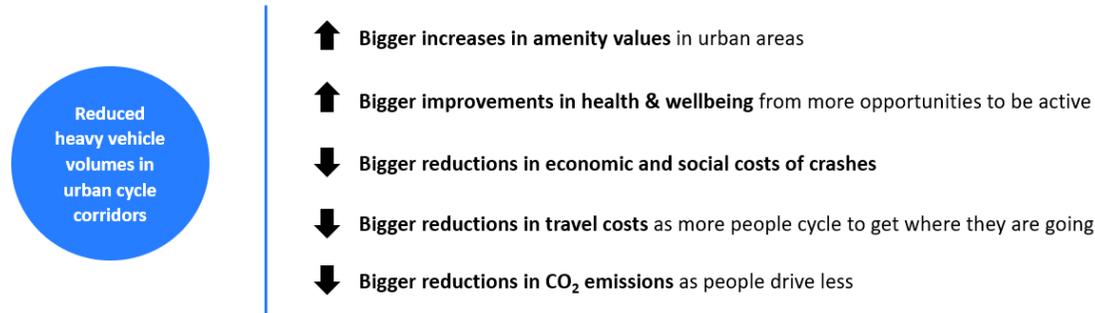
1.2.9 Urban Cycle Network Masterplan

PNCC's Cycle Action Plan sets out the aspiration for Palmerston North to be the best place to ride a bike in New Zealand. The Urban Cycle Network Masterplan is a key element in moving the city towards this aspiration. Its initiatives include expanding the network of cycle lanes, reducing traffic speeds, supporting school and workplace travel planning, and educating residents about sharing roads and paths safely. By making the city more conducive to cycling, the Masterplan will have multiple important benefits including improved liveability and wellbeing for residents, reduced carbon emissions and better safety outcomes.

Some of the potential cycle corridors being investigated by PNCC are currently used by significant volumes of freight trucks travelling from one side of the city to the other to access key industrial areas. This creates safety issues, unwanted noise/vibrations/air pollution and competition for carriageway space, none of which are supportive of growth in cycling.

The Ring Road will help to overcome these problems by diverting heavy vehicle traffic away from the city's urban areas, opening up space for cycle lanes and making the city a more attractive place for cyclists. This will enhance all the benefits of the Masterplan, accelerating cycling uptake and generating bigger gains in amenity values and wellbeing, and bigger reductions in vehicle operating costs and CO2 emissions.

Figure 10 Main impacts of Ring Road on value of Urban Cycle Network Masterplan to the region



1.3 Report structure

The main body of this report begins (in section 2) by reviewing the preferred programme for the Ring Road and the evaluation of its expected outcomes and impacts provided in the NOR. Section 3 describes PNCC's Spatial Plan, which underpins many of the projects covered in this report. Then sections 4-12 examine each of the major projects identified above, adopting the following interrogation structure in relation to each project:

- What does the project involve?
- What are the expected economic, social and environmental impacts of the project?
- How are the impacts of the project expected to change as a result of the Ring Road?

2 Regional Freight Ring Road

The Regional Freight Ring Road (Ring Road) is an integral part of NZTA's Palmerston North Integrated Transport Improvement (PNITI) project which is a package of interventions designed to:

- support the freight and distribution potential of the region by providing more effective (safer and more efficient) connections between the region's key industrial areas (e.g. NEIZ, Longburn and Kelvin Grove) and between these and state highways;⁵
- reduce congestion and improve amenity values in urban areas, by redirecting freight and general traffic around rather than through the city;
- assist in building the region's resilience by creating connectivity and network diversity;
- support existing activity and economic development opportunities at significant regional organisations, e.g. the airport, Food HQ and Linton Military Camp; and
- improve the safety, efficiency and effectiveness of the transport network for Palmerston North residents.

2.1 What does the Ring Road project involve?

The preferred programme for the Ring Road identified in the NOR (Programme # 6 of the long-listed options) comprises the following connections:

- Kairanga to Bunnythorpe
- Bunnythorpe Bypass
- Ashhurst to Bunnythorpe
- No 1 Line/Rongotea Road to Longburn
- Downstream Manawatu River crossing

⁵ SH3 to the northwest (Taranaki), SH1 to the north (Auckland) and to the south (Wellington), and SH2 to the east (Hawke's Bay).

The preferred programme is shown in Figure 12⁶ and Figure 11⁷ below. NZTA proposes dividing the programme up into eight stages, as shown in Figure 11.

Figure 12 Recommended Programme

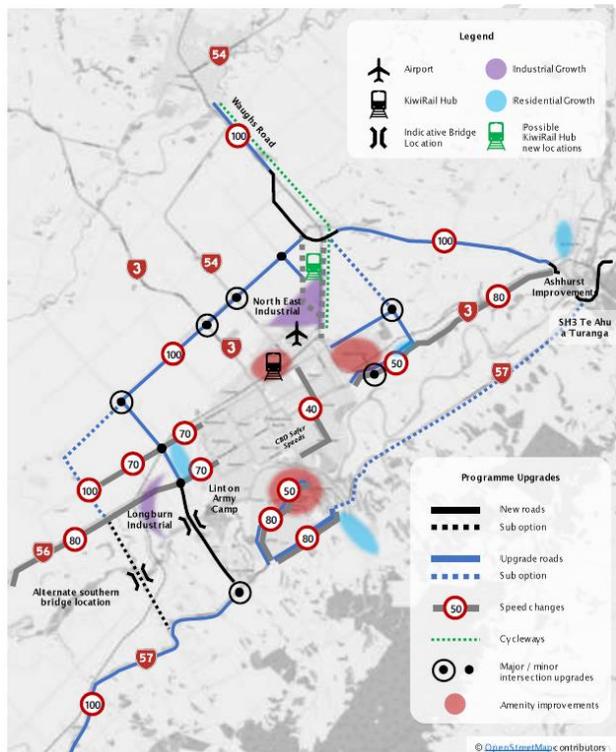
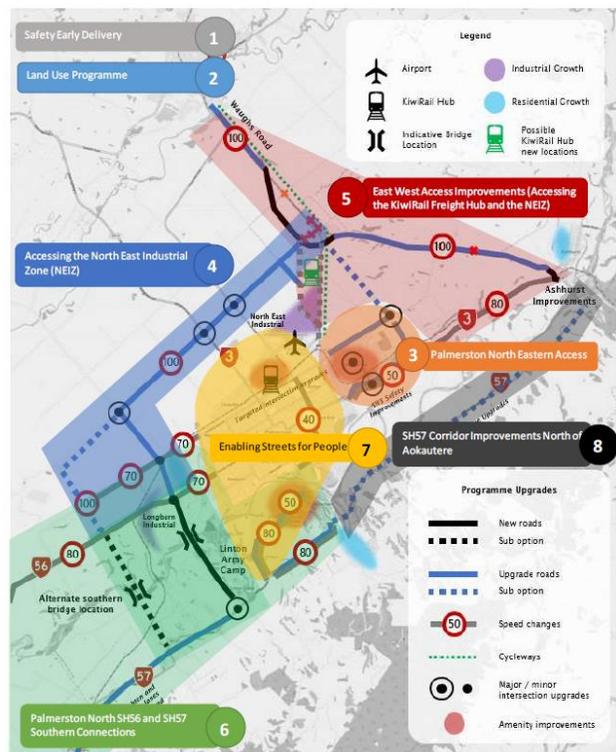


Figure 11 Recommended Programme Packages



Details of the key elements in each stage are provided in Table 15-1 in the NOR⁸, a copy of which is provided in Appendix 1.⁹

⁶ Figure 14-1, NOR p. 96.

⁷ Figure 14-2, NOR p. 102.

⁸ NOR p. 113.

⁹ Note that the following “do-minimum” improvements are also included in the preferred programme:

- Continued maintenance and operations
- Committed projects such as a staged rollout of Palmerston North City cycle improvements
- Ashhurst improvements
- Manawatu Gorge tie-in (est. 2024-25 opening)

2.2 What are the expected impacts of the Ring Road project?

2.2.1 Modelled impacts on traffic flows

Figure 13 and Figure 14 below (from the NOR) show the results of NZTA traffic impact modelling in relation to the preferred programme for the Ring Road (Programme 6), including corridor and intersection upgrades, new links and speed changes. Figure 13 shows the modelled impacts of the programme on daily traffic flows for all vehicle types. Figure 14 shows the modelled impacts on daily heavy vehicle (HCV) flows. The modelled changes shown in Figure 13 and Figure 14 represent the impacts of the programme with planned speed reductions. The next figure (Figure 15) shows modelled impacts on daily vehicle flows (all vehicle types) without planned speed reductions. Figure 16 shows modelled base traffic flows, i.e. without the Ring Road programme, for comparison.

Fresh Info did not review the data behind the maps but was able to make some high-level observations based on a visual review of the maps. The observations should be verified in relation to the modelling data before any reliance is placed on them.

Observations relevant to the major projects within the scope of this report are provided below.¹⁰

- **Tennent Drive:** The Ring Road is expected to cause significant reductions in traffic volumes on Tennent Drive (which runs through the FoodHQ Science Park) and Fitzherbert Bridge (which links Tennent Drive with the City Centre). The modelling maps indicate:
 - ~40% (3,800 vehicles) reduction in all traffic flows on Tennent Drive with speed reductions / ~25% (2,400 vehicles) reduction without speed reductions.
 - ~25% (3,900 vehicles) reduction on Fitzherbert Bridge with and without speed reductions.
 - 330 fewer heavy vehicles per day on Tennent Drive and Fitzherbert Bridge (with speed reductions, although the maps suggest that the level of HCV reduction would be similar without speed reductions).
- **Napier Road/SH3:** Significant impacts are also expected on this road, which runs through the Whakarongo residential growth area:
 - ~30% (2,600 vehicles) reduction in traffic flows (all vehicle types) on Napier road with speed restrictions.
 - slightly smaller though still significant reductions all traffic flows (all vehicle types) without speed restrictions.
 - 330 fewer heavy vehicles per day on Napier Road.
- **Pioneer Highway/SH3:**
 - Significant reductions in heavy vehicle volumes are expected on this road, which borders the Kakatangiata residential growth area to its south.
 - Little change is expected in total traffic flows (all vehicle types), however.
- **City Centre/other urban streets:**
 - With speed reductions:

-
- Ongoing low-cost low-risk improvements
 - Improvements to connections to the new walking and cycling bridge near Massey

¹⁰ The data displayed with the maps allows estimation of differences in absolute vehicle numbers in some cases, percentage reductions in others, and no numeric estimates in others.

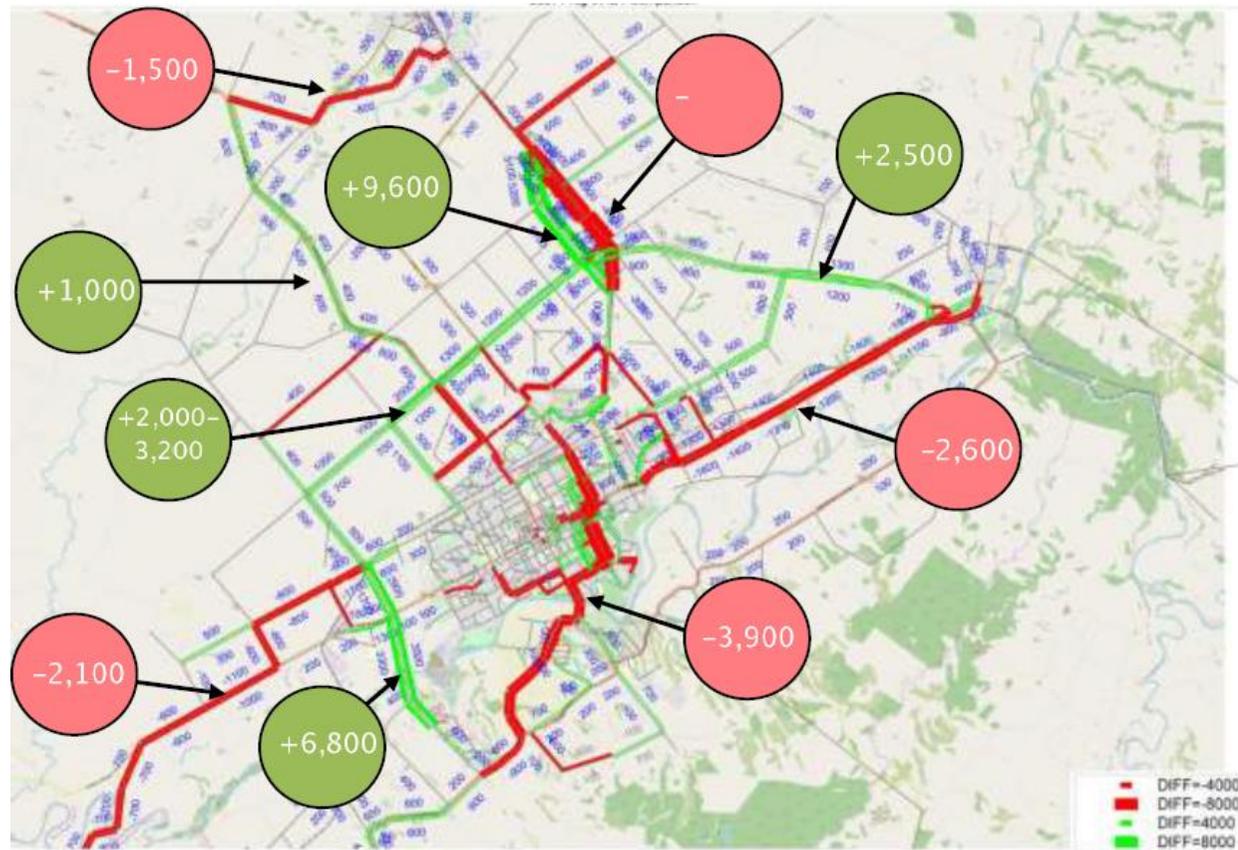
- Significant reduction in traffic flows on Fitzherbert St leading to the City Centre.
- Significant reductions in traffic flows (including heavy vehicles) on Te Awe St, Albert St, Park Rd and Botanical Rd.
- Smaller reductions on other streets in the City Centre and wider urban area.
- Without speed reductions:
 - Significant reduction in traffic flows on Fitzherbert St leading to the City Centre.
 - Smaller but significant reductions on Te Awe St, Victoria Ave, Park Rd and Botanical Rd.
 - Smaller reductions on other streets in the City Centre and wider urban area.
- **Airport access routes:**
 - With speed reductions: significant reductions on Rangitikei St/SH3 north and Milson Line.
 - Without speed reductions: significant reductions on Rangitikei St/SH3 North, Tremaine Ave between SH3 and Milson Line and North St (access road for Tremaine Ave).
- **Tremaine Ave:**
 - With speed reductions: The Ring Road programme is not expected to make a material difference to traffic volumes on Tremaine Ave with the modelled speed reductions, although the NOR notes “the routes to access Tremaine Avenue may change as a result of improvements or speed changes.” The NOR attributes the limited flow differences on Tremaine Ave itself to the fact that this road will still be a key origin and destination for trips in its own right.
 - Without speed reductions, significant reductions on Tremaine Ave between SH3 and Milson Line and on North St.

Travel times

NZTA's Table 14-1 which lists the expected outcomes of the preferred programme in 2031 (Appendix 2 to the report), estimates that the programme will have the following impacts on travel times (as relevant to the major projects):

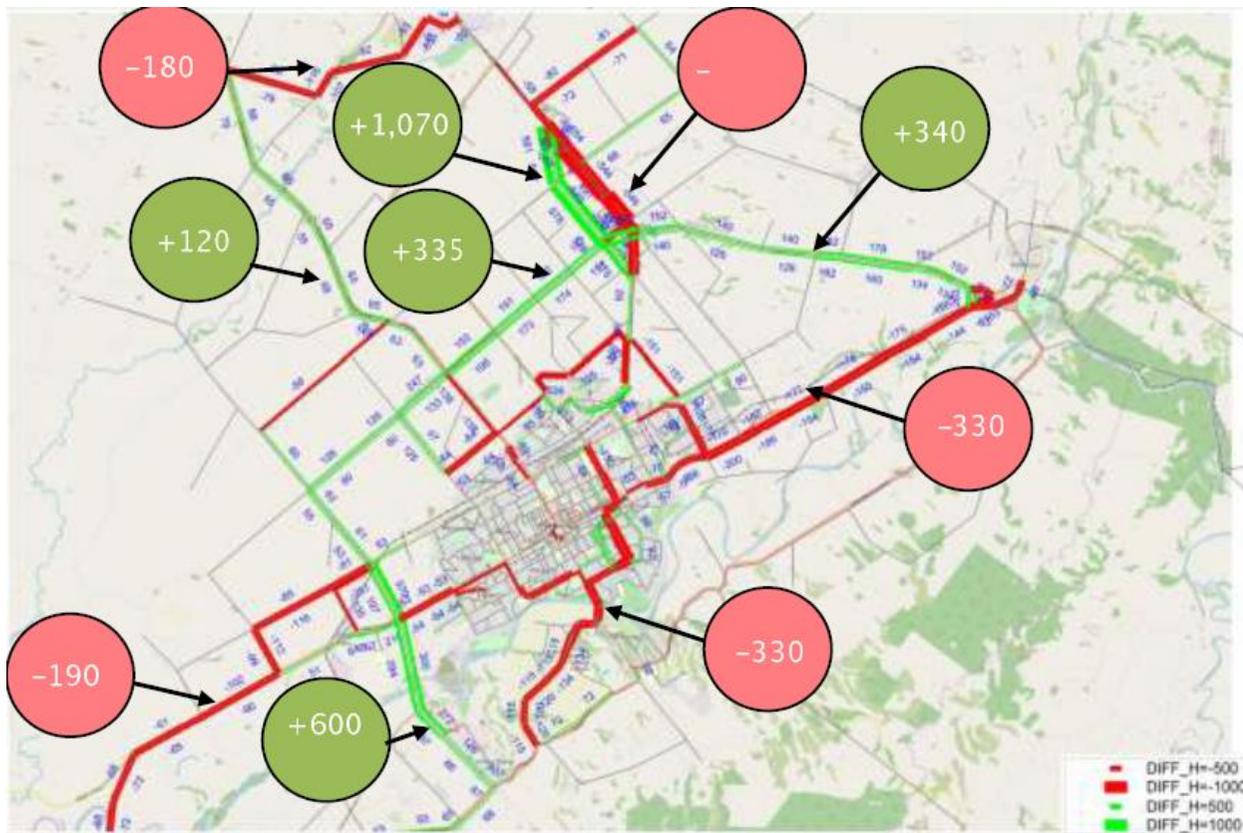
- **Linton:** "Journey time savings of up to 10 minutes for trips between Linton/SH57 and northern destinations" (e.g. SH1 north);
- **NEIZ:** "Access improvements out of the NEIZ of 1-3 minutes to most key destinations."

Figure 13 Modelled difference in daily traffic flows v 2031 base (all vehicle types) with speed reductions (Programme 6):¹¹



¹¹ Figure 13-5, NOR p. 78.

Figure 14 Modelled difference in daily heavy vehicle traffic flows v 2031 base with speed reductions (Programme 6):¹²



¹² Figure 13-6, NOR p. 78.

Figure 15 Modelled difference in daily traffic flows (all vehicle types) v 2031 without speed reductions (Programme 6B)¹

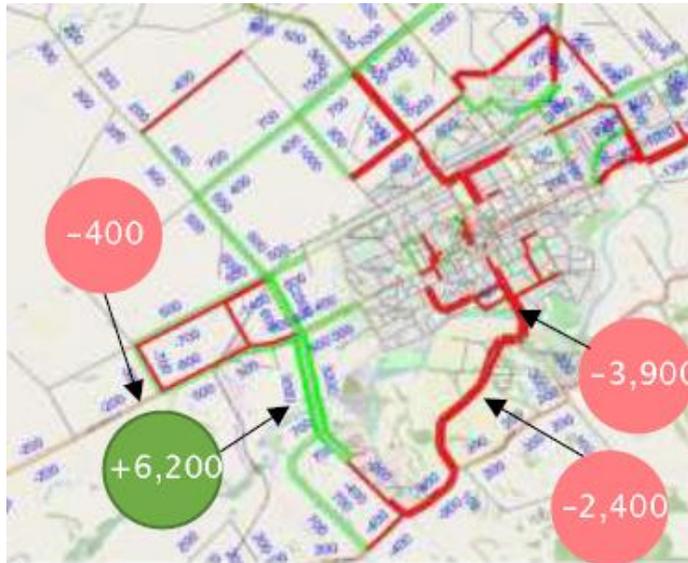


Figure 16 Base 2031 Average Daily Traffic¹ (RHS)



2.2.2 Economic, social & environmental impacts

Building on the work undertaken by NZTA and its consultants, Table 1 below identifies and briefly explains the main expected outcomes of the Ring Road project and the resulting economic, social and environmental impacts. The changes brought about by the Ring Road (“outcomes” listed in Table 1) will impact on the “business as usual” activities of households and businesses as well as on other major growth projects in and around the city. Likewise, the benefits described in the Table 1 will occur both as a result of the Ring Road’s impacts on “business as usual” activities and as a result of its impacts on other major projects. The latter category of impacts (relating to major projects) is the subject of sections 4 to 12 of this report.

Table 1 Expected outcomes and impacts of Ring Road

Ring Road outcomes	Economic impacts	Social & environmental impacts
<p>Improved connectivity and access options for users of the Ring Road</p>	<p>Reduced travel times and vehicle operating costs (VOCs) for freight carriers, commuters and other users of the Ring Road</p> <p>Higher productivity for businesses resulting from faster trips and lower costs</p> <p>Increased investment by new and existing businesses as Palmerston North becomes a more attractive place to do business</p>	<p>Improved connectivity and reduced travel times for commuters and non-work traffic, including in areas PNCC intends to develop for housing</p> <p>Lower CO₂ emissions resulting from reduced travel times</p>
<p>Reduced traffic volumes on existing urban arterials as freight carriers and through traffic migrate to the Ring Road</p>	<p>Reduced travel times and VOCs for users of decongested arterials</p> <p>Higher productivity for businesses resulting from faster trips and lower costs</p> <p>Increased investment by new and existing businesses as Palmerston North becomes a more attractive place to do business</p> <p>Higher land values for residential properties located on or near arterials</p>	<p>Enhanced liveability and amenity for people living and working on or near traffic-dampened arterials, including:</p> <ul style="list-style-type: none"> - improved actual and perceived safety - improved noise, vibrations, air quality <p>Reduced severance between residents and services/amenities (e.g. school, parks, etc.)</p> <p>Increased opportunities for walking and cycling, resulting in improved health and wellbeing</p>
<p>Reduced traffic volumes in the City centre as freight carriers and through traffic migrate to Ring Road</p>	<p>Reduced travel times/VOCs and higher productivity for businesses traveling via City Centre roads</p> <p>Increased visitation to Palmerston North, resulting in increased spending and value added at City centre businesses as well as spillover benefits to businesses located outside the City Centre</p> <p>Increased investment by new and existing businesses as Palmerston North's City Centre becomes a more attractive place to do business</p> <p>Higher land values in the City Centre, reflecting its increased amenity values and income-generating potential</p>	<p>Enhanced liveability and amenity for people spending time in the City Centre, including:</p> <ul style="list-style-type: none"> - improved actual and perceived safety - improved noise, vibrations, air quality - more vibrant, pedestrian-friendly environment <p>Increased opportunities for walking and cycling, resulting in improved health and wellbeing</p>
<p>Safer roads for all users</p>	<p>Reduced economic costs of accidents involving cars and pedestrians</p>	<p>Reduced personal costs of accidents</p> <p>Enhanced liveability and amenity from improved actual and perceived safety</p>

Greater resilience delivered by at least one additional bridge crossing as well as greater connectivity and network diversity	Avoided costs of lost connectivity associated with natural hazards and weather events Increased investment by new and existing businesses as Palmerston North becomes a more attractive place to do business	Reliable connections with work, school, family/friends and other social amenities Stable supply of goods & services for households
Enhanced reputation of Palmerston North as significant freight & distribution centre	Increased investment by new and existing businesses	More job opportunities in the freight & distribution sector

2.2.3 NOR Economic Evaluation

Table 14-1 in the NOR¹³ (Appendix 2 to this paper) describes the expected outcomes from the Ring Road programme from NZTA’s perspective. Table 14-1 captures all the outcomes listed in Table 1 above except greater resilience, which is acknowledged elsewhere in the NOR.¹⁴ It also identifies many of the city’s major growth projects as drivers for investment in the Ring Road.

The NOR provides the results of a programme level economic evaluation conducted by NZTA for the three shortlisted programme options (including the preferred programme).¹⁵ The economic evaluation was undertaken using simplified procedures typical of the relatively early stage of programme development reflected in the NOR. NZTA is expected to undertake a more comprehensive economic evaluation/CBA during the Detailed Business Case stage of the project.

The economic evaluation in the NOR quantifies three types of economic benefits:

- Improved safety
- Reduced travel time and vehicle operating costs
- Wider economic benefits (which the NOR summarises as “agglomeration benefits relating broadly to improving travel times which brings firms closer together, making them more productive”)¹⁶

NZTA bases its WEB’s analysis on previous work conducted by EY in the context of the SH3 Manawatu Gorge replacement project.¹⁷

The results of the economic evaluation provided in the NOR are summarised in the table below.

¹³ NOR pp. 99-100.

¹⁴ See p.94 NOR: “As outlined in Section 6.4.2, Fitzherbert Bridge is a key lifeline for the region with high consequences of failure. However, the bridge has been identified as relatively resilient to hazards, with the ability to withstand a one-in-500-year flood and one-in-1700-year earthquake. As services are now also carried along the He Ara Kotahi Bridge and coupled with the low probability of failure, a high level assessment of route security benefits due to natural hazards are in the order of less than \$5-\$10M over a 40 year period. This is expected to be less than 5-10% of total programme benefits.”

¹⁵ NOR pp. 93-97.

¹⁶ This statement and others on the draft NOR suggest that agglomeration benefits are the only type of WEB included in the economic evaluation.

¹⁷ The NOR cites to “Manawatu Gorge Alternatives: Assessment of the Wider Economic Benefits of the shortlisted options”, EY, 2018.

Table 2 NOR Economic Evaluation Summary¹⁸

OPTION	BENEFITS				COSTS	BCR RANGE	
	TRAVEL TIME & VOC (\$M)	WEBS (\$M)	SAFETY (\$M)	TOTAL PV BENEFIT (\$M)		DISCOUNTED COST RANGE (\$M)	EXCLUDING WEBS
6B	135	93	94	321	201 - 221	1.0 - 1.1	1.5 - 1.6
7B	143	97	85	325	241 - 284	0.8 - 0.9	1.1 - 1.3
11B	115	60	81	256	153 - 188	1.0 - 1.3	1.4 - 1.7

Preferred programme

The NOR also includes a sensitivity analysis that estimates the cost/benefit impacts of project timing, differences in population growth projections, inclusion of speed reductions, and alternative discount rate/analysis period parameters.

The economic evaluation provided in the NOR excludes some of the benefit-types listed in Table 1 above, e.g. greater resilience, enhanced liveability and social amenity, increased investment by new and existing businesses, increased visitation and higher land values. The NOR states that “resilience, walking and cycling, and benefits relating to amenity improvements should be considered as part of the subsequent business case phases.” The NOR does not examine the impacts that the Ring Road will have on the region’s planned major projects in any depth, nor does it attempt to quantify these.

The following sections build on NZTA’s work by providing an overview of each of the major projects listed in the executive summary and describing the ways in which the Ring Road is expected to impact on them and the value they will deliver for the region.

¹⁸ Table 13-6, NOR p. 96.

3 PNCC Spatial Plan

3.1 Catalyst projects

As part of its long-term planning, PNCC has identified a series of major projects that will help achieve the Council’s vision and goals for Palmerston North.¹⁹ These catalyst projects are captured in PNCC’s Spatial Plan, which provides important context for this report. The projects are grouped into three main focus areas or “city shaping moves” as outlined below.

Enabling Sustainable Growth involves the provision of land and infrastructure required to enable sustainable industrial and residential growth. This includes:

- wastewater treatment plant upgrade
- regional freight ring road, rail, airport (multi-modal) infrastructure to enable industrial growth in Longburn and around the airport (North east industrial zone)
- infrastructure for residential growth at Whakarongo (including Council’s own development), City West, Aokautere, Ashhurst and urban intensification
- water storage and drainage

Transforming the city centre involves the creation of a more vibrant city centre that will make the city more liveable for residents and attract more business investment and visitors. This includes:

- city centre streetscape redesign plan and projects
- Te Manawa 2025 redevelopment
- Library of the Future
- Central Energy Trust Arena masterplan and projects
- heritage protection package
- initiatives with City Business Partners

Developing recreation activities along the Manawatū River is aimed at delivering lifestyle benefits for residents and increasing the city’s attractiveness as a place to live and visit. This includes:

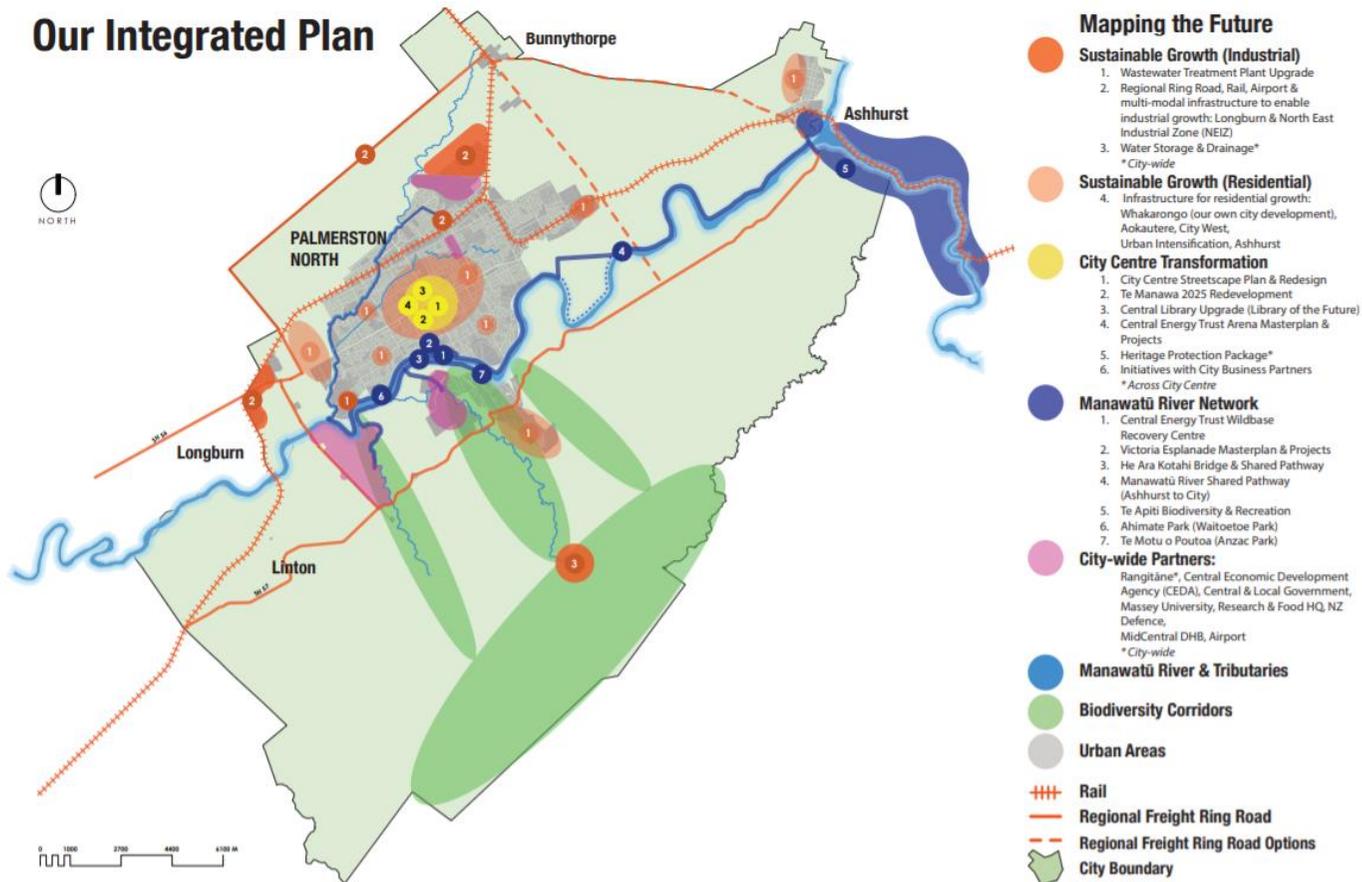
- Central Energy Trust Wildbase Recovery Centre
- Victoria Esplanade masterplan and projects
- He Ara Kotahi bridge and shared pathway
- Manawatū River shared pathway (Ashhurst to city)

¹⁹ <https://www.pncc.govt.nz/council-city/what-were-doing/catalyst-projects/>.

- Manawatū Gorge (Te Apiti) biodiversity and recreation
- Ahimate (Waitoetoe) Park and To Motu-o-Poutoa (Anzac Park)

As well as the above projects, the Spatial Plan also identifies major local organisations whose activities and growth plans are key to the long-term ambitions of the city. These “City-wide Partners” include Rangitāne, Massey University, Food HQ, New Zealand Defence, MidCentral DHB and Palmerston North Airport. PNCC’s integrated Spatial Plan is illustrated in Figure 17 below.

Figure 17 PNCC Integrated Spatial Plan²⁰



²⁰ PNCC 10-year Plan 2018-2028, p. 27.

Relevant to the “Sustainable Growth (Industrial)” focus area, section 3.2 below outlines PNCC’s vision for the development of a nationally significant distribution precinct in Palmerston North.

3.2 Central NZ Distribution Precinct

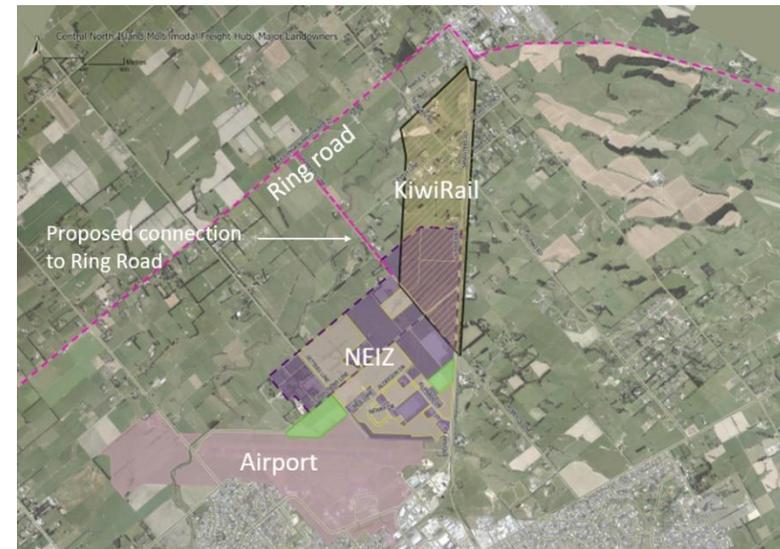
Palmerston North’s freight and logistics sector is a significant and growing segment of the City’s economy. The sector employed 5,500 people in 2019 (10% of all jobs in the City) and is home to several major distribution centres including Toyota, Ezibuy, Foodstuffs and Countdown. The City is well-placed to provide transport and logistics services given its central location in the middle of the lower North Island, strategically located between three key ports (Taranaki, Wellington and Hawke’s Bay) and close to major highway and rail connections.

The City aspires to significantly strengthen its freight and logistics capabilities and become a major participant in the national freight network. To help achieve this goal, PNCC plans to develop a multi-modal (rail, road and air) freight distribution precinct in the north east of the city (the Central New Zealand (CNZ) Distribution Precinct).

The CNZ Distribution Precinct will encompass the North east Industrial Zone (NEIZ), Palmerston North airport and the planned KiwiRail freight hub, with connections into the planned Regional Freight Ring Road. This will be the only location in New Zealand with rail, road and air connectivity in adjacent developments. The precinct is intended to service regional and national freight movements and act as an engine for growth in the local economy.

Efficient connections between freight precinct participants and their suppliers and markets will be critical to the precinct’s success. Sections 4 to 6 below outline the impacts that the three sub-projects within the precinct (the NEIZ, KiwiRail Freight hub and airport development) are expected to have on the region and examine the importance of the Ring Road to the value of each project.

Figure 18 Map of CNZ Distribution Precinct (approximate boundaries)



4 North East Industrial Zone Growth

PNCC and local landowners are in the process of converting an approximately 230 ha area of land in the north east of the city from rural to industrial uses, with the vision of it becoming a major distribution and warehousing centre for central New Zealand.

4.1 What does the NEIZ growth project involve?

Approximately 230 ha of rural land in the north east of the city near Bunnythorpe has been rezoned to house large-format transport, warehousing and logistics operations (the North East Industrial Zone (NEIZ)). This land is well-suited to such activities because it is flat, not in a flood plain, free from surrounding residential and commercial activities that could constrain its operations and growth, and adjacent to the main trunk railway line (and the planned KiwiRail Freight Hub) and the airport. The NEIZ has been zoned in stages, with the first 95 ha rezoned in 2004, an additional 12 ha rezoned in 2010 and a further 126 ha (the NEIZ Extension) rezoned in 2017.

Approximately 36 ha of the NEIZ has been developed to date²¹, with a further 55ha secured with the intention to develop. Current major occupants include Foodstuffs and Ezibuy.

4.2 What are the expected impacts of the NEIZ growth project?

The NEIZ is an important economic development opportunity for the region. By providing a large amount of land suitable for large format warehousing and distribution activities adjacent to key transport connections, the NEIZ is expected to stimulate investment by freight & distribution businesses in the region, leading to growth in the sector and associated increases in economic activity and employment. The economic development opportunity is expected to be significantly enhanced once the KiwiRail Freight Hub and Ring Road come online, providing more efficient connections between the NEIZ and rail and road networks.

Table 3 below summarises the expected economic, social and environmental impacts of the NEIZ project.

Table 3 Expected outcomes and impacts of NEIZ

NEIZ outcomes	Economic Impacts	Social & environmental impacts
More land options available for large footprint freight & distribution businesses	<p>Reduced pricing pressure on industrial land as a result of more zoned land being available</p> <p>Increased investment by new and existing freight & distribution businesses, with spillover effects for supporting businesses</p>	<p>More job opportunities in the freight & distribution sector</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p>

²¹ Ref. KiwiRail NOR Integrated Transport Assessment p. 43.

		Potential for pressure on house prices if demand for housing grows as a result of increased net migration
Existing large footprint freight & distribution businesses relocate from central city to NEIZ	<p>Central city land released for other higher value uses (e.g. commercial, residential, mixed use)</p> <p>Higher central city land values as noise, vibrations, odours, etc. generated by freight & distribution businesses migrate to NEIZ</p> <p>Longer journeys for some freight suppliers/customers who are further from distribution centres, with associated increases in travel time and VOCs</p>	<p>Enhanced liveability and amenity value for people living and working in the central city, as a result of reduced noise, vibrations, odours, etc.</p> <p>Longer commutes for NEIZ staff whose place of work becomes further from home, with associated increases in CO₂ emissions (shorter commutes for others)</p> <p>Increased CO₂ emissions resulting from increased travel times for commuters and freight carriers who are further from distribution centres</p>
Enhanced reputation of Palmerston North as significant freight & distribution hub	Increased investment by new and existing freight & distribution businesses , with spillover effects for supporting businesses	<p>More job opportunities in the freight & distribution sector</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>
Potential for increased heavy traffic volumes on urban arterials resulting from increased activity at NEIZ and shifts in traffic flows	Increased travel times and VOCs for users of urban arterials, if higher traffic volumes cause (or worsen) congestion	<p>Reduced liveability and amenity for people living and working on or near arterials as noise, air pollution, vibrations, etc. increase along with traffic volumes</p> <p>Less convenient connections to employment, schools, and other destinations residents wish to access</p> <p>Reduced actual and perceived safety for road users</p> <p>Reduced opportunities for walking and cycling resulting in poorer health and wellbeing</p>

4.3 How are the impacts of the NEIZ growth project likely to change as a result of the Ring Road?

According to current plans, the Ring Road will be located within 1-2 kms of the NEIZ. The Ring Road will provide efficient, fit-for purpose roading connections for vehicles traveling to and from the NEIZ. As a result, we would expect to see significant volumes of freight traffic migrate away from existing arterials and onto the Ring Road. This will increase safety and efficiency for freight vehicles and help to relieve congestion on existing urban arterials, allowing traffic to move more freely within the central city and lifting amenity values for residents and visitors.

According to traffic modelling provided in the NOR, the Ring Road preferred programme is expected to result in “[a]ccess improvements out of the NEIZ of 1-3 minutes to most key destinations.”²²

The table below summarises the impacts that the Ring Road is expected to have on the NEIZ project and the value it delivers for the region.

Table 4 Expected impacts of Ring Road in relation to NEIZ

Changes brought about by Ring Road	Outcomes related to NEIZ	Resulting impacts related to NEIZ
<p>More efficient roading network for freight carriers travelling to and from the NEIZ</p>	<p>Reduced travel times and vehicle operating costs (VOCs) for freight carriers using the Ring Road to travel to and from the NEIZ</p> <p>NEIZ freight traffic migrates away from central city arterials to Ring Road because of efficiency gains</p> <p>Existing freight & distribution businesses relocate from central city to NEIZ as NEIZ becomes more productive</p>	<p>Higher productivity of NEIZ businesses</p> <p>Increased investment in NEIZ by new and existing businesses as the NEIZ becomes more productive</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>Lower CO₂ emissions from NEIZ businesses resulting from reduced journey times</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)²³</p> <p>All the benefits associated with freight & distribution businesses relocating from urban areas to NEIZ as described in Table 3 (NEIZ impacts)²⁴</p>
<p>Safer roading network for freight carriers travelling to and from the NEIZ</p>	<p>Fewer accidents for freight carriers using the Ring Road to travel to and from the NEIZ</p> <p>NEIZ freight traffic migrates away from central city arterials to Ring Road because of safety benefits</p> <p>Existing freight & distribution businesses relocate from central city to NEIZ as NEIZ becomes safer</p>	<p>Reduced economic and social costs of accidents associated with activities at NEIZ</p> <p>Increases in investment in NEIZ by new and existing businesses as the NEIZ becomes safer</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)²⁵</p>

²² Ref. section 2.2.1 above.

²³ The quantum of these impacts depends on the quantum of NEIZ freight traffic that migrates away from central city arterials to the Ring Road.

²⁴ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to the NEIZ as a result of the Ring Road.

²⁵ The quantum of these impacts depends on the quantum of NEIZ freight traffic that migrates away from central city arterials to the Ring Road.

		All the benefits associated with freight & distribution businesses relocating from urban areas to NEIZ as described in Table 3 (NEIZ impacts) ²⁶
More resilient roading network for freight carriers travelling to and from the NEIZ, as a result of at least one additional bridge crossing as well as greater connectivity and network diversity	More reliable connections between NEIZ businesses and their customers and suppliers	<p>Avoided costs of lost connectivity for NEIZ businesses, their customers and suppliers</p> <p>Increased investment by new and existing businesses as connections with NEIZ become more resilient</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>Stable supply of goods from the NEIZ for households</p>
Enhanced reputation of Palmerston North as significant freight & distribution centre	More freight & distribution firms locate or expand in Palmerston North where they can use the Ring Road and NEIZ	<p>Increased investment Palmerston North due to its enhanced reputation</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p>

²⁶ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to the NEIZ as a result of the Ring Road.

5 KiwiRail Regional Freight Hub

KiwiRail plans to build a new, state-of-the-art, rail freight facility in the north east of Palmerston North to replace its current rail yard which is located on a growth-constrained site on Tremaine Avenue in the central city. The new facility is known as the KiwiRail Regional Freight Hub (RFH). KiwiRail has selected a site for the RFH that is adjacent to the North Island Main Trunk rail line and straddles the NEIZ and rural land directly north of the NEIZ. KiwiRail is being supported to purchase and designate land for the facility by the Provincial Growth Fund.

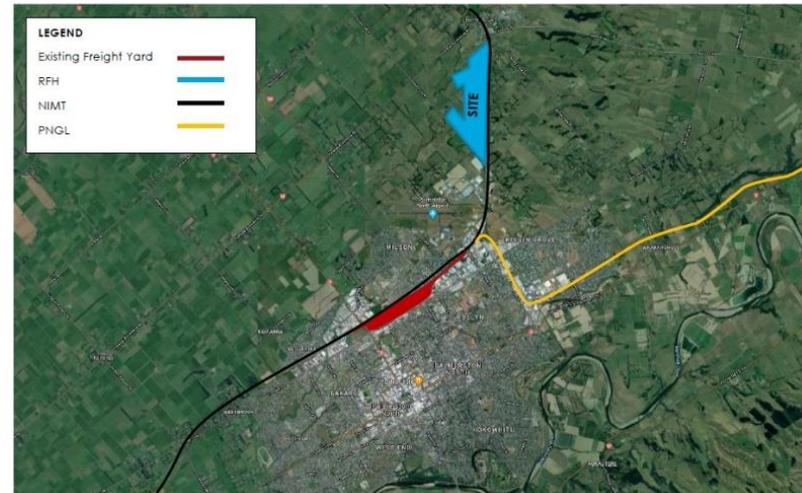
The location of the new RFH is shown in blue in Figure 19. The location of the existing railyard is shown in red.²⁷

The selection of this site moves the City closer to realising its vision of a major multi-modal freight precinct in the NEIZ area. Once the KiwiRail site is developed, the new rail freight facility, the NEIZ and the airport will be physically adjacent to one another and within 1-2 kms of the planned Ring Road.

5.1 What does the KiwiRail RFH project involve?

According to documents lodged by KiwiRail in October 2020 as part of Notice of Requirement (NOR) proceedings, the new rail facility will occupy around 178 ha of land and have an operational footprint of around 130 ha. The new facility will be around four times the size of KiwiRail’s current railyard on Tremaine Ave²⁸ and will be capable of handling containerised and non-containerised freight, including from longer, high-capacity trains that are expected to come online in the future.²⁹ The RFH will include terminal and marshalling space, maintenance facilities for KiwiRail’s network and rolling stock, and freight forwarding and warehousing space serviced by a common loading/unloading rail track with road access that will be available for lease by commercial operators.³⁰

Figure 19 Locations of existing freight yard and planned Regional Freight Hub



²⁷ Fig. 5-1, Integrated Transport Assessment p.16.

²⁸ Ref. Integrated Transport Assessment, Stantec, October 2020.

²⁹ Future trains could be up to 1,500 metres long and carry up to 40 wagons. <https://www.kiwirail.co.nz/what-we-do/projects/regional-freight-hub/>

³⁰ Ref. Design Construction Operation report, Stantec, October 2020. Regarding Freight Forwarders, the report states that “[p]rovision is made for 4 large and 6 smaller freight forwarders to co-locate onto the Site. The areas are serviced by a common loading/unloading rail track with road access into the facility.”

KiwiRail anticipates that operations at the RFH will begin around 2031 and the RFH will become fully operational by around 2051.³¹

Assuming the RFH develops as planned, KiwiRail intends to close its existing railyard on Tremaine Ave around 2031 when operations transfer to the new site. This will free up the approximately 45 ha Tremaine Ave site for other uses, e.g. residential, commercial, mixed use or light industrial. The future of the site is uncertain at this stage, as KiwiRail’s economic impact report notes: “It is not certain at present what would be the potential use for this area, noting that the land has been used for an operational rail site for 50 years and would be bordered by a busy operational rail line and a heavily trafficked road. In its present state it may not be suitable for a range of sensitive uses.”³²

Approximately 50% of the RFH site falls within the city’s North East Industrial Zone (NEIZ), displacing around 37% of the 120-hectare NEIZ Extension area.³³

5.2 What are the expected impacts of the KiwiRail RFH project?

KiwiRail’s stated objectives for the RFH are:

- to increase KiwiRail’s operational capacity to efficiently accommodate projected regional and national freight growth and support wider regional development;
- to enable rail to be integrated with, and connected to, other transport modes and networks; and
- to improve the resilience of the regional and national freight transport system over time.³⁴

The new RFH will be able to process significantly larger volumes of freight than the existing railyard, which is growth-constrained by virtue of being surrounded by residential zoned land and. The RFH will also provide improved facilities for transferring freight between rail and road and is strategically located adjacent to the NEIZ and the future planned Ring Road route.

Expected outcomes of the RFH project include increased efficiency of rail freight handling in the region, decreased reliance on the national road network for moving freight and an enhanced reputation for Palmerston North as a significant freight & distribution centre. Resulting benefits include higher productivity for firms using the RFH, increased investment by freight & distribution business in the region and reduced CO₂ emissions associated with the modal shift of freight from road to rail.

Figure 20 Regional Freight Hub site overlap with NEIZ Extension Area



³¹ Integrated Transport Assessment, Stantec, October 2020.

³² Analysis of the potential economic development and wider economic impacts of the proposed new Regional Freight Hub in Palmerston North, Richard Paling Consulting, October 2020.

³³ Ref Design Construction and Operation Report, p. 17, Integrated Transport Assessment p. 10. Figure 20 is Fig. 7-4, Integrated Transport Assessment p. 45.

³⁴ Ref. Notice of Requirement Form 18, October 2020.

Increased traffic movements generated by the RFH and changes to the roading network proposed to accommodate the proposed hub design will have negative impacts on the transport system for some users. Some of these impacts, which include potential impediments to the ability of NEIZ businesses to move efficiently to and from their sites, are being worked through as part of NOR proceedings.

Table 5 below summarises the expected economic, social and environmental impacts of the KiwiRail RFH project.

Table 5 Expected outcomes and impacts of RFH

KiwiRail RFH outcomes	Economic Impacts	Social & environmental impacts
<p>More efficient rail freight handling due to improved rail/road transfer facilities and scale economies associated with larger trains</p>	<p>Time and cost savings for RFH users and their customers as a result of more efficient freight handling, leading to higher productivity</p> <p>Increased volumes of freight able to be processed in Palmerston North, helping to accommodate predicted growth in national and regional freight demand</p> <p>Increased investment by new and existing freight & distribution businesses in Palmerston North, with spillover effects for supporting businesses</p>	<p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>
<p>Decreased reliance on roads for moving freight around the country, relieving pressure on the national roading network</p>	<p>Reduced costs of building and maintaining roads, as a higher proportion of freight is carried by rail</p>	<p>Improved road safety resulting from fewer trucks on the roading network</p> <p>Lower CO₂ emissions resulting from modal shift away from roads</p>
<p>Greater resilience of the regional and national freight transport system resulting from greater network diversity and reduced dependence on the roading network</p>	<p>Avoided costs of lost connectivity associated with natural hazards and weather events</p> <p>Increased investment by new and existing freight & distribution businesses as Palmerston North becomes a more reliable place to locate transport-dependent businesses</p>	<p>Stable supply of goods for households</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p>
<p>Enhanced reputation of Palmerston North as significant freight & distribution centre</p>	<p>Increased investment by new and existing freight & distribution businesses, with spillover effects for supporting businesses</p>	<p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>

<p>Existing freight & distribution businesses³⁵ relocate from central city to RFH, or to NEIZ to gain proximity to RFH</p>	<p>Central city land released for other higher value uses, e.g. commercial, residential, mixed use</p> <p>Higher central city land values as noise, vibrations, odours, etc. generated by freight & distribution businesses migrate to RFH/NEIZ</p> <p>Increased travel time and vehicle operating costs for freight suppliers/customers who are further from RFH/NEIZ than current location</p>	<p>Enhanced amenity value for people living and working in the central city, as a result of reduced noise, vibrations, odours, etc.</p> <p>Longer commutes for staff whose place of work becomes further from home, with associated increases in CO₂ emissions (shorter commutes for others)</p>
<p>~45 ha of NEIZ land taken up by KiwiRail, reducing amount of NEIZ land available for other industrial users</p>	<p>Potential shortage of land available for large format freight & distribution businesses until/unless additional land can be rezoned</p> <p>Upward pricing pressure on industrial land and decreased investment by freight & distribution businesses if adequate additional land cannot be rezoned</p> <p>Higher costs incurred by PNCC and others to rezone additional NEIZ land</p>	<p>Fewer job opportunities in the freight & distribution sector as a result of decreased investment in the sector</p>
<p>Potential for increased heavy traffic volumes on urban arterials resulting from increased activity at RFH and shifts in traffic flows</p>	<p>Increased travel times and VOCs for users of urban arterials, if higher traffic volumes cause (or worsen) congestion</p>	<p>Reduced liveability and amenity for people living and working on or near arterials as noise, air pollution, vibrations, etc. increase along with traffic volumes</p> <p>Less convenient connections to employment, schools, and other destinations residents wish to access</p> <p>Reduced actual and perceived safety for road users</p> <p>Reduced opportunities for walking and cycling resulting in poorer health and wellbeing</p>

³⁵ Including activities at existing railyard on Tremaine Ave.

5.3 How are the impacts of the KiwiRail RFH project likely to change as a result of the Ring Road?

The preferred programme for the Ring Road is being developed in parallel with KiwiRail's freight hub plans. Given the significant demand that the RFH will place on the roading network, it is important that they align and complement each other. Current plans have the Ring Road alignment passing within approximately 500 metres of the proposed northern entrance to the RFH and approximately 2 km from the proposed southern entrance.

The Ring Road will enable freight operators to move freight to and from the RFH via a fit-for-purpose roading network that removes the need for them to travel through the city centre. This will result in safer and more efficient movements of freight, a more resilient roading network for trips to and from the RFH, and a reduction in heavy vehicle volumes in the urban areas of the city. These outcomes will strengthen efficiency and productivity gains for RFH users, accelerate the modal shift away from road freight and associated CO₂ reductions, and mitigate the impacts of the RFH on traffic congestion, improving safety and amenity values in urban areas.

Figure 21 Indicative Ring Road location relative to RFH

Table 6The table below summarises the impacts that the Ring Road is expected to have on the RFH project and the value it delivers for the region.

Table 6 Expected impacts of Ring Road in relation to RFH

Changes brought about by Ring Road	Outcomes related to RFH	Resulting impacts related to RFH
<p>More efficient roading network for freight carriers travelling to and from the RFH</p>	<p>Reduced travel times and VOCs for freight carriers using the Ring Road to travel to and from the RFH</p> <p>Decreased reliance on roads for moving freight as rail becomes a more attractive option, relieving pressure on roads</p> <p>Existing freight & distribution businesses³⁶ relocate from central city to RFH, or to NEIZ to gain proximity to RFH</p> <p>RFH freight traffic migrates away from central city arterials to Ring Road because of efficiency gains</p>	<p>Higher productivity for RFH users</p> <p>Lower CO₂ emissions from freight carriers using the Ring Road to travel to and from the RFH resulting from reduced travel times</p> <p>Increased in investment by new and existing freight & distribution businesses as RFH/NEIZ becomes more productive</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>All the benefits associated with decreased reliance on roads for moving freight as described in Table 5 (RFH impacts)³⁷</p> <p>All the benefits associated with freight & distribution businesses relocating from urban areas to RFH/NEIZ as described in Table 5 (RFH impacts)³⁸</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)³⁹</p>
<p>Safer roading network for freight carriers travelling to and from the RFH</p>	<p>Fewer accidents for freight carriers using the Ring Road to travel to and from the RFH</p> <p>Decreased reliance on roads for moving freight as rail becomes a more attractive option, relieving pressure on roads</p> <p>Existing freight & distribution businesses relocate from central city to RFH, or to NEIZ to gain proximity to RFH (including existing railyard on Tremaine Ave)</p>	<p>Reduced economic and social costs of accidents associated with activities at RFH</p> <p>Increased in investment by new and existing freight & distribution businesses as RFH/NEIZ becomes safer</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p> <p>All the benefits associated with reliance on roads for moving freight as described in Table 5 (RFH impacts)⁴⁰</p>

³⁶ Including activities at existing railyard on Tremaine Ave.

³⁷ The quantum of these impacts depends on the quantum of freight that shifts from road to rail as a result of efficiencies and other benefits of the Ring Road.

³⁸ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to RFH/NEIZ as a result of the Ring Road.

³⁹ The quantum of these impacts depends on the quantum of RFH freight traffic that migrates away from central city arterials to the Ring Road.

⁴⁰ The quantum of these impacts depends on the quantum of freight that shifts from road to rail as a result of efficiencies and other benefits of the Ring Road.

	RFH freight traffic migrates away from central city arterials to Ring Road because of safety benefits	<p>All the benefits associated with freight & distribution businesses relocating from urban areas to RFH/NEIZ as described in Table 5 (RFH impacts)⁴¹</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)⁴²</p>
More resilient roading network for connections with the RFH, as a result of at least one additional bridge crossing as well as greater connectivity and network diversity	More reliable connections between the RFH and its customers and suppliers	<p>Avoided costs of lost connectivity for the RFH, its customers and suppliers</p> <p>Stable supply of goods from the RFH for households</p> <p>Increased investment by new and existing freight & distribution businesses as RFH/NEIZ becomes more resilient</p> <p>More job opportunities in the freight & distribution sector as investment in the sector grows</p>
Enhanced reputation of Palmerston North as significant freight & distribution centre	More freight & distribution firms locate or expand in Palmerston North where they can use the Ring Road and RFH	<p>Increased investment by new and existing freight & distribution businesses in Palmerston North</p> <p>Further increases in job opportunities in the freight & distribution sector as investment in the sector grows</p>

⁴¹ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to RFH/NEIZ as a result of the Ring Road.

⁴² The quantum of these impacts depends on the quantum of RFH freight traffic that migrates away from central city arterials to the Ring Road.

6 Palmerston North Airport development

Palmerston North Airport (PMR) is the third busiest regional airport in New Zealand by passenger numbers. It is also the third busiest freight handling airport in New Zealand behind Auckland and Christchurch, with Freightways and NZ Post both having significant operations at PMR. The airport has experienced a drop in passenger volumes as a result of COVID-19 but expects to return to a growth trajectory within the next few years.

As part of its growth planning, Palmerston North Airport Limited (PNAL) intends to upgrade the passenger terminal and develop around 30 ha of its non-aeronautical land, including an opportunity to develop a significant freight & logistics operation adjacent to the NEIZ. These development projects are outlined below, along with expectations for how they are likely to be affected by the Regional Ring Road project.

6.1 What do the Airport development projects involve?

PNAL's development plans include the following projects:

- Upgrades to the airport passenger terminal to increase passenger capacity, enable Level 2 Security Screening and accommodate potential future jet operations. Expected timeframes: ~2022-2025.
- Development of land parcels owned by PNAL on either side of Airport Drive (Ruapehu Business Park) to accommodate small to medium light industrial, commercial and retail activities, including a new rental car precinct and a 7 ha large-format distribution zone with the potential to house large freight and logistics operations, possibly including NZ Post and Freightways. Expected timeframes: ~2022-2031.
- Development of a 5.6 ha parcel of land on the northern side of the runway (indicated by the blue triangle in Figure 22). This land is directly adjacent to the NEIZ and is accessed via Richardsons Line and Setters Line which are approximately 1 km from the new KiwiRail RFH facility and approximately 3 kms from the planned Ring Road. Given this location, there is an opportunity to develop the land into a significant freight & logistics operation⁴³ that could also potentially house Freightways and NZ Post and/or others on a strategic site with efficient access to the airport, NEIZ and RFH. Expected timeframes: 2025-2026.

⁴³ Potentially in combination with neighbouring parcels in the NEIZ.

Figure 22 Palmerston North Airport property zones



6.2 What are the expected impacts of the Airport development projects?

Table 7 below summarises the expected economic, social and environmental impacts of the Airport development projects.

By increasing the stock of business land available, including sites that will be highly attractive to freight & distribution businesses given their location adjacent to the airport (and the NEIZ in the case of the northern parcel), PNAL’s development projects are expected to contribute to increased investment in the city. PNAL’s terminal upgrade will enable more air passengers to travel through the airport, potentially resulting in higher levels of visitation, economic activity, and social connectivity.

Table 7 Expected outcomes and impacts of airport development projects

Airport development outcomes	Economic Impacts	Social & environmental impacts
<p>More land options available for commercial, retail and light industrial activities (including freight & distribution)</p>	<p>Reduced pricing pressure on business land in the city as a result of more land being available</p>	<p>More job opportunities available in the region</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p>

	Increased investment by new and existing businesses, with spillover effects for supporting businesses	Potential for pressure on house prices if demand for housing grows as a result of increased net migration
Existing businesses, including large footprint freight & distribution activities, relocate from central city to PNAL land	Central city land released for other higher value uses (e.g. commercial, residential, mixed use) Higher central city land values as noise, vibrations, odours, etc. generated by freight & distribution businesses migrate with them to PNAL land	Enhanced liveability and amenity value for people living and working in the central city, as a result of reduced noise, vibrations, odours, etc.
More air passengers able to be processed through the airport as a result of terminal upgrades	Reduced pressure on airfares as a result of increased capacity Increased visitation to the region resulting in increased spending and value added at local businesses Increased investment by new and existing businesses as better air travel capacity makes Palmerston North a more attractive place to do business	Increased social connectivity as a result of reduced pressure on airfares More job opportunities in the region resulting from increased levels of economic activity and investment Population growth if people migrate to Palmerston North to take up job opportunities Potential for pressure on house prices if demand for housing grows as a result of increased net migration
Potential for increased heavy traffic volumes on urban arterials resulting from increased activity at airport precinct and shifts in traffic flows	Increased travel times and VOCs for users of urban arterials, if higher traffic volumes cause (or worsen) congestion	Reduced liveability and amenity for people living and working on or near arterials as noise, air pollution, vibrations, etc. increase along with traffic volumes Less convenient connections to employment, schools, and other destinations residents wish to access Reduced actual and perceived safety for road users Reduced opportunities for walking and cycling resulting in poorer health and wellbeing

6.3 How are the impacts of the Airport development project likely to change as a result of the Ring Road?

By diverting a significant proportion of the region’s freight traffic onto the Ring Road, the PNITI project will help to relieve congestion on city roads, speeding up journey times for people traveling to the new business zones on PNAL land or using the upgraded passenger terminal. According to traffic modelling maps provided in the NOR⁴⁴, the preferred Ring Road programme will significantly reduce traffic volumes on several key airport access routes.

Some of the businesses that choose to locate on PNAL land may use the Ring Road directly. For example, freight & logistics businesses on the site north of the runway may use the Ring Road as a more efficient way to access Feilding to the north, SH1 to the northwest or SH57 to the south. The impacts of this shift in

⁴⁴ See section 2.2.1 above.

traffic flows on the city are considered to be relatively minor, however, given the size of the site. Airport passengers are not expected to use the Ring Road to access the airport in significant numbers, since most of them will be traveling to or from the central city.

The table below summarises the impacts that the Ring Road is expected to have on the Airport development projects and the value they deliver for the region.

Table 8 Expected impacts of Ring Road in relation to airport development projects

Changes brought about by Ring Road	Outcomes related to Airport development	Resulting impacts related to Airport development
<p>Reduced traffic on existing urban arterials, as freight vehicles migrate to the Ring Road</p>	<p>Reduced travel times and VOCs for businesses using decongested arterials to access new development zones on PNAL land</p> <p>Faster trips to the airport for passengers using decongested arterials to access the upgraded terminal</p>	<p>Increased productivity of businesses located on PNAL land</p> <p>Increased investment by new and existing businesses on PNAL land as the land becomes more productive</p> <p>Lower CO₂ emissions from businesses and passengers resulting from reduced travel times</p> <p>Increased social connectivity as it becomes easier to access the airport, encouraging more frequent travel</p>
<p>Safer, more efficient roading network for freight vehicles using the Ring Road</p>	<p>Reduced travel times and VOCs for freight & logistics vehicles using Ring Road to travel to and from new development zones on PNAL land</p> <p>Fewer accidents for freight carriers using the Ring Road to travel to and from the airport</p> <p>Airport freight traffic migrates away from central city arterials to Ring Road because of safety and efficiency benefits</p> <p>Existing freight & distribution businesses relocate from elsewhere in city to Airport as airport land becomes more productive</p>	<p>Increased productivity of freight & logistics businesses located on PNAL land</p> <p>Increased investment by new and existing freight & logistics businesses on PNAL land as the land become more productive</p> <p>Lower CO₂ emissions from freight & logistics businesses resulting from reduced travel times</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)⁴⁵</p> <p>All the benefits associated with freight & distribution businesses relocating from urban areas to NEIZ as described in Table 3 (NEIZ impacts)⁴⁶</p>
<p>Enhanced reputation of Palmerston North as significant freight & logistics centre</p>	<p>More freight & logistics firms and other industries invest or expand in Palmerston North including those relocating from other cities, e.g. Wellington.</p>	<p>Increased uptake of PNAL land by new and existing freight & logistics businesses</p>

⁴⁵ The quantum of these impacts depends on the quantum of Airport freight traffic that migrates away from central city arterials to the Ring Road.

⁴⁶ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to the airport as a result of the Ring Road.

7 Longburn Industrial Area Growth

The Longburn industrial area is located to the southwest of the city, adjacent to SH56. Major businesses operating at Longburn include Fonterra and Meadow Fresh.

7.1 What does the Longburn growth project involve?

The Council has rezoned around 85 ha of land in the Longburn area for wet industry (e.g. dairy) and general industrial uses, including freight and distribution activities. This includes the 33 ha Braeburn Industrial Area (rezoned in 2016) which is adjacent to Fonterra’s existing 11.5 ha operations at Longburn and aims to support Fonterra’s ongoing operational and growth needs. Fonterra currently uses Longburn as a staging point for output from its Whareroa plant in Hawera before sending it by rail to export ports in Napier, Tauranga and Auckland.

The proximity of Longburn to SH56, the North Island Main Trunk (NIMT) rail line and the future Ring Road makes it a suitable area for industrial growth. The Council is currently working with landowners to bring private water and wastewater infrastructure up to PNCC’s engineering standards for land development to encourage further investment and sustainable development at Longburn.

7.2 What are the expected impacts of the Longburn growth project?

By significantly increasing the stock of high-quality industrial land in the region, the Longburn growth project is expected to stimulate investment in dairy, freight & distribution, and other sectors of the economy, with associated increases in economic activity and employment.

Table 9 below summarises the expected economic, social and environmental impacts of the Longburn project.

Table 9 Expected outcomes and impacts of Longburn growth

Longburn growth outcomes	Economic Impacts	Social & environmental impacts
<p>More land options available for wet industry and freight & distribution businesses</p>	<p>Reduced pricing pressure on industrial land as a result of more zoned land being available</p> <p>Increased investment by new and existing businesses at Longburn, with spillover effects for supporting businesses</p>	<p>More job opportunities at Longburn and supporting businesses</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>

<p>Existing businesses relocate from central city to Longburn</p>	<p>Central city land released for other higher value uses (e.g. commercial, residential, mixed use)</p> <p>Higher central city land values as noise, vibrations, odours, etc. generated by freight & distribution businesses migrate to Longburn</p> <p>Longer journeys for some freight suppliers/customers who are further from Longburn, with associated increases in travel time and VOCs</p>	<p>Enhanced liveability and amenity values for people living and working in the central city, as a result of reduced noise, vibrations, odours, etc.</p> <p>Longer commutes for staff for whom Longburn is further from home, with associated increases in CO₂ emissions (shorter commutes for others)</p> <p>Increased CO₂ emissions resulting from increased travel times for commuters and freight carriers who are further from Longburn</p>
<p>Potential for increased heavy traffic volumes on urban arterials resulting from increased activity at Longburn and shifts in traffic flows</p>	<p>Increased travel times and VOCs for users of urban arterials, if higher traffic volumes cause (or worsen) congestion</p>	<p>Reduced liveability and amenity for people living and working on or near arterials as noise, air pollution, vibrations, etc. increase along with traffic volumes</p> <p>Less convenient connections to employment, schools, and other destinations residents wish to access</p> <p>Reduced actual and perceived safety for road users</p> <p>Reduced opportunities for walking and cycling resulting in poorer health and wellbeing</p>

7.3 How are the impacts of the Longburn growth project likely to change as a result of the Ring Road?

The development opportunity at Longburn is expected to be significantly enhanced once the Ring Road comes online, providing more efficient connections with the NEIZ, KiwiRail RFH, state highways to the north and east, and with SH57 and rural areas to the south via the new downstream river crossing. As a result we would expect to see productivity at Longburn increase and congestion on urban arterials ease as Longburn freight traffic migrates away from the city centre and onto the Ring Road.

The table below summarises the impacts that the Ring Road is expected to have on the Longburn growth project and the value it delivers for the region.

Table 10 Expected impacts of Ring Road in relation to Longburn growth

Changes brought about by Ring Road	Outcomes related to Longburn growth	Resulting impacts related to NEIZ
<p>More efficient roading network for freight carriers travelling to and from Longburn</p>	<p>Reduced travel times and vehicle operating costs (VOCs) for freight carriers using the Ring Road to travel to and from Longburn</p> <p>Longburn freight traffic migrates away from central city arterials to Ring Road because of efficiency gains</p>	<p>Increased productivity of Longburn businesses</p> <p>Increased investment in Longburn by new and existing businesses as the area becomes more productive</p> <p>More job opportunities as investment in Longburn grows</p>

	<p>Existing freight & distribution businesses relocate from central city to Longburn as Longburn becomes more productive</p>	<p>Lower CO₂ emissions from Longburn businesses resulting from reduced travel times</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)⁴⁷</p> <p>All the benefits associated with freight & distribution businesses relocating from urban areas to Longburn as described in Table 9 (Longburn impacts)⁴⁸</p>
<p>Safer roading network for freight carriers travelling to and from Longburn</p>	<p>Fewer accidents for freight carriers using the Ring Road to travel to and from Longburn</p> <p>Longburn freight traffic migrates away from central city arterials to Ring Road because of safety benefits</p> <p>Existing freight & distribution businesses relocate from central city to Longburn as Longburn becomes safer</p>	<p>Reduced economic and social costs of accidents associated with activities at Longburn</p> <p>Increased investment in Longburn by new and existing businesses as it becomes safer to do business there</p> <p>More job opportunities as investment in Longburn grows</p> <p>All the benefits associated with reduced traffic volumes on existing urban arterials described in Table 1 (Ring Road impacts)⁴⁹</p> <p>All the benefits associated with freight & distribution businesses relocating from urban areas to Longburn as described in Table 9 (Longburn impacts)⁵⁰</p>
<p>More resilient roading network for freight carriers travelling to and from Longburn, as a result of at least one additional bridge crossing as well as greater connectivity and network diversity</p>	<p>More reliable connections between Longburn businesses and their customers and suppliers</p>	<p>Avoided costs of lost connectivity for Longburn businesses and their customers and suppliers</p> <p>Increased investment by new and existing businesses in Longburn as connections with Longburn become more resilient</p> <p>More job opportunities as investment in Longburn grows</p> <p>Stable supply of goods from Longburn for households.</p>

⁴⁷ The quantum of these impacts depends on the quantum of Longburn freight traffic that migrates away from central city arterials to the Ring Road.

⁴⁸ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to Longburn as a result of the Ring Road.

⁴⁹ The quantum of these impacts depends on the quantum of Longburn freight traffic that migrates away from central city arterials to the Ring Road.

⁵⁰ The quantum of these impacts depends on the quantum of freight & distribution businesses that relocate from central city to Longburn as a result of the Ring Road.

8 Linton Military Camp regeneration

Linton Military Camp, located southwest of Palmerston North city, is the main operational hub of the New Zealand Army. Linton is the largest Army base in New Zealand, with 2,500 personnel based there (up to 1,150 living on base and the remainder living elsewhere in the city). The NZ Defence Force's (NZDF) recent review of the Defence estate resulted in a decision to expand operations at Linton, including via the relocation of some activities from other military bases.

As part of the Government's \$2.1 billion investment in defence infrastructure, Linton is scheduled for a \$200m+ programme of upgrades (Linton regeneration). Indicatively scheduled over the next 10 years, the investment is designed to respond to the requirement to improve the estate, lift efficiency of the built environment and improve the working, leisure and accommodation facilities used by personnel. The number of personnel living and/or working at the camp is not expected to materially increase as a result of the changes.

8.1 What does the Linton regeneration involve?

The Linton regeneration includes a number of projects:

- New ammunitions storage facility
- Queen Alexandra's Mounted Rifles headquarters
- Field workshop project
- Vehicle shelter
- Logistics main fleet utilisation warehouse
- Consolidated logistics infrastructure (logistics precinct)
- Protected mobility vehicle fleet infrastructure
- Heavy vehicle entrance gate
- Command Signals Unit facility
- New camp headquarters hub, including formation headquarters and those required to run the camp on a day to day basis
- New 'village square' at the heart of the camp
- New medical and health facilities
- New, larger barracks to improve the standard of living quarters and accommodate the higher expectations of the resident base⁵¹
- Electrical and stormwater upgrades
- Transport Company headquarters

⁵¹ Planned upgrades include a shift away from shared rooms with shared bathrooms to single rooms with private bathrooms.

- Combat School classroom and combined training centre

Due to funding constraints, these projects are scheduled to occur in a phased manner. Many have been planned to the schematic level (locational) and some are seeking early funding. The Logistics projects are relatively well advanced, with physical works expected to begin around 2022/23.

8.2 What are the expected impacts of the Linton regeneration projects?

The Linton regeneration projects are designed to deliver significant improvements to the facilities within Linton Camp, increase the efficiency of key camp functions and improve the overall quality of the camp environment.

The programme will deliver more integrated camp infrastructure that will enable enhanced management of warehousing and supply/distribution functions while reducing movement of freight, personnel, and vehicles within the camp. The Logistics projects will also provide fit for purpose facilities for maintaining and managing the future vehicle fleet. Expansion and modernisation of barracks and an improved 'town square' will lift staff wellbeing and improve recruitment potential, with potential positive impacts on inward migration to the region.

The table below summarises the expected outcomes and economic, social and environmental impacts of the regeneration projects.

Table 11 Expected outcomes and impacts of Linton regeneration

Linton regeneration outcomes	Economic impacts	Social & environmental impacts
Increased camp efficiency , resulting from a more integrated environment and fit-for-purpose facilities	<p>Lower camp costs resulting from more efficient facilities and camp layout</p> <p>Higher camp productivity resulting from efficiency gains</p>	
Better campus environment resulting from improved 'town square' and living environments	<p>Higher camp productivity due to enhanced performance of happier and healthier personnel</p> <p>Enhanced ability to recruit and retain high quality personnel, reinforcing productivity gains</p>	Improved amenity levels and wellbeing for camp personnel, including benefits relating to diversity & inclusion and safety

8.3 How are the impacts of the Linton Regeneration Project expected to change as a result of the Ring Road?

The Ring Road is expected to have significant benefits for Linton Camp, as described below.

Currently there is no efficient roading connection between Linton and the city. Light vehicles traveling between the camp and the city (e.g. commuters) typically travel via SH57 and Tennent Drive/Fitherbert Bridge, which is the only river crossing in Palmerston North. This can be a slow journey at peak times due to high traffic volumes on Tennent Drive.

Existing roading connections with military bases in Auckland and Waiouru are also suboptimal. Heavy vehicle convoys traveling between Linton and Ohakea, Waiouru or Auckland typically take a circuitous route via SH57, Ashhurst and SH54 to access State Highway 1 north, to avoid moving heavy military vehicles through the city centre.

The Ring Road preferred programme includes a new, \$90 million Manawatu River crossing between Longburn and Linton. This new connection will provide Linton traffic with a faster, safer route to the city using SH56 in place of Tennent Drive, resulting in time and cost savings and a reduced risk of accidents. It will also enable Linton defence convoys to access SH1 and northern Defence Force bases more directly via the Ring Road rather than needing to travel via Ashhurst (or through the city), also saving time and cost and improving safety outcomes. According to traffic modelling provided in the NOR, the Ring Road preferred programme is expected to result in time savings of up to 10 minutes per journey for trips between Linton and northern destinations such as SH1 north.⁵²

Depending on its exact alignment, the new Manawatu River Ring Road connection may result in increased traffic volumes on Camp Road and impede access to the Camp. Appropriate traffic management measures (e.g. a roundabout or offramp) may be required to mitigate this risk.

The table below summarises the impacts that the Ring Road is expected to have on the regeneration project and the value it delivers for the region.

Table 12 Expected impacts of Ring Road in relation to Linton regeneration

Changes brought about by Ring Road	Outcomes related to Linton regeneration	Resulting impacts related to Linton regeneration
More efficient transport routes between Linton and Palmerston North city and between Linton and SH1	<p>Faster military vehicle convoy trips between Linton, Ohakea and north</p> <p>Faster trips to the city for Linton vehicles using the Ring Road instead of Tennent Drive</p> <p>Reduced congestion on Tennent Drive as vehicles travelling between Linton and the city migrate to new downstream bridge</p>	<p>Reduced travel time and VOCs for trips to the city and other military bases</p> <p>Increased productivity of Camp operations as a result of time and cost savings</p> <p>Improved wellbeing of Linton personnel resulting from shorter commutes</p> <p>Lower CO₂ emissions resulting from reduced travel times</p>
Safer transport routes between Linton and Palmerston North city and between Linton and SH1	Reduced economic costs of accidents involving Linton personnel	Reduced social costs of accidents involving Linton personnel
More traffic using Camp Road , depending on alignment of new Manawatu River connection	Potential for impeded access to/from Camp , depending on effectiveness of traffic management measures (e.g. roundabout, offramp, etc.)	Potential for increased travel time/VOCs and reduced productivity for the Camp

⁵² Ref. section 2.2.1 above.

9 FoodHQ transformation project

FoodHQ is a partnership of public and private sector research, education and industry organisations working in New Zealand’s food science and innovation sector.⁵³ Its goal is to connect New Zealand’s food sector firms with the knowledge, services and networks they need to succeed and grow. Adding value to food exports through food innovation is a growing part of the Manawatu-Whanganui regional economy and is expected to be a key enabler of regional growth into the future.

FoodHQ’s premises are located on Dairy Farm Road, adjacent to the Massey University campus, south of the Manawatu River (Figure 23).

9.1 What does the FoodHQ transformation project involve?

FoodHQ is currently seeking co-funding for a programme of work designed to enhance the effectiveness of research, development and deployment (RD&D) in New Zealand’s Food & Beverage (F&B) sector (the FoodHQ transformation project). A joint proposal by FoodHQ and the New Zealand Food Innovation Network (NZFIN)⁵⁴ highlights the need for:

Enhanced R&D capability to lift the standard of specialist facilities and expertise available to New Zealand F&B firms to help them compete internationally; and

Better coordination and connectivity across the F&B ecosystem so that firms can efficiently access food-specific specialist support to help them to transition from idea to successful product in market.

The transformation project involves three elements:

1. **Open-access pilot and scale-up facilities (NZFIN):** improving the effectiveness of and access to NZFIN’s regional network of scale-up facilities and experts which support businesses through to commercial production.
2. **System connection/integration (FoodHQ):** Expanding the RD&D services that FoodHQ provides to F&B businesses, including:

Figure 23 Location of Food HQ



⁵³ Established in 2013, FoodHQ was founded by AgResearch, Fonterra, Massey University, Plant & Food Research, The Riddet Institute and The Factory, along with the local authorities in Palmerston North and Manawātū, and the Central Economic Development Agency. Other partners have subsequently joined including Cawthron, ESR, the New Zealand Food Safety Science and Research Centre and B.linc (formally Lincoln Hub).

⁵⁴ NZ Food & Beverage Manufacturing: Transforming the Ecosystem to Accelerate Innovation, Development & Growth. A joint FoodHQ/New Zealand Food Innovation Network Proposal for discussion, September 2020.

- “FoodHQ Central” – a team responsible for FoodHQ management, international networks and consortia, market insights, databases, concierge service for international enquiries about NZ F&B, facilitated workshops on major issues, Specialists in Residence programme, and facilitated identification of gaps in science and innovation ecosystem;
- regionally-based Food Innovation BDMs and Māori Food Sector Navigators;
- postgraduate scholarships and promotion of food-related study and career options for Māori;
- tailored courses and programmes to enable individuals and entities to overcome capability shortfalls;
- food-focused incubator/accelerator; and
- student-led Food and Business Innovation Lab.

3. FoodHQ Science Park: Expanding and enhancing the existing F&B Science Park in Palmerston North to create an internationally recognised F&B science and innovation campus that hosts top, industry-focussed researchers and teachers and is accessible to all New Zealand food businesses. This project would build on the existing Science Park that encompasses the F&B-related activities based at Massey University as well as those within what was previously known as the Fitzherbert Science Centre on the other side of Tennent Drive (which includes the FoodHQ premises). Key elements of the FoodHQ Science Park project include:

- *Innovation Central building* - a new, multipurpose building that will be the ‘front door’ to FoodHQ and the Science Park and will include shared office space for a variety of food-related businesses, a café and innovative food retail outlet (enabling the trial launch of new foods and providing a showcase to visitors and the general public regarding innovative foods and packaging), meeting rooms and mixing spaces;
- *New and refurbished R&D facilities* - including new rapid prototyping facilities, product development kitchens, accelerated shelf-life facilities, Controlled Environment Horticulture mobile labs, and refurbished specialist facilities (chillers, freezers, etc.) within existing buildings;
- *Plant and Food Research (PFR) Building* - Containing offices and laboratories predominantly used by PFR, but also available to FoodHQ participants, to accommodate food science-related researchers and activities;
- *Campus upgrades* - including installation of footpaths and streetlights and evaluation of potential approaches for enabling easier and more frequent movement across the campus (e.g. electric bikes or scooters, autonomous or semi-autonomous vehicles, mini-van service, etc);
- *Science park management team* – to organise events and activities within the Park, encourage a vibrant collaborative and entrepreneurial culture, host visitors to the Park, update and implement the master plan, and help attract and retain top talent and businesses; and
- *Seeding capability investment fund* - to rapidly build capability in critical areas of food innovation, i.e. Sustainable Packaging, plant protein food products, links between food and cognition, and better use of food-related data in decision-making.

With the proposed investment, the resulting ‘super campus’ has the potential to be one of the top 5 F&B Science Parks internationally.

The total cost of the transformation project is estimated to be around \$270m over 10 years, more than half of which is being funded by FoodHQ Partner organisations. Co-funding for the other elements (approx. \$110m) is being sought from central government.⁵⁵ Assuming sufficient co-funding is secured, the infrastructure work is expected to be completed within approximately 5 years from confirmation of funding.

9.2 What are the expected impacts of the FoodHQ transformation project?

According to the funding proposal, the FoodHQ transformation project will result in “a more efficient and integrated system that would accelerate the NZ F&B sector’s development and growth, particularly for regional, Māori and SME firms.”⁵⁶

The table below summarises the expected outcomes and economic, social and environmental impacts of the project.

Table 13 Expected outcomes and impacts of FoodHQ transformation project

FoodHQ outcomes	Economic impacts	Social & environmental impacts
More efficient RD&D processes	<p>Reduced RD&D costs from more efficient processes</p> <p>Higher productivity in NZ F&B firms due to efficiencies</p>	
Higher value products resulting from better RD&D processes (including better use of agricultural land)	Higher revenue and value added from product sales, including exports (e.g. sustainable packaging, plant-based food products, health-enhancing food products)	Reduced landfill waste from sustainable packaging initiatives
More successful product launches resulting from better commercialisation processes	<p>Higher revenue and value added from product sales, including exports</p> <p>Avoided costs from fewer failed product launches</p> <p>Increased investment from more successful start-ups</p>	<p>More job opportunities in the F&B sector</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>
Increased collaboration resulting from co-location	Increased revenues and value added resulting from clustering benefits	Increased wellbeing of Science Park students and staff resulting from positive interactions with each other
Enhanced reputation of Manawatu as leading location for F&B science and innovation	<p>Increased investment from new and existing firms attracted to the region</p> <p>Increased visitation to the region, resulting in increased spending and value added at local businesses</p>	<p>More job opportunities in the F&B sector</p> <p>Population growth if people migrate to Palmerston North to take up job opportunities</p> <p>Potential for pressure on house prices if demand for housing grows as a result of increased net migration</p>

⁵⁵ Including as part of the Food and Beverage Industry Transformation Plan lead by MPI.

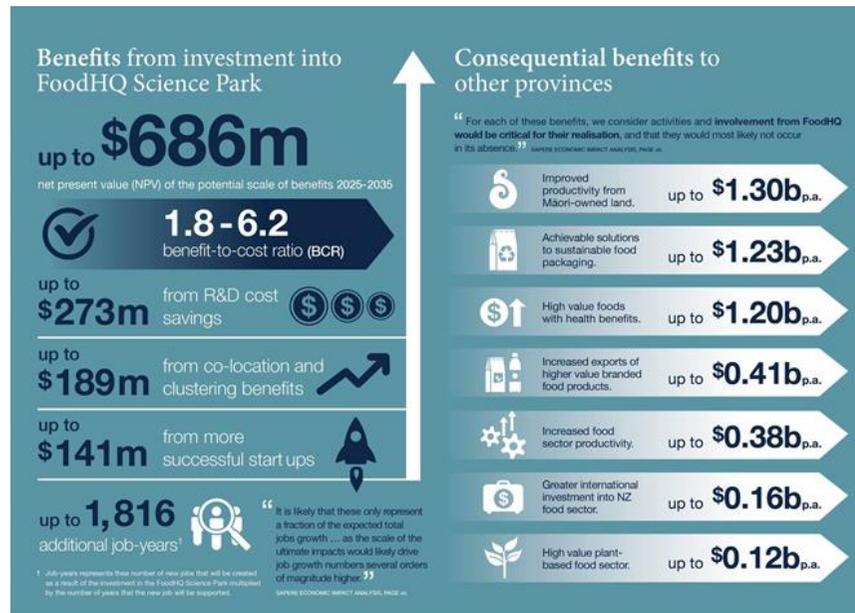
⁵⁶ Proposal p. 3.

Recruitment of high-quality researchers, students and experts to the region	Increased spending and value added at local businesses from more people relocating to the region Benefits from improved RD&D resulting from high-quality talent (i.e. many of the benefits listed above)	Increased wellbeing of people who relocate to the region (evidenced by their choice to relocate) Potential for pressure on house prices if demand for housing grows as a result of increased net migration
Better campus environment as a result of campus upgrades	Benefits associated with increased collaboration and attraction of people and businesses , as listed above	Increased social and amenity value for staff and students based at the Science Park
Increased vehicle movements to and from the Science Park as more activities locate there, resulting in increased congestion and potential conflicts with the high-speed environment on Tennent Drive	Increased travel times and VOCs for traffic using Tennent Drive Increased economic costs of accidents , which may increase as a result of increased interaction between high-speed vehicles on Tennent Drive and vehicles entering/exiting the Science Park.	Increased CO₂ emissions resulting from increased journey times Increased social costs of accidents as a result of conflicts between high-speed vehicles on Tennent Drive and vehicles entering/exiting the Science Park.

The FoodHQ/NZFIN proposal provides the results of an economic impact analysis undertaken by Sapere Research Group. Figure 24 summarises Sapere’s estimates of the economic impacts of the combined investment into FoodHQ and the Manawatū F&B Science and Innovation Park (referred to as the FoodHQ Science Park in Figure 24).⁵⁷ Sapere estimates that the benefit-cost ratio of the investment lies within the range 1.8 - 6.2, considering direct benefits only. This indicates that the direct benefits of the project are expected to outweigh the costs of the project by between 180% and 620%.

⁵⁷ Sapere’s full report is titled “The economic effects of campus and capacity extension”, Sapere (David Moore & William Li), August 2019.

Figure 24 Summary of Sapere assessment of economic impacts of FoodHQ proposal



Sapere notes that the impact of the direct investment into the Park is easier to quantify due to more data being available from overseas initiatives, but the larger ‘prizes’ are the consequential benefits that would accrue across New Zealand. Based on Sapere’s estimates, it would only require one of these consequential benefits to be achieved to obtain an annual payback well in excess of the total government funding requested over a 10-year period. (Note that there is overlap between the many of the individual consequential benefits, i.e. they are not mutually exclusive and should not be summed.)

Table 13 above (describing the expected impacts of the FoodHQ Transformation Project) includes all of the benefit-types identified by Sapere with the addition of increased investment by new and existing firms attracted to the region through reputation effects and increased visitation (benefits), growth in house prices and traffic volumes on Tennent Drive (disbenefits), and the social and environmental impacts described in the right-hand column of Table 13.

9.3 How are the impacts of the FoodHQ Transformation project likely to change as a result of the Ring Road?

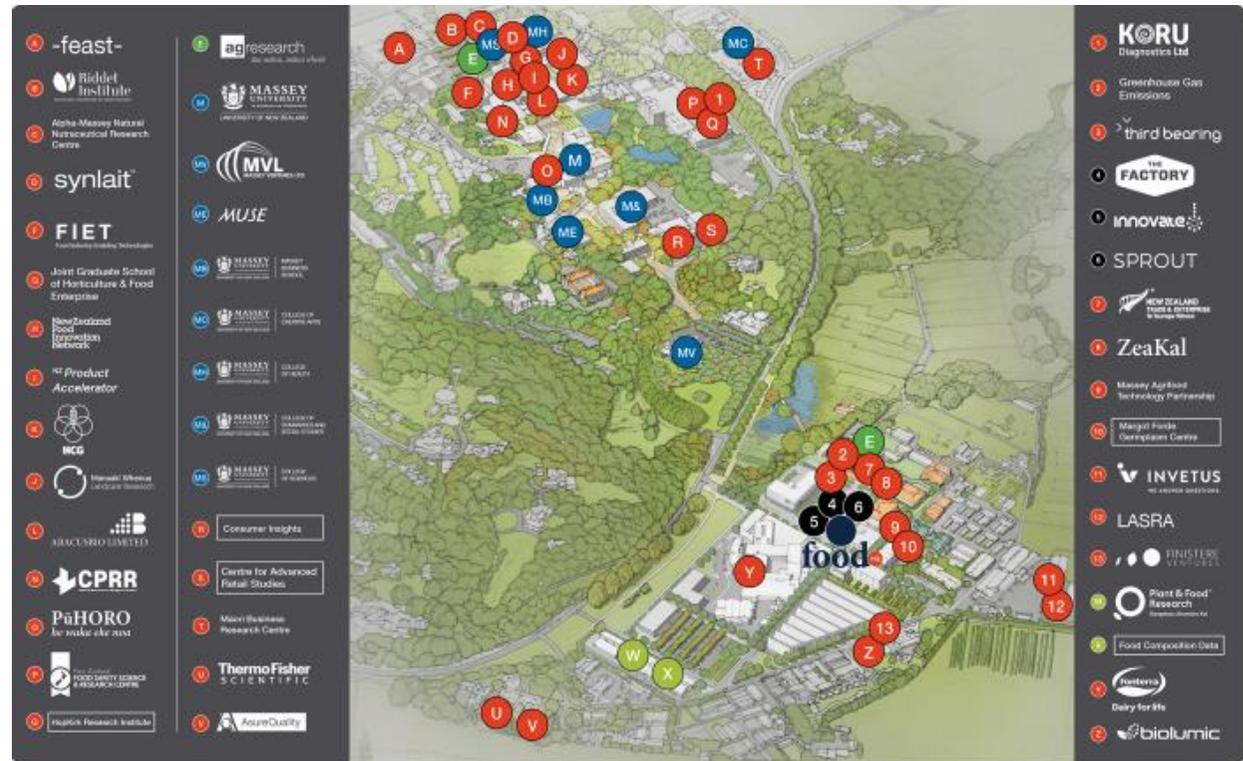
FoodHQ’s plan to develop an internationally successful science park envisages an integrated, well-connected campus that is easy to move around. High-amenity physical spaces facilitate collaboration and help attract and retain top talent.

Figure 25 shows the existing F&B Science Park and its member organisations which are a mix of research, education, innovation support and commercial organisations located on either side of Tennent Drive.⁵⁸ (Note the reverse orientation of Figure 24 with north pointing down.) Tennent Drive is visible as the semicircle in Figure 25 and can also be seen in Figure 23 above.

The Massey University campus is located to the east of Tennent Drive (left in Figure 25) and the cluster of F&B activities formerly known as the Fitzherbert Science Centre is located to the west of Tennent Drive (right in Figure 25). The connection to the city (via Fitzherbert Bridge over the Manawatu River) is towards the bottom of the picture.

Tennent Drive is the only roading connection between areas south of the river (e.g. Massey University, Linton Military camp and the suburb of Aokautere) and the city. It is a four-lane carriageway with heavy traffic volumes, high vehicle speeds, limited facilities for walkers and cyclists and little space for parking. It experiences a relatively high rate of accidents and users report difficulties entering and exiting Tennent Drive safely (by way of example, current bus routes exclude Dairy Farm Road (the side road on which FoodHQ is located) because of difficulties turning into and out of Tennent Drive). These conditions make it difficult to

Figure 25 Map of Manawātū F&B Science Park



⁵⁸ Figure 25 is taken from the September 2020 Summary of Expenditure accompanying the funding proposal. Note its reversed orientation with north pointing down. Tennent Drive is visible as the semicircle in Figure 25 and can also be seen in Figure 23 above.

achieve the desired level of connectivity between the western and eastern sides of the Science Park campus. Tennent Drive effectively severs the campus into two distinct “islands”, creating suboptimal conditions for collaboration.

Construction of the Ring Road will have a significant traffic dampening effect on Tennent Drive, by diverting a portion of the north-south traffic that currently uses this route to the new downstream bridge. Traffic modelling maps provided in the NOR⁵⁹ reflect an expectation that construction of the Ring Road will result in an approximately 25% reduction in traffic flows on Tennent Drive and Fitzherbert Bridge. The traffic modelling maps suggest that the reduction in vehicle numbers on Tennent Drive will increase to around 40% with speed reductions in place (while reductions on Fitzherbert Bridge remain at around 25%).

The large reductions in traffic volumes referenced in the NOR will help reduce the level of severance created by Tennent Drive and decrease the time it takes to travel between the Science Park and the city via Tennent Drive. These changes are expected to make a significant difference to the efficient functioning of the Science Park and the campus environment, enhancing the value that the FoodHQ transformation project delivers to the region.

Science Park staff and visitors are not expected to use the Ring Road itself in significant numbers as Tennent Drive is likely to remain the most convenient route for trips to and from the city and state highways to the north.

The table below summarises the impacts that the Ring Road is expected to have on the FoodHQ transformation project and the value it delivers for the region.

Table 14 Expected impacts of Ring Road in relation to FoodHQ Transformation Project

Changes brought about by Ring Road	Outcomes related to FoodHQ Transformation Project	Resulting impacts related to FoodHQ Transformation Project
<p>Reduced traffic on Tennent Drive as some traffic that currently uses Tennent Drive for trips to and from the city migrates to new downstream bridge</p>	<p>Increased collaboration between Science Park members, enabled by a better-connected campus</p> <p>Increased opportunities for walking and cycling as Tennent Drive becomes safer and easier to traverse</p> <p>A more pleasant campus environment as noise, air pollution, and safety concerns associated with traffic on Tennent Drive are reduced</p> <p>Faster connections to the city via a less-congested Tennent Drive</p> <p>Increased attraction of talent and businesses to the Science Park</p>	<p>All the benefits associated with FoodHQ identified in Table 13 above will be enhanced by the traffic dampening effects of the Ring Road and the impact this will have on the campus environment and the ease of collaboration. The disbenefit identified in Table 13 relating to increased vehicle movements on Tennent Drive will be mitigated. The Ring Road will magnify project outcomes by enabling FoodHQ and the Science Park to operate more effectively.⁶⁰</p> <p>There will also be new impacts for the project as a result of the Ring Road:</p>

⁵⁹ See section 2.2.1 above.

⁶⁰ The materiality of these benefits depends on the difference the Ring Road will make to conditions on Tennent Drive (including by enabling other important changes that can be implemented by PNCC, e.g. speed limit changes, pedestrian crossings, cycle lanes).

	<p>Ability to develop properties facing Tennent Drive, increasing opportunities to offer food products for sale</p>	<p>Reduced travel time and costs for Science Park members, resulting from faster connections to the city via a less-congested Tennent Drive</p> <p>Improved health and wellbeing resulting from increased opportunities for walking and cycling</p> <p>Increased revenue opportunities resulting from the ability to develop properties facing Tennent Drive</p>
<p>Improved safety on Tennent Drive as a result of speed changes, crossings, etc.</p>	<p>Increased collaboration between Science Park members, enabled by a better-connected campus</p> <p>Increased opportunities for walking and cycling as Tennent Drive becomes safer and easier to traverse</p> <p>Increased attraction of talent and businesses to the Science Park</p> <p>Ability to develop properties facing Tennent Drive, increasing opportunities to offer food products for sale</p>	<p>All the benefits identified in Table 13 above will be enhanced by the Tennent Drive safety improvements included in the Ring Road programme and the impact this will have on the ability of Science Park participants to collaborate. The safety improvements will magnify project outcomes by enabling FoodHQ and the Science Park to operate more effectively.⁶¹</p> <p>There will also be new impacts for the project as a result of the Ring Road:</p> <p>Improved health and wellbeing resulting from increased opportunities for walking and cycling</p> <p>Increased revenue opportunities resulting from the ability to develop properties facing Tennent Drive</p>

⁶¹ The materiality of these benefits depends on the difference the Ring Road will make to conditions on Tennent Drive (including by enabling other important changes that can be implemented by PNCC, e.g. speed limit changes, pedestrian crossings, cycle lanes).

10 Major Residential Growth Projects

The population of Palmerston North has grown at higher than projected rates in recent years and is expected to grow by around 11% over the next 10 years.⁶² Palmerston North's three biggest greenfield housing projects, Kakātangiata, Aokautere and Whakarongo, are expected to meet a significant portion of the short, medium and long-term demand for housing in the city.^{63, 64}

10.1 What do the residential growth projects involve?

The three projects are outlined briefly below.

Kākātangiata

The Kākātangiata urban growth area is an approximately 700 ha site located on the west side of the city near the intersection between Longburn Rongotea Road and No. 1 Line. The area is adjacent to the Longburn industrial area and has good road access to the City Centre, which is about 5 km away via SH56. Kākātangiata is intended to accommodate around 5,000 new homes.⁶⁵

Aokautere

The suburb of Aokautere is located south of the city, adjacent to SH57 and a short drive from Massey University and FoodHQ. Aokautere is approximately 8 km from the CBD. PNCC is planning to provide more residential and rural-residential (lifestyle) land in this area, which currently offers a mix of residential and rural land. PNCC believes there is scope to develop an additional 1,200 new dwellings in Aokautere.

Whakarongo

The suburb of Whakarongo is located east of the city on both sides of Napier Road (currently SH3), approximately 7 km from the CBD. The Council is developing a new subdivision on land it owns on Tamakuku Terrace in Whakarongo, and the wider area is expected to provide around 600 homes. The Council subdivision is being designed with smaller sections than traditional greenfields developments⁶⁶ to encourage a mix of housing types and prices.

⁶² Infometrics population projections (medium growth), March 2020.

⁶³ The Palmerston North City development strategy anticipates the need for 5,500 new homes over the next decade.

⁶⁴ PNCC and developers are also working on a number of smaller residential growth projects, e.g. in Ashhurst (400 new dwellings), Flyers Line (200 new dwellings) and Napier Road (50 new dwellings), as well as other assorted infill, brownfield and medium density developments.

⁶⁵ 50 ha of industrial land will be rezoned between Longburn and Longburn-Rongotea Road.

⁶⁶ Of the 114 sections, 15 per cent are 300-square-metres or smaller, and 40 per cent are 400sqm or smaller. <https://www.stuff.co.nz/manawatu-standard/news/123379167/whakarongo-development-could-help-ease-palmerston-norths-housing-crisis>

10.2 What are the expected impacts of the residential growth projects?

The three housing projects outlined above will be transformational in terms of housing supply. Together, they are expected to meet around 50% of Palmerston North’s new housing requirements over the next 10 years. By significantly increasing the amount of residential land available and providing a range of different housing types, it is hoped that they will help to curb recent rapid growth in house prices in the city and increase the supply of affordable housing. The three projects represent some of the last opportunities for major greenfield residential development, beyond which residential growth will increasingly need to be achieved by way of infill development.

On the negative side, the growth in the City’s population that will be enabled by these developments will add pressure to an already overburdened city roading network.

The table below summarises the expected outcomes and economic, social and environmental impacts of the residential growth projects.

Table 15 Expected outcomes and impacts of major residential growth projects

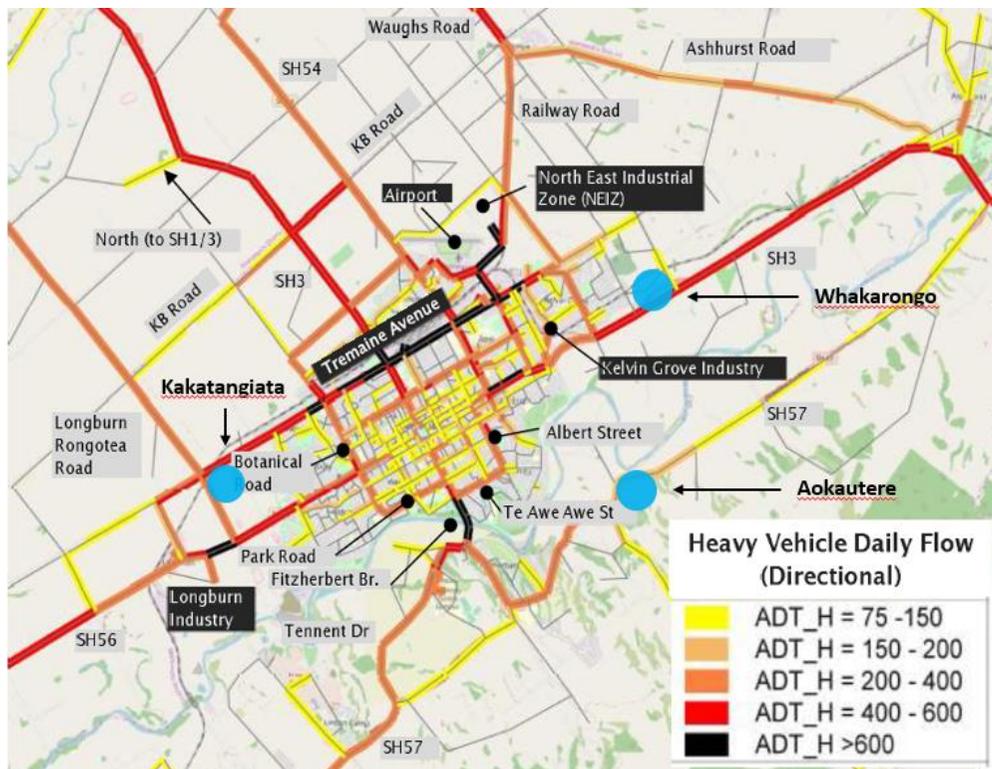
Residential growth outcomes	Economic impacts	Social & environmental impacts
More land available for residential growth in the city	<p>Reduced house price pressure as a result of expansion in supply</p> <p>Continued population growth enabled by growth in housing supply at competitive prices</p>	<p>Adequate housing supply to meet the needs of prospective home buyers</p> <p>Reduced demand for social and state housing, as a result of improved supply of affordable housing</p>
Higher traffic volumes on City roads as population expands, resulting in increased congestion	<p>Increased travel times and VOCs for users of city roading network</p>	<p>Less convenient connections to employment, schools, and other destinations residents wish to access</p> <p>Reduced central city amenity values as noise, air pollution, vibrations, etc. increase along with traffic volumes</p> <p>Reduced actual and perceived safety for users of more heavily trafficked city roads</p> <p>Reduced opportunities for walking and cycling as a result of heavier traffic volumes</p>

10.3 How are the impacts of the residential growth projects expected to change as a result of the Ring Road?

Some people living in the city’s residential areas are currently negatively impacted by heavy traffic volumes on city roads. Vehicles moving freight to and from key industrial nodes, along with general traffic, are clogging up streets in residential neighbourhoods and the arterials that people use to commute to and from work.

Figure 26 shows the arterials that are currently used by trucks and other heavy vehicles moving freight between the city’s industrial nodes. The three residential growth areas are marked by blue circles. Heavily affected corridors include Tremaine Ave and Pioneer Highway/SH3 (which border Kakatangiata on its north and south) and Napier Rd/SH3 (which runs through the Whakarongo housing area).

Figure 26 NOR Weekday Heavy Vehicle Volumes by direction⁶⁷ (blue circles indicate residential growth areas)



⁶⁷ Figure 4-9, NOR p. 24.

By providing an efficient, fit-for-purpose roading network around the outskirts of the city, the Ring Road is expected to divert significant volumes of heavy freight traffic away from central city streets. This will relieve congestion on urban arterials and lift amenity values and quality of life for residents. It will also provide a more defined urban edge for the city, which will help guide the locations of future residential and industrial developments and maintain separation between these different land uses.

Expected impacts of the Ring Road that are specific to one or more of the three residential growth projects are described below.

Kakatangiata

Kakatangiata will benefit from a reduction in traffic volumes on Pioneer Highway, which runs adjacent to (and crosses through a section of) the proposed development. Reduced truck volumes will lift amenity values in Kakatangiata and make it safer and easier for residents to cross the road, walk and cycle. The Ring Road will also provide better roading connections between Kakatangiata and SH1 north, employment opportunities at the NEIZ and planned KiwiRail Regional Freight Hub, Linton Military Camp and other areas south of the Manawatu River, via the new downstream bridge. Development of the Ring Road as a state highway will enable Pioneer Highway/SH3 to be declassified and developed as a high-quality urban roadway instead, with reduced speeds and other safety improvements and the potential for more access roads linking to Pioneer Highway.

Potential downsides of the Ring Road include increased heavy traffic volumes on Longburn Rongotea Road which borders Kakatangiata to the west. The use of set-backs and/or barriers should reduce the negative impacts of traffic noise, etc. on residents but may also marginally reduce the amount of land available for development, reducing the yield of the project. Given the scale of development planned at Kakatangiata, any marginal impacts related to locating a state highway at the edge of the development are expected to be minor. Potential impacts are being actively considered in the planning for the new growth area. The Ring Road will clearly define an outer urban edge for the City at this location and will provide significantly improved urban gateway experiences for local residents and other road users travelling into the City Centre along Pioneer Highway, or into industrial employment areas along Tremaine Avenue. The overall impacts of the Ring Road on Kakatangiata are expected to be strongly positive.

Aokautere

By reducing traffic volumes on Aokautere Drive/SH57 (including military vehicle convoys traveling to and from Linton), the Ring Road will improve the residential environment in Aokautere. Aokautere Drive will be easier and safer to cross and the reduction in traffic noise, air pollution, etc. will lift amenity values in the area. The Ring Road is also expected to reduce traffic volumes on Tennent Drive, making the trip between Aokautere and the city faster and safer. Overall, the impacts of the Ring Road on Aokautere are expected to be moderately positive.

Whakarongo

Whakarongo will benefit from reduced heavy vehicle volumes on Napier Road/SH3 and Stoney Creek Road, which will improve the residential environment and reduce the time it takes to drive between Whakarongo and the City Centre. Declassification of Napier Road as a state highway will enable Whakarongo to develop as a high-quality urban corridor, with reduced speeds, better urban frontage (without the need for state highway setbacks) and the potential for additional access roads to be developed. Overall, the impacts of the Ring Road on Whakarongo and Napier Road are expected to be strongly positive.

The table below summarises the impacts that the Ring Road is expected to have on the residential growth projects and the value they deliver for the region.

Table 16 Expected impacts of Ring Road in relation to major residential growth projects

Changes brought about by Ring Road	Outcomes related to residential growth projects	Resulting impacts related to residential growth projects
<p>Reduced traffic volumes in the central city as freight carriers and through traffic migrate to Ring Road</p>	<p>Urban arterials become less congested as the volume of traffic using them falls</p> <p>Declassification of state highways enables them to be developed as functional urban corridors, enhancing the urban/residential environment</p>	<p>Reduced travel times and VOCs for residents using decongested arterials</p> <p>Enhanced liveability and amenity value for people living near traffic-dampened arterials, including improved noise, vibrations and air quality</p> <p>Improved actual and perceived safety resulting from lower traffic volumes</p> <p>Reduced severance between residents and the services and amenities they value (e.g. school, parks, etc.)</p> <p>Increased opportunities for walking and cycling, resulting in improved health and wellbeing</p> <p>Higher land values for residential properties located on or near traffic-dampened arterials</p>
<p>Increased freight traffic volumes on sections of the Ring Road that border residential developments</p>	<p>Increased freight traffic volumes on Longburn Rongotea Road which borders the Kakatangiata residential area</p>	<p>Reduced amenity values for Kakatangiata development due to increased traffic volumes on Longburn Rongotea Road</p> <p>Reduced residential yield for Kakatangiata due to setback requirements</p>

11 Streets for People

Streets for People (the renamed Central City Streetscape Masterplan Project) is a key component of PNCC’s urban development strategy. It has been developed in line with PNCC’s long-term plan and is guided by several Council strategies, including the Urban Design Strategy, the City Centre Framework and the Street Design Manual. Streets for People sees people as the key ‘indicator species’ of city life and aims to attract more of them to the City Centre by transforming it into a vibrant, pedestrian-friendly commercial and entertainment hub.

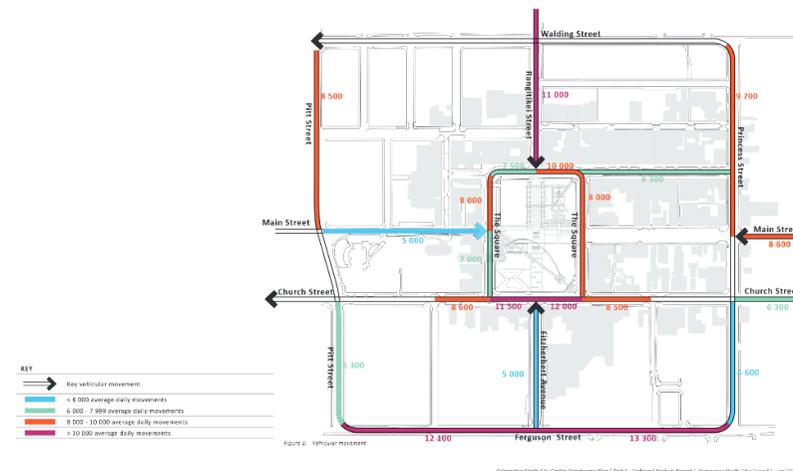
11.1 What does Streets for People involve?

Streets for People reimagines key City Centre streets as highly social spaces, where (through the right environmental conditions) people are attracted to spend more time to shop, eat, attend events, do business, etc. It aims to create people-friendly spaces that encourage walking instead of driving, more outdoor hospitality and staying spots, active shop frontages and community-initiated events like the Village Night Market and Food Truck clusters. Key elements of the Streets for People project include:

- Reduced Vehicle speeds and ‘rat running’ through the City Centre
- Reductions in the number of carparking spaces⁶⁸
- Reduced carriageway widths
- Fewer vehicle lanes (e.g. converting four-lane roads into two-lanes)
- Improved ‘human scale’ and walkability conditions (e.g. reduced crossing widths, wider footpaths, provision for seating, art and temporary events)
- Enhanced amenity
- Improved safety (Traffic and CPTED⁶⁹)

Streets for People builds on the road-user place/movement hierarchy approach outlined in PNCC’s Street Design Manual, which prioritises higher street activation by people over vehicles on roads.

Figure 27 Palmerston North City Centre Streetscape Plan



⁶⁸ Progress on the project has been slowed at times because of the conflict between its core premise of designing pedestrian-friendly, human scale streets and an expectation by residents and visitors of high volumes of parking being available in the city centre. An oversupply of parking discourages the use of public transport, walking and cycling, encourages fragmented edge conditions and dispersed built form and undermines the townscape character of the city centre.

⁶⁹ Crime Prevention Through Environmental Design.

The Streets for People project encompasses the Square, Main Street East, Broadway, and sections of Rangitikei Street (see Figure 27). It is being completed in phases, with the first phase completed in 2019 and the last phase expected to be finished by 2027.

11.2 What are the expected impacts of Streets for People?

The changes planned as part of the Streets for People project will reinforce the City Centre as a destination, making it a more appealing place for people to be. This will have multiple important benefits including lifting amenity values, improving safety and city perception, increasing the amount of time and money spent in the city by visitors, and stimulating private sector investment.

While we would expect to see these types of benefits occur with or without the Ring Road, they will be significantly undermined and weakened if the Ring Road is not built. If the project is completed without the Ring Road in place, it will fall short of the desired reduction in traffic volumes and have the unintended effect of pushing a significant portion of the traffic that is currently using inner City Centre streets out to the next 'ring' of commercial and residential streets, creating issues for road-users in these areas. The full benefits of city centre revitalisation will not be able to be realised until the Ring Road is in place, giving freight vehicles and other through-traffic an effective alternative to inner city streets.

Table 17 below summarises the expected outcomes and economic, social and environmental impacts of the Streets for People project.

Table 17 Expected outcomes and impacts of Streets for People

Streets for People outcomes	Economic impacts	Social & environmental impacts
<p>More pedestrian-friendly City Centre streets with fewer cars</p>	<p>Increased visitation to Palmerston North, resulting in increased spending and value added at City Centre-based businesses as well as spillover benefits to businesses located outside the City Centre</p> <p>Increased investment by new and existing businesses as Palmerston North's City Centre becomes a more attractive place to do business.</p> <p>Increased investment in inner city living as the City Centre becomes a legitimate location for work, live and play – also resulting in a vibrant night economy</p> <p>Higher land values in the City Centre, reflecting its increased amenity values and income-generating potential</p>	<p>Enhanced liveability and amenity value for people spending time in the City Centre, including:</p> <ul style="list-style-type: none"> - improved noise, vibrations, air quality - more vibrant, pedestrian-friendly environment <p>Increased opportunities for walking and cycling, resulting in improved health and wellbeing</p> <p>Increased opportunities for inner city living resulting in more diverse housing choices, stronger attraction of youth and talent to the city and increased 'city life'</p> <p>Improved actual and perceived safety as a result of reduced potential for conflict between cars and other street users and increased passive surveillance via stronger 'city life', contributing to reduced criminal activity</p>
<p>Increased heavy vehicle and passenger traffic volumes on outer City Centre roads as traffic is pushed out of the inner City Centre by speed reductions, etc.</p>	<p>Increased travel times and VOCs for users of outer City Centre roads</p>	<p>Less convenient connections to employment, schools, and other destinations for outer City Centre residents</p>

		<p>Reduced outer City Centre amenity values as noise, air pollution, vibrations, etc. increase along with traffic volumes</p> <p>Reduced actual and perceived safety for users of more heavily-trafficked outer City Centre roads</p> <p>Reduced opportunities for walking and cycling in the outer City Centre, as a result of heavy traffic volumes</p>
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11.3 How are the impacts of Streets for People expected to change as a result of the Ring Road?

The desired city centre transformation depends critically on reducing vehicle traffic volumes in and through the City Centre. State Highway 3 currently runs through the edge of the City Centre, only a few hundred metres from The Square. SH3 and Fitzherbert Ave are commonly used by heavy freight vehicles traveling from one side of the city to the other, with trucks often spilling onto other central city streets when drivers encounter heavy traffic on sanctioned freight routes (this kind of ‘rat running’ is easy to do given the wide, grid-based urban structure in the city).

The Ring Road will divert a significant proportion of heavy vehicle and commuter traffic currently using these streets to a safe, efficient freight route around the outskirts of the city, reducing the volume of traffic and associated noise and safety issues in the City Centre. This will enable the creation of truly people-centric urban spaces, significantly enhancing the economic, social and environmental benefits of the project to Palmerston North.

The Ring Road will also make it easier for the Council to implement the street changes envisaged by the project. Drivers currently using the City centre will be more likely to support the changes if they are provided with an effective alternative route. Additionally, the negative spillover effects on outer City Centre streets described in section 11.2 will be mitigated by the Ring Road, engendering stronger support for Streets for People from City Centre businesses, visitors and residents.

The table below summarises the impacts that the Ring Road is expected to have on the Streets for People project and the value it delivers for the region.

Table 18 Expected impacts of Ring Road in relation to Streets for People

Changes brought about by Ring Road	Outcomes related to Streets for People	Resulting impacts related to Streets for People
<p>Reduced through traffic volumes in the City Centre as freight carriers and through commuter traffic migrate to Ring Road</p>	<p>City Centre becomes a nicer place to be, resulting in more people living, working and playing there</p> <p>Faster vehicle trips to and from and the City Centre as a result of reduced traffic congestion</p>	<p>All the benefits identified in Table 17 above will be magnified by the traffic dampening effects of the Ring Road and the impact this will have on the City Centre environment. The disbenefit identified in Table 17 relating to increased traffic volumes on outer City Centre streets will be mitigated. The Ring Road will enhance project outcomes by supporting the transformation of</p>

		<p>the City Centre into a truly human scale, people-friendly environment.</p> <p>There will also be a new impact relevant to the project as a result of the Ring Road:</p> <p>Reduced travel time and costs for people accessing the City Centre from elsewhere in the city, as a result of reduced congestion on urban roads</p>
<p>Enhanced reputation of Palmerston North as a city with a vibrant city centre</p>	<p>More visitors, businesses and residents attracted to the city centre by its quality townscape, amenity, active 'city life' and vibrancy</p>	<p>Increased spending and value added at local businesses by visitors and new residents</p> <p>More job opportunities for local residents</p> <p>Increased pride in Palmerston North for residents</p>

12 Urban Cycle Network Masterplan

PNCC's Cycle Action Plan sets out the aspiration for Palmerston North to be the best place to ride a bike in New Zealand. The Masterplan is a key element in moving the city towards this aspiration.

12.1 What does the Urban Cycle Network Masterplan involve?

The Masterplan sets out initiatives that are designed to:

- reduce traffic speeds (especially around schools and shops), which reduces the frequency and severity of crashes;
- expand the network of cycle lanes (including some physically separated cycleways), which will encourage cycling both as a means of recreation and utility travel;
- support school and workplace travel planning;
- educate residents about sharing roads and paths safely; and
- Encourage modal shift away from private motor vehicles and towards active travel.

The Masterplan is supported in achieving these goals by the Street Design Manual's road-user hierarchy which prioritises cyclists over motor vehicles.

Potential cycle corridors being investigated by PNCC include:

- Eastern Link (Railway Road to Riverside Drive)
- Summerhill Drive
- Maxwells Line
- College Street
- Botanical Road
- Featherston Street
- Tennent Drive
- He Ara Kotahi – city connection

Figure 28 Palmerston North Urban Cycle Network Masterplan

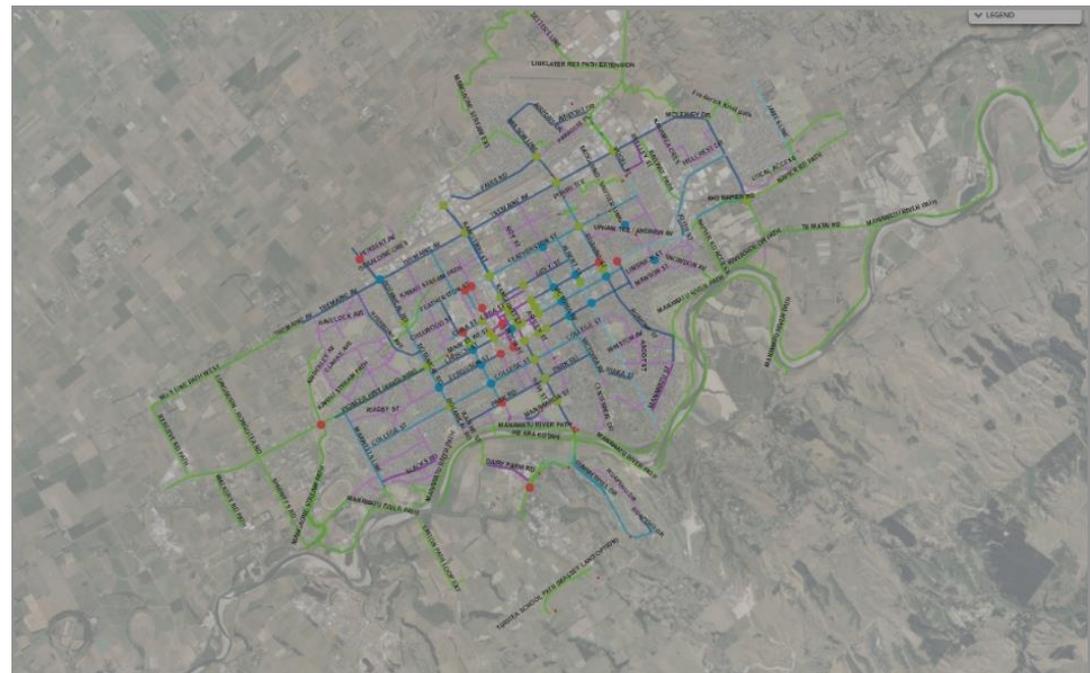


Figure 28 shows all existing and planned cycleways.

The masterplan is being jointly funded by PNCC and NZTA and is expected to be fully delivered within approximately 5 years.

12.2 What are the expected impacts of the Urban Cycle Network Masterplan?

The table below summarises the expected outcomes and economic, social and environmental impacts of the Urban Cycle Network Masterplan.

By making the city more conducive to cycling, the Masterplan will have multiple important benefits including improved liveability and wellbeing for residents, reduced carbon emissions and better safety outcomes.

Table 19 Expected outcomes and impacts of Urban Cycle Network Masterplan

Urban Cycle Network outcomes	Economic impacts	Social & environmental impacts
<p>Safer and more enjoyable cycling routes in urban areas, due to lower vehicle speeds, separate cycle lanes, etc.</p>	<p>Reduced travel costs as more people cycle to get where they are going instead of driving</p> <p>Reduced economic costs of crashes as a result of fewer conflicts between vehicles and cyclists</p> <p>Higher land values in the city centre, as a result of increased amenity provided by high-quality cycling routes</p>	<p>Improved health and wellbeing from increased opportunities for walking and cycling</p> <p>Enhanced liveability and amenity value for people living near cycling routes</p> <p>Reduced social costs of crashes due to reduced potential for conflict between cars and cyclists</p> <p>Lower CO₂ emissions as a result of fewer motor vehicle trips</p>

12.3 How are the impacts of the Urban Cycle Network Masterplan expected to change as a result of the Ring Road?

There are currently two main impediments to cycleway development in the city:

- High volumes of traffic (including trucks) using residential and city centre streets, creating safety issues, unwanted noise/vibrations/air pollution, and competition for carriageway space (e.g. Botanical Road is an important corridor for cycling, but is also a designated freight route and has a constrained width); and
- A strong desire among a portion of residents and businesses to retain plentiful carparking space on city streets (several plans for cycle lanes have been dropped in favour of multiple lanes for cars or street parking).

The Ring Road will help solve the first problem by diverting heavy vehicle traffic away from the central city onto a purpose-built freight route around the outskirts of the city. Reducing the amount of trucks on central city streets will open up space for cycle lanes, improve safety for non-vehicular road users and make the city a more attractive place for cyclists.

The Ring Road will not solve the second problem relating to parking, however Council staff are making slow but steady progress with efforts to shift perspectives and change behaviours.

There is one signature project in relation to which there may be potential for conflict between the Ring Road and Council’s active transport network. This relates to the future shared path that will run north-south between Palmerston North, Bunnythorpe and Feilding. The planned route for the shared path crosses the planned alignment of the Ring Road at the point where the Ring Road bypasses Bunnythorpe. This will need to be managed by way of a bridge, underpass or other treatment to ensure there is adequate separation between Ring Road traffic and shared path users.

The table below summarises the impacts that the Ring Road is expected to have on the Urban Cycle Network project and the value it delivers for the region.

Table 20 Expected impacts of Ring Road in relation to Urban Cycle Network Masterplan

Changes brought about by Ring Road	Outcomes related to Urban Cycle Network	Resulting impacts related to Urban Cycle Network
<p>Reduced traffic volumes on city centre streets as freight carriers and through traffic migrates to Ring Road</p>	<p>More people want to cycle, as city centre streets become safer and more enjoyable for cycling</p> <p>Cycling infrastructure is easier to install as a result of less competition for carriageway space</p>	<p>All the benefits identified in Table 19 above will be magnified by the traffic dampening effects of the Ring Road and the impact this will have on the urban cycling environment and uptake.</p>

Appendix 1: Detailed PNITI elements

Table 15-1, NOR p. 113.

PACKAGE	ID	ACTIVITY
2. Land Use Programme	2	PNCC to investigate longer term land use planning (re-zoning, protection, enabling development) as part of a wider future development strategy, including consideration of the following: – Roxburgh Industrial to Residential (Plan Change Underway) – Identify replacement land use opportunities at the existing KiwiRail Yard (e.g. Tremaine Industrial/KiwiRail to Commercial/Residential) – Kelvin Grove Industrial areas to transition to residential land use over time
3. Palmerston North Eastern Access	3A	Napier Road DBC (SH3 Stoney Creek to Keith St, 3.4km) The recommended option comprises speed management, traffic signals at SH3 Napier Road/Roberts Line, intersection improvements and Napier Road/James Line and a shared path from Sutton Place to Roberts Line.
4. Accessing the North East Industrial Zone (NEIZ)	4A	SH3/54 to SH54/Milson Line Safety and Access Improvements Intersection upgrades and midblock improvements to improve safety and access. The recommended option from the DBC comprises of upgrading two priority crossroads intersections at SH3/54 and SH54/Milson into dual lane roundabouts and widening of the midblock to a 12m cross-section over 1.6km.
4. Accessing the North East Industrial Zone (NEIZ)	4B	Intersection upgrades and midblock improvements to improve safety and access – 4B1: Kairanga Bunnythorpe Road: SH54/Milson Line to Bunnythorpe corridor and intersection upgrades (4.6km) – 4B2: Kairanga Bunnythorpe Road: SH3/54 to west of Kairanga/Rongotea Road intersection (4.8km) – 4B3: SH56 Longburn to Kairanga via Longburn Rongotea Road, including the Longburn/Rongotea Road and Kairanga intersection improvements (4.2km) – 4B4: Tiakitahuna / No1 Line (SH56 to Rongotea) seal widening and barrier improvements (6.7km)
5. East West Access (Accessing the KiwiRail Freight Hub and the NEIZ)	5A	KiwiRail Freight Hub Preferred Option – transport network impacts (e.g. Railway Road connectivity and integration with PNITI). Potential improvements could include – Roberts Line/Railway Road intersection improvements, relocated Railway Road and connections to KB Road.
	5B	Ashhurst to Bunnythorpe – Bunnythorpe Southern Bypass (Ashhurst to Kairanga Bunnythorpe Road/NEIZ link) – includes 2 RAB, rail underpass, new links – Ashhurst Road Corridor upgrade to Arterial (incl investigation of bridge upgrades, passing lanes) – Ashhurst Bypass (Gorge to Ashhurst Road Connection) – Consider Potential Stoney Creek Upgrade (Kelvin Grove to Bunnythorpe)
	5C	Feilding to Bunnythorpe – Includes replacement/upgrade of 2x 50max bridge restrictions on Campbell Road (west of Bunnythorpe) – Bunnythorpe Western Bypass (Feilding to Kairanga Bunnythorpe Road/NEIZ link) – Feilding to Palmerston North Improvements (e.g. Waughs Road Upgrade – from Camerons Line to Western Bypass, excluding SH54/Camerons Line).

<p>6. Palmerston North SH56 and SH57 Southern Connections</p>	<p>6</p>	<p>Scope of study area to include existing SH56, SH57, Fitzherbert Avenue and Tennent Drive with the SSBC focus area for a new river crossing between Longburn and Karere Road. Purpose of SSBC:</p> <ul style="list-style-type: none"> - Identify short to medium term SH56 and SH57 improvements (safety/maintain) - Identify scope and extent required SH57 improvements - Identify and secure alignment/route of a future downstream bridge along with likely implementation timing - Identify tie-ins to Kairanga Bunnythorpe Road Corridor/NEIZ - Identify Tennent Drive longer term solution (e.g. Detuning)
<p>7. Enabling Streets for People</p>	<p>7</p>	<p>Safety</p> <ul style="list-style-type: none"> - PNCC Speed Limit Review Stage 2 (Focus on Safer speeds around schools) and Stage 3 (CBD, arterials) - High risk Intersection and corridor improvements (e.g. Pioneer/Botanical, Fitzherbert/Fergusson, Rangitikei St/Featherston) - Tennent Drive short term improvements (e.g. speed / crossings / other low cost low risk) <p>Amenity and Active Modes</p> <ul style="list-style-type: none"> - Urban Cycling Masterplan roll out (including Feilding to Palmerston North Shared Path) - Pedestrian priority improvements (e.g. Square) <p>Access</p> <ul style="list-style-type: none"> - Detune city centre streets (i.e. calming) to encourage/ enforce heavy vehicle route restrictions (based on NoF / Inner Ring Road / Roads and Streets Framework improvements), CBD parking review. - Optimisation (e.g. Tremaine Avenue LCLR)

Appendix 2: NOR PNITI Outcomes

Table 14-1, NOR p. 99.

Table 14-1: Programme Outcomes

Wider Strategic Outcomes	Investment Objectives (PNITI)	Indicative Programme Outcome Measures (2031) (INCLUDING SPEED MANAGEMENT)
<p>Reduction of heavy traffic in residential areas</p> <p>Divert traffic out of the city centre and reduce congestion around the east of the city</p>	Reduce severance and increase amenity	<ul style="list-style-type: none"> • A reduction of freight on residential and place-based streets is anticipated as a result of providing better access for freight on freight routes, delivering amenity improvements, and speed management approaches. <ul style="list-style-type: none"> ○ Up to 4,000 fewer vehicles (including 300-400 heavy vehicles) per day through the CBD, Fitzherbert Bridge and Tennent Dr ○ Up to 3,000 fewer vehicles (including 250-300 heavy vehicles) per day on SH3 Napier Road into Palmerston North ○ Up to 10,000 fewer vehicles (including 1,000 heavy vehicles) heading through Bunnythorpe Village ○ Up to 1,000-1,500 fewer vehicles (including 100 heavy vehicles) through Feilding and Ashhurst
Improve the safety, efficiency and effectiveness of the transport network	Improve Access to and from key destinations	<ul style="list-style-type: none"> • Intersection LoS improvement <ul style="list-style-type: none"> ○ Reduction in key rural or freight intersections operating at capacity (LoS E/F) in the PM peak in 2031 by up to 50% (16 to up to 8). • It is anticipated that the recommended programme will help to reduce journey times and distance between key destinations. <ul style="list-style-type: none"> ○ Journey time savings of up to 10 mins for trips between Linton/SH57 and northern destinations (e.g. Feilding, Sanson) ○ Journey time savings of up to 2 minutes for trips to the Gorge from Feilding, SH57 Linton and SH56 Longburn ○ Access improvements out of the NEIZ of 1-3 minutes to most key destinations
Improve the safety, efficiency and effectiveness of the transport network	Improve Network Safety	<ul style="list-style-type: none"> • Estimated 32-37 DSI saved / 5yrs across the rural network (up to 35-40% reduction over 5 yrs.) • 9-12 High-Risk Intersections treated (out of 13 identified) • Up to 18 High-Risk speed management corridors treated (out of 27 identified)

<p>Support KiwiRail Freight Hub Development and Rail into the NEIZ</p> <p>Free up capacity for, and link, with alternative transport modes including rail, air, walking and cycling</p>	<p>Economic Growth (Success Factor)</p>	<ul style="list-style-type: none"> • Programme 6 has been developed in parallel to KiwiRail's freight hub developments. Programme 6 is anticipated to align to the proposed hub sites, particularly a site around the NEIZ. • The NEIZ has been developed as a key location for New Zealand's freight in central New Zealand taking freight from north, south, east and west. The recommended programme provides the supporting roading infrastructure to the area. • Supports and enables Urban Cycling Masterplan initiatives/investment by traffic flow reductions through villages, townships and key places/routes in the city
<p>Support existing activity and economic development opportunities at the airport, Food HQ and Linton Military Camp</p> <p>Promote regional economic development</p>		<p>The programme will:</p> <ul style="list-style-type: none"> • Support existing economic activities in the Palmerston North area by helping freight generating activities due to improvements on the rural freight network, and a new downstream river crossing. • Support potential specific growth areas of NEIZ, FoodHQ, and particularly Longburn and Linton due to the network safety and access upgrades along with full cross-river accessibility (without passing through the CBD).
<p>Service parts of the city PNCC intend to develop for housing</p>		<p>Access will be improved to planned housing developments:</p> <ul style="list-style-type: none"> • Whakarongo development - safety improvements to Napier Road and key intersections • Aokautere development - safety assessment and/or improvements of State Highway 57 • City West - Speed Management on No1 Line and SH56, and possible improvements to Longburn Rongotea Road