

Palmerston North-Manawatu Strategic Transport Study

Contract No 2009/18

Phase 2 Report

Traffic Design Group



June 2010

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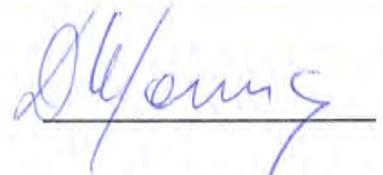
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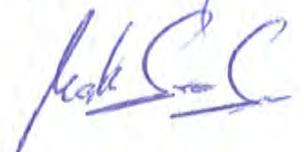
Contract No 2009/18

**Phase 2 Report
Quality Assurance Statement**

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Executive Summary

Aims

The broad aims of the Palmerston North-Manawatu Strategic Transport Study are:

- to develop an integrated transport network for the study area, with a key focus on confirming a road hierarchy
- to identify the road improvements and develop a programme of works to give effect to the proposed road hierarchy.

A Phase 1 Report, dated March 2010, summarised the findings of previous studies and existing strategies, and identified the issues and constraints to be addressed during Phase 2. This Phase 2 report assesses the road hierarchy options and their supporting improvements, and presents a preferred option.

Deficiencies

The major deficiencies of the existing rural road network within the core study area are:

- the SH3 route between Sanson and the Manawatu Gorge passing through Palmerston North is inefficient as an inter-regional route
- the commuter route between Feilding and Palmerston North via Bunnythorpe requires this traffic to use two level crossings of the North Island Main Trunk (NIMT) railway line
- the need for an additional crossing of the Manawatu River
- the lack of a clearly defined road hierarchy, particularly north and east of Palmerston North to provide good access to the North East Industrial Zone (NEIZ) adjacent to the airport, the proposed eastern residential growth area and the proposed New Upstream Bridge.

There is also a need for additional capacity along and across Tremain Avenue within the urban area of Palmerston North.

Current Proposals

A number of proposals have been developed to address these deficiencies as follows:

- a rural state highway route between Mt Stewart and the Manawatu Gorge via Bunnythorpe
- a New Upstream Bridge between Te Matai Road and Staces Road
- an Eastern Corridor between Bunnythorpe and the New Upstream Bridge
- a bypass of Bunnythorpe
- a Rural Ring Road around Palmerston North.

This study reviews and assesses the role of these proposals in an integrated transport network and, in so doing, has taken account of the urban growth areas as currently proposed, noting that a further review of growth strategies is underway.

Road Hierarchy

The preferred rural road hierarchy is shown by the map included as Diagram A. In developing this road hierarchy the following issues were considered:

- SH3 connection between Mt Stewart and Manawatu Gorge
- Kairanga Bunnythorpe Road (KB Road)
- SH56 to SH54 Connection
- Bunnythorpe Bypasses
- New Upstream Bridge
- Eastern Corridor
- Rural Ring Road
- Ashhurst
- Commuter routes.

For the purposes of this study, the development of a rural road hierarchy has taken account of the existing urban hierarchy, which itself has been well established over many years and accepted as an integral part of the Palmerston North City District Plan. In addition, the rural road hierarchy has also been developed with due regard given to upgrading and improving the existing infrastructure in providing an achievable and sustainable network.

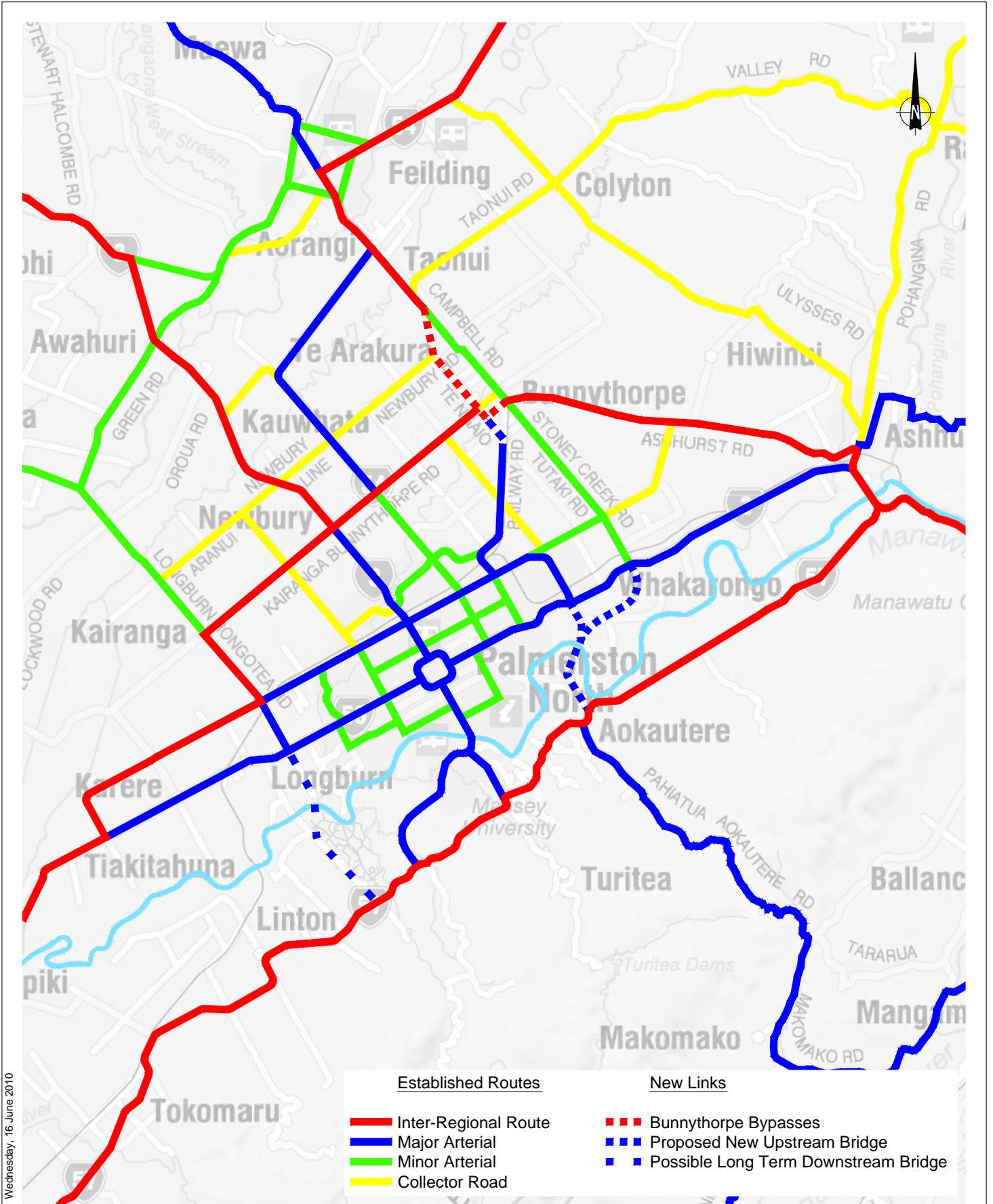
SH3 Connection Between Mt Stewart and Manawatu Gorge

Based on the established roading network, all options for an inter-regional route between Mt Stewart and the Manawatu Gorge pass through Bunnythorpe. North and south of Bunnythorpe the options are:

- Mt Stewart and Bunnythorpe
 - via Feilding
 - via KB Road
- Bunnythorpe to Ashhurst
 - via Ashhurst Road
 - via Stoney Creek Road.

While the Feilding route is shorter, the KB Road route is quicker, and avoids Feilding where speed restrictions apply. Also, an inter-regional route through Feilding utilising the existing road network will create local traffic conflicts and have some community impacts particularly within the industrial area. KB Road is therefore the preferred inter-regional route between Mt Stewart and Bunnythorpe. A new rural bypass of the Darragh Road industrial area in Feilding, connecting between Kawakawa Road and Aorangi Street, is not viable given the current and projected levels of traffic connecting with SH3.

Although there are some speed restrictions through Ashhurst and some local traffic conflicts and local community impacts, Ashhurst Road is shorter and quicker than Stoney Creek Road. Also, Stoney Creek Road itself would require major upgrading to meet the standards of a major arterial to serve inter-regional traffic and would still be a slower route than Ashhurst Road. Therefore, Ashhurst Road is the preferred route between Bunnythorpe and the Manawatu Gorge.



Wednesday, 16 June 2010

Together, the preferred inter-regional route between Mt Stewart and the Manawatu Gorge is via Rangitikei Line, KB Road and Ashhurst Road.

Kairanga Bunnythorpe Road

KB Road will in future, have the important functions of providing access to the NEIZ and serving as the major east-west route north of Palmerston North. KB Road is currently a low-standard rural road (except for the section of SH54 between Rangitikei Line on SH3 and Milson Line). To serve these functions, KB Road will need major upgrading.

SH56 to SH54 Connection

SH56 currently terminates on Pioneer Highway at Maxwells Line without providing a designated state highway connection to SH54. It is most desirable to designate inter-regional routes from SH56 to both the NEIZ (which is envisaged as an inland port) and the Feilding area.

To avoid the speed restriction through Longburn on SH56 and the narrow railway overbridge, particularly for heavy vehicles, the preferred inter-regional route is via Tiakitahuna Road, No 1 Line, Rongotea Road, and KB Road. Prior to the development of a western bypass of Bunnythorpe, Milson Line is the preferred route to Feilding but, thereafter, the route should be shifted to the bypass.

Bunnythorpe Bypasses

The Manawatu District Council's (MDC's) current proposal is for a western bypass of Bunnythorpe connecting between Waughs Road and Railway Road. Various options have been considered, and MDC has requested that options following Te Ngaio Road and Roberts Line be carried forward for further investigation. This study has confirmed that Te Ngaio Road is the preferred route for a western bypass of Bunnythorpe.

The primary function of a western bypass of Bunnythorpe is to serve commuter traffic between Feilding and Palmerston North. This traffic requires the proposed bypass west of Bunnythorpe to be developed as a major arterial.

The proposed road hierarchy would still be valid without a western bypass of Bunnythorpe and, in any event, pending developing of this bypass, Campbell Road (to Railway Road) would be retained as a major arterial.

Provision should also be made in the road hierarchy for a southern bypass of Bunnythorpe connecting between KB Road and Ashhurst Road. This bypass would form part of the inter-regional route between Mt Stewart and the Manawatu Gorge providing a bypass of Bunnythorpe and the local KB Road crossing of the NIMT railway line, particularly for heavy vehicles.

New Upstream Bridge

Palmerston North City Council (PNCC) has, for many years, been investigating a new bridge crossing of the Manawatu River. The primary functions of the proposed New Upstream Bridge are:

- to provide an additional crossing of the Manawatu River
- to relieve congestion along Fitzherbert Avenue by providing an alternative commuter route across the Manawatu River

- to form part of an integrated transport network on the eastern side of Palmerston North connecting to the proposed Eastern Corridor and thereafter to KB Road as part of a Rural Ring Road
- to provide route security for both transport and utility services to the city.

After investigating a range of options PNCC has chosen a preferred route for a New Upstream Bridge between Te Matai Road and Staces Road, and made provision for this new bridge in its LTCCP. This study confirms that the bridge has a strategic and economic value that justifies its inclusion in the overall network. Its timing will become more crucial through the period of the next ten years as urban growth continues in areas to the south of the river and traffic volumes in the Fitzherbert Avenue corridor continue to track upwards, leading to increased congestion at key intersections.

For traffic between the New Upstream Bridge and the Feilding and Bunnythorpe areas, the quickest and shortest route is currently via Roberts Line and Railway Road. While this is a suitable route to the NEIZ, it passes through a residential area without a direct link across Tremaine Avenue-Kelvin Grove Road. Instead, it is proposed that Stoney Creek Road provides the defined connection to Feilding and Bunnythorpe, with longer term provision for a new link from Riverside Drive to Stoney Creek Road to bypass Napier Road.

Eastern Corridor

An eastern corridor is required to:

- provide a north-south arterial to support land-use developments on the eastern side of Palmerston North
- provide an arterial road connection between Feilding-Bunnythorpe and the proposed New Upstream Bridge.

The options for such an eastern corridor are Stoney Creek Road, Tutaki Road-James Line and Roberts Line.

Roberts Line was rejected as the alignment for an eastern corridor because it is no longer feasible to provide a direct connection between Roberts Line North and Roberts Line South across Kelvin Grove Road bypassing McLeavey Drive. Tutaki Road has been more compromised than Stoney Creek Road by urban (rural lifestyle) development and James Line is through a residential area.

Stoney Creek Road is continuous through to Napier Road on SH3 and connects to Campbell Road while also allowing for a long-term connection to a western bypass of Bunnythorpe via a southern bypass. Stoney Creek Road is proposed by PNCC to form the eastern limit of urban development of Palmerston North. Accordingly, Stoney Creek Road is the preferred route for an eastern corridor.

Consideration has been given to the possibility of developing Stoney Creek Road as a major arterial to a standard which would attract commuter traffic off Railway Road and possibly Milson Line in order to reduce traffic flows on and across Tremaine Avenue, but it has been shown that Stoney Creek Road would, at most, attract up to approximately 2,000vpd (at 2021) including about 500vpd of commuter traffic. Similarly, even as a major arterial, Stoney Creek Road is not attractive for inter-regional traffic between Mt Stewart and the Manawatu Gorge.

As an arterial route for an eastern corridor, Stoney Creek Road is expected in 2021 to attract 500 to 1,000vpd of local traffic and through traffic to the New Upstream Bridge. With modest traffic demands and the limited ability of Stoney Creek Road to divert commuter traffic, Stoney Creek Road should be classified as a minor arterial. Notwithstanding this conclusion, the form and function of Stoney Creek Road should be reviewed as the PNCC's eastern urban growth patterns and strategies become more certain and when the New Upstream Bridge becomes part of the network.

Rural Ring Road

The proposed road hierarchy provides the framework for a Rural Ring Road incorporating KB Road and Stoney Creek Road. The connection between these sections of the ring road will ultimately be enhanced by a southern bypass of Bunnythorpe.

Stoney Creek Road forms the eastern leg of the ring road connecting to the New Upstream Bridge and SH57 forms the southern leg. KB Road forms the northern leg and Rongotea Road forms the western leg which could connect to a new downstream bridge in the longer term and on to SH57 to complete the ring road.

Each leg of the ring road serves important route functions in its own right. There is minimal overlap of these functions, with virtually no requirement for traffic to circulate around Palmerston North on a Rural Ring Road. Nevertheless, the concept of an integrated network has merit and hence there is long term merit in forming a Rural Ring Road.

Ashhurst

Ashhurst Road is already of a standard suitable for a low-volume inter-regional route requiring only modest upgrading.

In Ashhurst the existing through route is via Mulgrave Street, Hillary Crescent and Cambridge Avenue. This route will require intersection improvements and upgrading of the rail overbridge prior to designating it as an inter-regional route, and will give rise to only minimal conflicts with local traffic.

The volume of inter-regional traffic through Ashhurst is estimated at about 1,000vpd in 2021 and this traffic will have only minor community impacts. To mitigate these effects in the longer term, provision should be made for a new link between Mulgrave Street and Short Street.

Commuter Routes

There are currently two major commuter routes between Feilding and Palmerston North via Milson Line and Railway Road. On its approach into Palmerston North, Milson Line (SH54) divides into a direct route to Ruahine Street via Milson Line and to Rangitikei Street via KB Road (SH54) and Rangitikei Line (SH3).

With Milson Line open, the effect of the proposed Bunnythorpe Western Bypass connecting to Railway Road will be to divert around 1,500vpd off Milson Line onto Railway Road.

With this traffic diversion off Milson Line resulting from the proposed western bypass of Bunnythorpe, Rangitikei Line and Railway Road will become the major commuter routes, so that Milson Line south of KB Road can then be treated as a minor arterial. In this role, allowance can be made for the possibility of either a deviation to enable an extension of the airport runway, which would divert more traffic, or the ultimate closure of Milson Line, at which time volumes

would divert predominantly to Rangitikei Line and Railway Road, so that the remaining northern section of Milson Line south of KB Road would become a local road and the remaining southern section would be a collector as far as Flyers Line.

Palmerston North Urban Network

Palmerston North has a well developed urban road hierarchy which is consistent with the proposed road hierarchy for the rural area.

This study recognises the importance of Tremaine Avenue as a major east-west route to serve cross-town traffic, to provide access to commercial and industrial development and to distribute Feilding to Palmerston North commuter traffic. While the extension of JFK Drive northwards as Airport Drive through to Railway Road provides a parallel route that diverts some traffic, Tremaine Avenue will continue to be the major east-west route on the north side of Palmerston North and will need to be further developed as a major arterial road.

While this study has not included a detailed investigation of the Palmerston North urban road network, but rather assumed a number of capacity improvements so that the performance of the urban road network does not unduly affect assessment of the rural network options, it is suggested that some intersection and associated mid-block improvements along Tremaine Avenue will be required by 2021. These improvements are not expected to affect the selection of the preferred rural network but, importantly, need to be investigated as part of a wider roading study of the Palmerston North urban area, as and when the PNCC's urban growth strategy becomes more certain.

Implementation of Road Hierarchy

Implementation of the proposed road hierarchy requires:

- road improvements
- planning provision for new links
- planning provision for route protection.

Road Improvements

The road improvements required to give effect to the proposed road hierarchy consist of:

PROJECT	POSSIBLE FORM
Rangitikei Line/KB Road Intersection Upgrade	Roundabout
KB Road: Rangitikei Line - Milson Line Seal Widening	10m
Milson Line/KB Road Intersection Upgrade	Roundabout
KB Road: Milson Line - Bunnythorpe Seal Widening	8.5m
Bunnythorpe Western Bypass on Te Ngaio Road including Waughs Road Link	10m
Bunnythorpe Western Bypass/KB Road Intersection Upgrade	Roundabout
Bunnythorpe Southern Bypass	8.5m
Ashhurst Road Upgrade	8.5m
Stoney Creek Road Upgrade	8.5m

The first stage of work should be to seal widen KB Road between Milson Line and Bunnythorpe, with associated strengthening of the existing bridges towards its eastern end. This will then

enable the various inter-regional routes to be designated and other road improvement works to be progressively implemented.

Planning Provision for New Links

New links which are required to complete the proposed road hierarchy comprise:

- Bunnythorpe Western Bypass
- Bunnythorpe Southern Bypass
- Stoney Creek Road to the New Upstream Bridge
- Ashhurst: Mulgrave Street to Short Street.

Further investigations are required as part of the implementation plan to determine when planning provision should be made for these new links. These provisions will take the form of designations.

Planning Provision for Route Protection

The function of inter-regional routes and major arterials is primarily to serve through traffic. There is a need, which is often overlooked in the short term when traffic volumes are low, to protect these routes from undue conflicts at local road intersections and crossing places into adjoining properties.

There is also a need to plan for the road network, including inter-regional routes and major arterials, to provide safe and efficient access for local traffic and to support local economic and residential development. Hence, the respective and often conflicting needs of through traffic and local traffic need to be balanced, by developing structure plans for the management and development of arterials to govern future access. Existing roads which need these plans are:

- KB Road
- Railway Road
- Stoney Creek Road
- SH57 through Aokautere.

A traffic and access management plan should also be developed for the NEIZ and the local rural schools involving Taonui School on Waughs Road, Kairanga School on KB Road and Whakarongo School on Stoney Creek Road.

A structure plan may also be required for Ashhurst Road and Mulgrave Street-Hillary Crescent-Cambridge Avenue in Ashhurst, if and when there is any new development for which access arrangements need to be determined.

In addition, structure plans should also be developed, in due course, for the new links involving the western and southern bypasses of Bunnythorpe and the approaches of the New Upstream Bridge, which themselves would also require a process of designation as new roads.

Alternative Modes

A major element of the current (2006-2015) and next update of the Regional Land Transport Strategy for the Manawatu-Wanganui region to meet the objective of a sustainable land transport system involves provision for alternative modes, specifically public transport and cycling.

Apart from the need to provide public transport services for the ‘transport disadvantaged’ who do not have ready access to a private car, a critical public transport issue in the region is the need to provide comprehensive services between Palmerston North and Feilding, to minimise private car dependency for trips in this corridor. Even then, the resulting changes and anticipated ongoing increase in bus passenger numbers would not be of a level to influence the strategic preferences and recommendations of this study.

With respect to cycling, the area’s topography combined with Palmerston North’s role as a ‘student city’ is reflected in the significant presence of cycling as a transport mode. The cycling strategy for Palmerston North provides for a comprehensive network of cycleways on most primary roads which have been well implemented over many years, in conjunction with a series of attractive off-road paths. Extended provision should be made for cyclists by way of widened roads, as appropriate, on the improved strategic network as the road designs are developed, including specifically in the north-south Feilding to Palmerston corridor.

Further Work

Beyond confirmation of the preferred hierarchy and its supporting improvements, the feasibility of a number of key projects will be reported and a programme of works for implementing road improvements will be prepared.

Further planning work, apart from work in relation to the New Upstream Bridge, which is required includes:

- further development of the traffic model to include AM, PM and interpeak periods, updated land use and new future years
- utilising the traffic model to update the road plan for the Palmerston North urban area
- finalising the scheme assessment of a western bypass of Bunnythorpe
- undertaking a scheme assessment of a southern bypass of Bunnythorpe
- preparing road designations and corridor management and structure plans.

A review of the designation of state highways within the study area will also be needed in determining network responsibilities.

1. Purpose

The broad aims of the Palmerston North-Manawatu Strategic Transport Study are:

- to develop an integrated transport network for the study area, with a key focus on confirming a road hierarchy
- to identify the road improvements and develop a programme of works to give effect to the proposed road hierarchy.

A Phase 1 Report, dated March 2010, summarised the findings of previous studies and existing strategies, and identified the issues and constraints to be addressed by this next phase of the study.

This Phase 2 report:

- presents road hierarchy options for the study area
- identifies road improvements required to give effect to the road hierarchies
- assesses each of the road hierarchy options
- arrives at a preferred network option
- sets out the feedback received from key stakeholders.

The report then confirms the preferred road hierarchy option.

2. Background

2.1 Regional Economy

The Manawatu-Wanganui Region is well served by a strategic network of road, air and rail links. In order to ensure that sustainable economic and social development of the region is supported, it is vital to ensure that the network continues to function well and promotes the region's increasingly important role as a centre for the distribution of freight in the North Island.

The logistics and distribution sector is a significant employer in the region. The sector accounted for nearly one fifth of the region's growth in employment over the nine year period between 2000 and 2009 and has experienced much faster growth in the region compared with the national average. For example, during the period 2000 to 2009, regional employment in this sector increased by 45% while national employment growth in that sector was just 8%.

The logistics and distribution sector is projected to continue to grow far stronger than the regional economy over the next 30 years, largely around the concept of Palmerston North further developing its potential as a freight hub, being at the centre of road and rail transport in the lower North Island. One of the key challenges for increasing the attractiveness of the Palmerston North area as a distribution centre is to ensure the availability of well priced large land areas for large storage facilities and to ensure that efficient access is maintained to these areas. A number of sections of the strategic transport network will become subject to increasing pressures over the next 30 years in response to continued traffic and economic growth. These issues are addressed by this study.

2.2 Current Proposals

Horizons Regional Council (HRC), Palmerston North City Council (PNCC), Manawatu District Council (MDC) and the NZ Transport Agency (NZTA) have a number of proposals under consideration for developing the road network within the study area. These proposals include:

- a state highway route between Mt Stewart and the Manawatu Gorge to bypass Palmerston North
- a bypass of Bunnythorpe with an extension to Napier Road (SH3) including a crossing of the NIMT Railway
- a new Upstream Bridge Crossing of the Manawatu River
- an Eastern Corridor connecting the proposed bypass of Bunnythorpe and the proposed New Upstream Bridge
- a Rural Ring Road around Palmerston North incorporating Kairanga Bunnythorpe (KB) Road, the proposed Eastern Corridor, the proposed New Upstream Bridge and SH57.

The PNCC and MDC also wish to develop the road network within the study area to provide good access to the North East Industrial Zone (NEIZ) located north of and adjacent to the airport, and to the proposed residential growth areas east and west of Palmerston North.

2.3 Issues for Consideration

In reviewing these proposals, a number of issues were set out in the Contract Scope, were referred to the study team during the first stage of engagement with key stakeholders, or otherwise were identified during Phase 1 of the study. These issues include:

- the need to designate routes which bypass Palmerston North for inter-regional traffic between Sanson and the Manawatu Gorge, and possibly between Wellington - Levin (SH56) and Feilding (SH54)
- the need to designate inter-regional routes to serve the NEIZ as an inland port including routes to SH3 (West), SH3 (East) and SH56, in each case bypassing the Palmerston North urban area
- the need to provide and maintain good access between Palmerston North and both the NEIZ and the proposed eastern residential growth areas
- possible closure or a deviation of Milson Line south of KB Road to allow for extension of the airport runway
- safety of the existing railway level crossings, especially the crossing of the NIMT in Bunnythorpe
- effects of through traffic on Palmerston North and the townships of Feilding, Bunnythorpe, Longburn and Ashhurst, and the reverse effects
- the role of the proposed Rural Ring Road
- the functions of the proposed New Upstream Bridge
- future capacity constraints on the two-lane Aorangi Bridge on SH54.

In addition to these particular issues relating to the rural network, current and future capacity constraints across Tremaine Avenue on Rangitikei Line - Rangitikei Street, Milson Line - Ruahine Street, and Railway Road - Vogel Street affecting access to Palmerston North are also relevant, including for the movement of commuter traffic between Feilding and Palmerston North, and the movement of local traffic to and from the significant employment zones north of Tremaine Avenue.

3. Methodology

3.1 Road Hierarchy Criteria

There are currently a number of road classification systems in use. NZTA has developed a National Road Classification System for urban and rural roads, there is a NZ Standard classification system, and PNCC, MDC and HRC have each developed classification systems. In addition, NZTA has criteria for classifying state highways. These various classification systems are set out in the Phase 1 Report.

For the purpose of developing a hierarchy for the road network within the study area, the following road classes and classification criteria have been adopted.

CLASS	FUNCTION	TRAFFIC VOLUME (vpd)	
		Rural	Urban
Inter-Regional Routes	As per NZTA's State Highway Classification Criteria	Not applicable	Not applicable
Major Arterial	Traffic movement is the primary function	>5,000	>20,000
Minor Arterial	Traffic movement is the primary function	1,000-5,000	5,000-20,000
Collector	Land access and traffic movement are of equal importance	200-1,000	1,000-5,000

Table 1: Proposed Road Hierarchy Classifications

Traffic volumes are included as an indicator of the road class and function. However, other indicators such as strategic fit and relevance also need to be referred to. For example, Halcombe Road to the north, Highway 56 to the west and the Pahiatua Track to the south provide key links to and from the region and can be expected to perform major roles in the hierarchy.

3.2 Traffic Modelling

The Palmerston North-Manawatu District (Feilding area) 2021 traffic model has been made available to this study. The model has been modified to reflect the present residential development strategy of PNCC, to correct topology errors in the vicinity of Feilding, and to incorporate a strict distinction between the need to predict traffic flows and the need to determine road user costs arising from these flows.

Subsequent to the preparation of the original model, PNCC has reviewed and amended its previous urban development strategy, and the land-use inputs to the model have been altered accordingly by shifting some of the residential activity to Pioneer West. A consequential variation in the pattern of trip making of the relocated activities has been incorporated. Apart from this relatively minor change, the land-use patterns for predicting future vehicle based travel demands are essentially identical to the 'medium growth' pattern used in previous applications.

The modelling procedures adopted for this study have made a distinction of roadway (link) and intersection (node) performance measures when conducting the traffic prediction and evaluation

phases of the analysis. The assignment procedure whereby traffic volumes are allocated to links along chosen routes is governed by assessed perceived travel times. A separate assessment of real speeds has been made to determine road user costs.

The model does not include an allowance for rail and, as such, does not account for delays to road traffic that currently occur at level crossings and which, without grade separation, can be expected to increase in the future in response to increased rail traffic.

3.3 Cost Estimation

The costs of road improvements necessary to give effect to the network options have been estimated. The broad benchmark cost estimates which have been adopted are:

TYPE OF ROAD IMPROVEMENT	BENCHMARK COST
Road Widening with Minor Realignments: up to 1.5m 1.5 to 3.5m	\$0.2M to \$0.3M per km \$0.35M to \$0.45M per km
Road Widening with Major Realignments up to 1.5m 1.5 to 3.5m	\$0.8M to \$1.0M per km \$0.9M to \$1.2M per km
New Road width 7m width 8.5m	\$1.5M to \$1.8M per km \$1.6M to \$2.0M per km
Intersection Upgrade Roundabout	\$1.5M to \$2.0M

Table 2: Benchmark Cost Estimates

These broad benchmark costs have been based on estimates made in previous studies and recent prices for road works. The broad benchmark cost estimates are in the form of a range and then for each road improvement an estimate has been made based on site inspections to take account of local conditions, as set out at Section 7.11 of this report.

3.4 Network Option Development and Evaluation Criteria

In developing the network options, account has been taken of:

- the National State Highway Strategy
- the Manawatu Wanganui Regional Land Transport Strategy
- the Palmerston North Transportation Management Plan.

In accordance with the Contract Scope, network options have been assessed against:

- the objectives of the New Zealand Transport Strategy (NZTS)
- the impact statements of the Government Policy Statement (GPS)
- the funding criteria of the NZ Transport Agency (NZTA).

The objectives of the NZTS are:

- economic development
- safety and personal security
- access and mobility
- environmental sustainability
- public health.

The objectives of the GPS, which are broadly consistent with the objectives of the NZTS, are:

- economic growth and productivity
- deaths and serious injury
- transport choices
- environmental effects
- public health.

Factors which have been taken into account in assessing the various network options against the objectives of the NZTS and GPS are:

NZTS OBJECTIVES	GPS OBJECTIVES	FACTORS
Economic Development	Economic Growth and Productivity	Inter-regional Connectivity Intra-regional Connectivity Rural Network Capacity Constraints Urban Network Capacity Constraints Speed Restrictions Road User Benefits Road Agency Costs
Safety and Personal Security	Deaths and Serious Injuries	Through vs Local Traffic Conflicts Property Access Conflicts Railway Level Crossing Conflicts Road Crashes
Access and Mobility	Transport Choices	Access to Industrial Areas Access to Palmerston North Airport Access to Residential Growth Areas Support for Alternative Transport Modes
Environmental Sustainability	Environmental Effects	Local Community Effects Physical Environment Effects Property Purchases
Public Health	Public Health	Emissions Noise

Table 3: NZTS and GPS Objectives Assessment Factors

The assessment of network options has also taken into account NZTA's funding criteria of strategic fit, effectiveness and efficiency.

4. Existing Road and Traffic Conditions

In this section the existing road and traffic conditions are described in terms of:

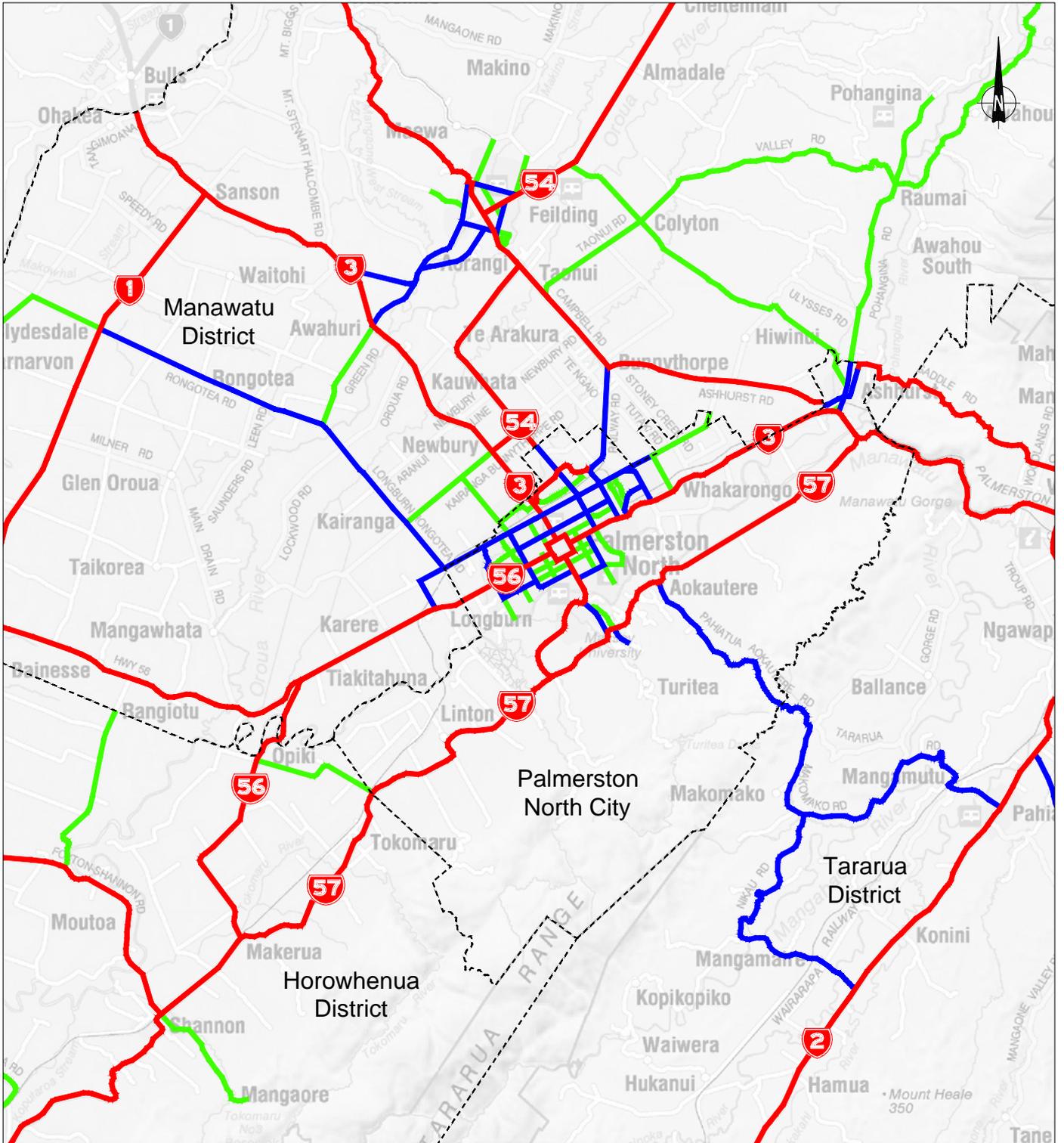
- network description
- road standards
- traffic volumes and growth rates
- safety
- deficiencies.

4.1 Network Description

The configuration and classification of the existing road network within the study area is shown in Figure 1.

Major features of the existing rural road network are:

- four state highways comprising:
 - SH3 between Sanson and the Manawatu Gorge via Rangitikei Line, Palmerston North and Napier Road
 - SH54 between SH1 at Vinegar Hill and Palmerston North terminating on SH3 at the Rangitikei Line/KB Road intersection
 - SH56 between SH57 north of Shannon and Palmerston North terminating on Pioneer Highway at Maxwells Line
 - SH57 between Levin and the Manawatu Gorge bypassing south of Palmerston North on the south side of the Manawatu River
- three major commuter routes between Feilding via the Aorangi Bridge on SH54 and Palmerston North comprising:
 - Camerons Line - Milson Line - KB Road (SH54) and Rangitikei Line (SH3)
 - Camerons Line - Milson Line (SH54) and Milson Line south of KB Road
 - Waughs Road - Campbell Road-Railway Road via Bunnythorpe
- a number of undesignated inter-regional and inter-district routes on the local road network including:
 - a rural bypass of Palmerston North between Mt Stewart and the Manawatu Gorge through Feilding, Bunnythorpe and Ashhurst via Stewart Road, Awahuri Feilding Road, Kawakawa Road, South Street, Aorangi Street, Waughs Road, Campbell Road Ashhurst Road, Mulgrave Street, Hillary Crescent and Cambridge Avenue
 - a bypass route of Sanson and Bulls through Feilding and Halcombe to SH1 and SH3 (West) via Halcombe Road north of Feilding
 - a rural bypass of Longburn off SH56 comprising Tiakitahuna Road and No 1 Line connecting to Tremaine Avenue, and to KB Road via Rongotea Road.



<u>Manawatu District Council</u>	<u>Palmerston North City Council</u>	<u>Horowhenua District Council</u>	<u>Tararua District Council</u>
— Arterial Route	— Arterial Roads	— Arterial Routes	— Primary Arterial
— District Arterial Route	— Principal Roads	— Collector Routes	— Secondary (district) Arterial
— Collector Route	— Collector Roads		— Collector
		----- District Boundary	

Source Map: Terralink - 2007

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Between Feilding and Palmerston North the rural road network forms a grid consisting of:

- two east-west roads comprising:
 - KB Road
 - Newbury Line
- a series of north-south roads comprising:
 - Rongotea Road
 - Gillespies Line
 - Rangitikei Line (SH3)
 - Milson Line
 - Setters Line
 - Roberts Line
 - Te Ngaio Road - Tutaki Road
 - Waughs Road - Campbell Road - Stoney Creek Road.

East of Palmerston North the rural road network consists of:

- two north-south routes comprising:
 - Tutaki Road
 - Stoney Creek Road
- Ashhurst Road which connects Bunnythorpe and Ashhurst
- Kelvin Grove Road which is an extension of Tremaine Avenue connecting through to Ashhurst Road.

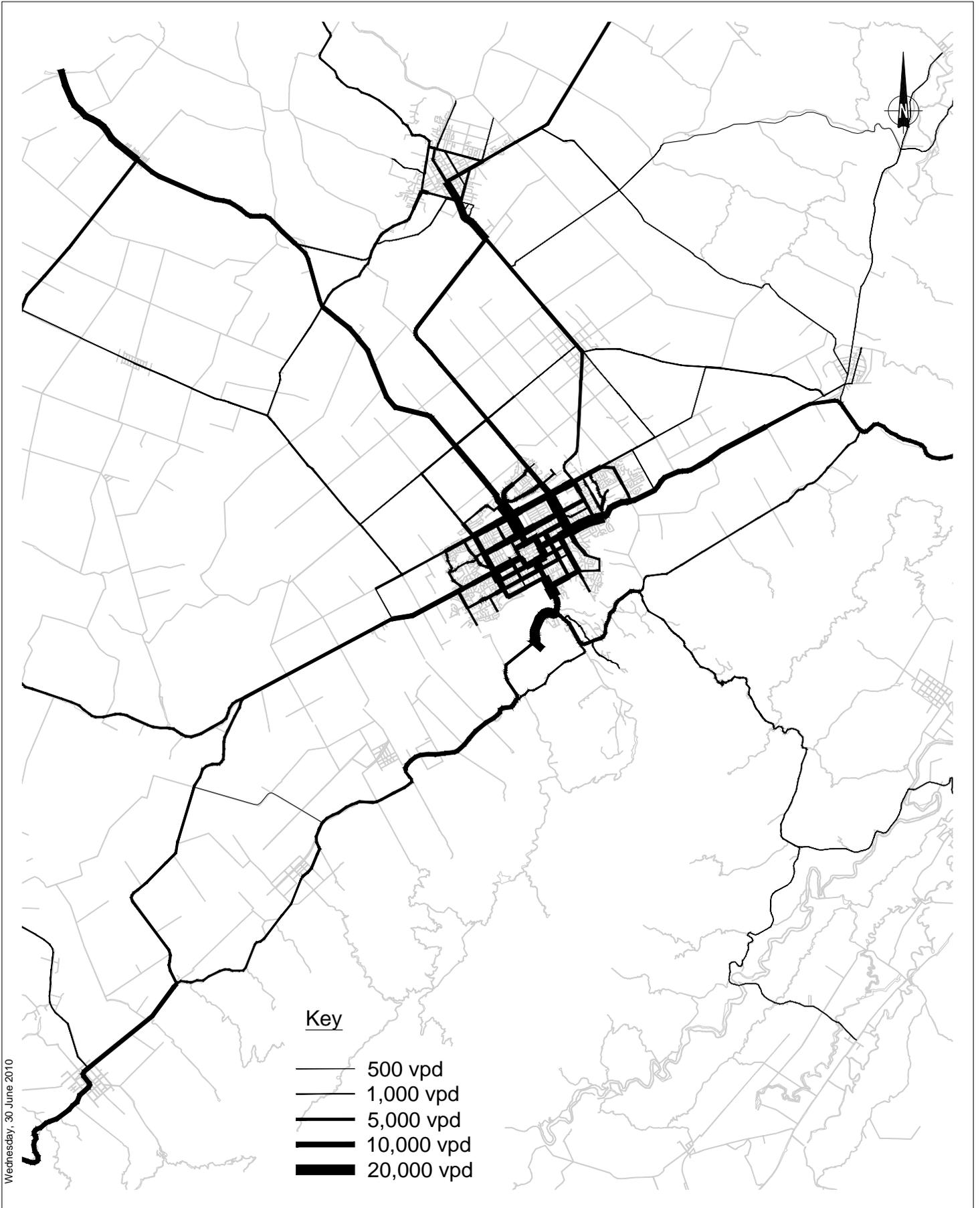
The features of the Palmerston North urban road network which are of most relevance to this study are Fitzherbert Avenue (and the Fitzherbert Bridge), Tremaine Avenue and Napier Road (SH3).

Fitzherbert Avenue is the major arterial connecting Palmerston North to Massey University and SH57 via the Fitzherbert Bridge. Tremaine Avenue is a key road within the urban area serving as an east-west route north of the CBD, providing access to the surrounding commercial and industrial land uses and distributing commuter traffic to and from Feilding. Napier Road is the major arterial route connecting Palmerston North and the east via the Manawatu Gorge. In future, Napier Road will provide access to the proposed New Upstream Bridge which will significantly increase traffic flows on Napier Road.

4.2 Traffic Volumes and Growth Rates

The pattern and comparative magnitude of current traffic volumes within the study area are shown mapped in Figure 2.

The current traffic volumes and growth rates for representative parts of the established state highway network are:



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- Key**
- 500 vpd
 - 1,000 vpd
 - 5,000 vpd
 - 10,000 vpd
 - 20,000 vpd

ROUTE AND LOCATION	DATA RANGE	LATEST TRAFFIC COUNT (vpd)	ANNUAL AVERAGE GROWTH RATE (%pa)
SH3 Sanson East	1992-2008	8,200	1.7%
SH3 Flyers Line	1992-2008	10,800	2.7%
SH3 Rangitikei Street (North of Tremaine Avenue)	2001-2008	23,600	1.9%
SH3 Te Matai Road	1992-2008	9,200	2.5%
SH3 Ashhurst	1999-2008	6,500	-0.1%
SH3 Manawatu Gorge	1992-2008	6,700	2.5%
SH54 Aorangī Bridge	1992-2008	13,800	2.1%
SH54 Te Arakura	1992-2008	6,900	1.8%
SH54 KB Road	1992-2008	3,900	6.0%
SH56 Longburn	1992-2008	5,800	0.1%
SH56 Mangaone Bridge	1992-2008	8,700	1.2%
SH57 North of Linton	1997-2008	8,200	4.4%
SH57 Tiritea	1997-2008	2,300	3.8%
SH57 Aokautere Drive	1998-2008	7,900	2.2%
SH57 Orrs Road	1997-2008	2,100	2.1%

Table 4: State Highway Traffic Flow and Growth Rates

Traffic volumes and growth rates on key routes within the Manawatu District are:

ROUTE AND LOCATION	DATA RANGE	LATEST TRAFFIC COUNT (vpd)	ANNUAL AVERAGE GROWTH RATE (%pa)
Ashhurst Road (Raymond St to Carriageway Change)	1989-2007	1,700	0.7%
Campbell Road (Taonui Road to Nannestad Line)	1990-2009	1,600	0.9%
Campbell Road (Waugh's Road to Dixons Line)	1997-2009	5,500	-0.5%
KB Road (Roberts Line to Setters Line)	1990-2009	1,600	2.8%
Kawakawa Road (Carriageway Change to Awahuri Road)	1990-2007	1,100	3.4%
Rongotea Road (Bridge to SH56)	1999-2006	1,900	-0.1%
Stewart Road (Awahuri Road to SH3)	1989-2006	1,800	1.6%
Stoney Creek Road (Clevely Line to Parrs Road)	1989-2006	900	2.9%
Te Ngaio Road (Faulkners Road to KB Road)	1996-2006	300	2.0%
Waugh's Road (Camerons Line to Newbury Line)	1992-2007	5,900	2.7%

Table 5: Manawatu District Traffic Flow and Growth Rates

Similarly, traffic volumes and growth rates on key sections of arterial and principal routes within Palmerston North are:

ROUTE AND LOCATION	DATA RANGE	LATEST TRAFFIC COUNT (vpd)	ANNUAL AVERAGE GROWTH RATE (%pa)
Fitzherbert Avenue (north of Manawatu River)	2002-2009	24,100	1.2%
James Line (north of SH3)	1990-2008	1,000	7.9%
Kelvin Grove Road (east of Stoney Creek Road)	2005-2009	1,300	3.3%
Milson Line (north of Flyers Line)	2002-2009	9,000*	5.0%
Pioneer Highway (east of Botanical Road)	2004-2009	13,600	-2.2%
Railway Road (north of Tremaine Avenue)	1990-2009	5,100*	2.0%
Rangitikei Street (south of Tremaine Avenue)	1989-2009	19,900	0.1%
Roberts Line (north of SH3)	1992-2009	4,000	8.0%
Ruahine Street (south of Featherston Street)	1990-2008	17,100	-1.1%
Stoney Creek Road (north of SH3)	1990-2008	1,300	3.6%
Tremaine Avenue (east of Rangitikei Line)	1990-2009	14,400	-0.6%
Tremaine Avenue (east of Ruahine Street)	1990-2009	14,300	1.0%
Vogel Street (south of Tremaine Avenue)	2000-2009	9,300	3.4%

*latest measured traffic volumes likely to be high on Milson Line and low on Railway Road due to regular road works on Railway Road

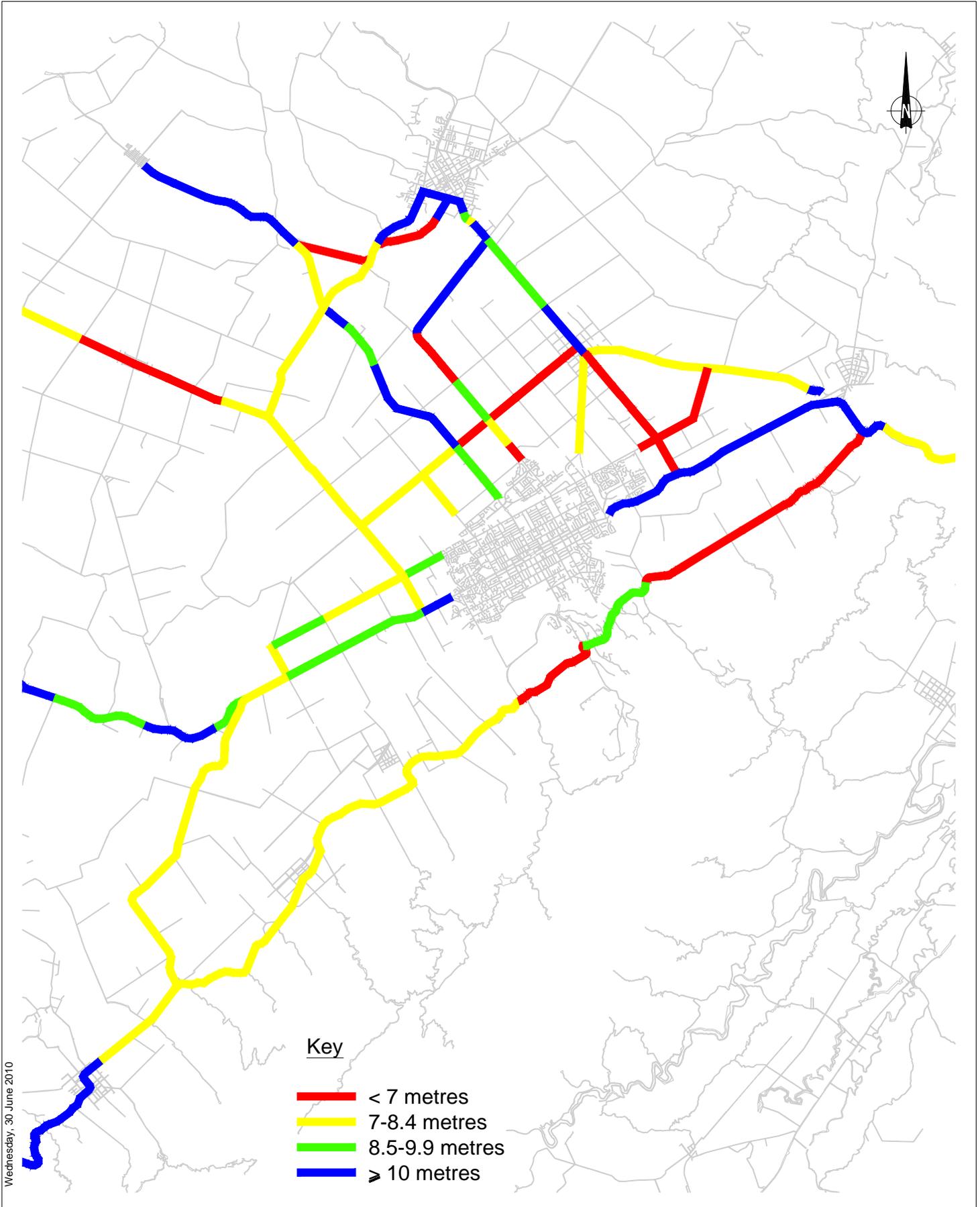
Table 6: Palmerston North Traffic Flow and Growth Rates

An analysis of these and other traffic volumes in the Phase 1 Report showed that the annual growth rate of traffic volumes has generally averaged 2 to 2.5% over the last 10 years and the current traffic model of the study area indicates an ongoing traffic growth rate of 2.5% over the next 10 to 20 years.

The proportion of HCVs on the state highways in the study area is generally in the range of 5% to 8%, increasing to 12% through the Manawatu Gorge. The development of the NEIZ is expected to result in a modest increase in the proportion of HCVs on the major access routes to the NEIZ, particularly KB Road which is expected to become a major heavy vehicle route.

4.3 Road Standards

The existing road widths have been reviewed and mapped based on RAMM data provided by PNCC, MDC and NZTA. The details are shown in Figure 3, with specific details to follow in each of Tables 7, 8 and 9 below for representative sections of the state highway network, and sections of the local road networks in Manawatu District and Palmerston North respectively.



ROUTE AND LOCATION	AVERAGE ROAD CARRIAGEWAY WIDTH
SH3 Sanson East	13.5m
SH3 Flyers Line	9.9m
SH3 Rangitikei Street (North of Tremaine Avenue)	22.6m
SH3 Te Matai Road	10.5m
SH3 Ashhurst	12.0m
SH3 Manawatu Gorge	8.1m
SH54 Aorangi Bridge	12.0m
SH54 Te Arakura	6.8m
SH54 KB Road	6.6m
SH56 Longburn	9.0m
SH56 Mangaone Bridge	11.0m
SH57 North of Linton	7.6m
SH57 Tiritea	6.6m
SH57 Aokautere Drive	9.4m
SH57 Orrs Road	6.8m

Table 7: State Highway Road Widths

ROUTE AND LOCATION	AVERAGE ROAD CARRIAGEWAY WIDTH
Ashhurst Rd (Raymond St to Carriageway Change)	7.2m
Campbell Rd (Taonui Rd to Nannestad Line)	6.8m
KB Road (Roberts Line to Setters Line)	6.0m
Kawakawa Rd (Carriageway Change to Awahuri Rd)	6.8m
Rongotea Road (Bridge to SH56)	7.2m
Stewart Road (Awahuri Rd to SH3)	6.7m
Stoney Creek Road (Clevely Line to Parr Rd)	6.2m

Table 8: Manawatu District Road Widths

ROUTE AND LOCATION	AVERAGE ROAD CARRIAGEWAY WIDTH
Fitzherbert Avenue (north of Manawatu River)	19.6m
James Line (north of SH3)	5.2m
Kelvin Grove Road (east of Stoney Creek Road)	6.0m
Milson Line (north of Flyers Line)	7.3m
Pioneer Highway (east of Botanical Road)	2 x 9.8m
Railway Road (north of Tremaine Avenue)	8.5m
Rangitikei Street (south of Tremaine Avenue)	22.0m
Roberts Line (north of SH3)	9.1m
Ruahine Street (south of Featherston Street)	16.6m
Stoney Creek Road (north of SH3)	6.5m
Tremaine Avenue (east of Rangitikei Line)	15.2m
Tremaine Avenue (east of Ruahine Street)	14.1m
Vogel Street (south of Tremaine Avenue)	12.0m

Table 9: Palmerston North Road Widths

It is relevant to note at this early point in the report from these recorded road width details that a number of the key routes in the region include road sections that are under-width in terms of the network functions that are proposed in relation to the hierarchy options and preferences. As such, they need to be supported by a series of improvements, as summarised at Section 7.11 of this report.

4.4 Safety

Within the study area the major risks of crashes due to engineering features of the road network relate to:

- intersections
- mid- block alignments
- railway level crossings.

NZTA publishes an annual series of road safety issues reports for each local authority, setting out the key road safety issues in the area. Key points to emerge from the latest published reports for the 2004 to 2008 period include:

- 38% of fatal and injury crashes within Manawatu District and 21% of fatal and injury crashes in Palmerston North were on state highways, indicating the relative importance of state highways within the overall regional network
- the main type of crash in the Manawatu District was loss of control, with 54% of all injury crashes occurring in this way
- 53% of crashes in Palmerston North and 38% of crashes in the Manawatu District occurred at intersections.

These broad patterns reinforce the relative importance of giving attention to the treatment of rural alignments and intersections.

With respect to the railway level crossings, the most recent five year dataset (2005 - 2009) shows that there was a total of ten crashes at level crossings within the study area of influence. Seven of these occurred on the NIMT, as follows:

- one within the urban area of Feilding
- one at the northern end of Campbell Road
- five at Kung Fu Corner.

There have been no reported level crossing crashes during this period at the NIMT crossing at Bunnythorpe, and also none at the other NIMT crossings within Palmerston North City.

Three level crossing crashes were reported on the Palmerston North Gisborne Railway, involving:

- one on Roberts Line
- two within Ashhurst.

Of the ten level crossing accidents within the study area of influence, two involved a vehicle hitting a train and the remaining eight resulted from vehicles losing control, hitting objects and hitting queued vehicles.

4.5 Deficiencies

Consistent with the issues set out in Section 2.2, the major deficiencies of the existing road network are:

- the SH3 route between Sanson and the Manawatu Gorge passing through Palmerston North is an inefficient route for inter-regional traffic
- the commuter route between Feilding and Palmerston North via Bunnythorpe requires traffic on this route to use two level crossings of the NIMT Railway
- limited capacity along Fitzherbert Avenue
- the existing Fitzherbert Bridge provides only a single crossing of the Manawatu River within the city's boundary presenting route security issues
- the lack of a clearly defined road hierarchy, particularly north and east of Palmerston North, to provide good access to the NEIZ, the proposed Kelvin Grove residential growth area and the proposed New Upstream Bridge.

There is also a need for additional capacity along and across Tremain Avenue within the urban area of Palmerston North. This deficiency will be exacerbated in the event that Milson Line is closed to allow for an extension of the airport runway.

Depending on the preferred road hierarchy, specific deficiencies are:

- narrow seal widths on:
 - KB Road
 - Stoney Creek Road

- poor alignment on:
 - Kawakawa Road
 - Stoney Creek Road
- inadequate controls at the intersections of:
 - Stewart Road/Awahuri Feilding Road
 - Rangitikei Line/KB Road and Milson Line/KB Road
 - Napier Road/Stoney Creek Road
- railway level crossings at:
 - Waughs Road/Campbell Road at Kung Fu Corner of NIMT
 - KB Road at Bunnythorpe of NIMT
 - Stoney Creek Road at Whakarongo of Palmerston North - Gisborne Line
- speed restrictions, conflicts with local traffic and impacts on local communities in Feilding, Bunnythorpe, Ashhurst and Longburn.

As traffic volumes increase, Aorangi Bridge may become a capacity constraint, requiring the bridge to be four-laned within the next 15-20 years.

5. Network Development

To provide the basis for the development of a number of network options, consideration was given to the following aspects of the network:

- Mt Stewart to Manawatu Gorge
- SH56 to SH54 Connection
- Feilding to Palmerston North
- Bunnythorpe Bypasses
- Eastern Corridor
- New Upstream Bridge
- Access Routes to North East Industrial Zone
- Rural Ring Road
- State Highway 3 into and through Palmerston North.

The current features and functions of each of these aspects of the network are described below, together with factors relevant for consideration in the context of the network hierarchy options.

5.1 Mt Stewart to Manawatu Gorge

The National State Highway Strategy (2007) notes that the proposal in the 2002 State Highway Review for a state highway north of Palmerston North remains an option to be further developed with territorial authorities in the region. A major issue to be addressed in the development of a road hierarchy for the study area is the preferred route for such a state highway.

The volume of traffic between Mt Stewart and the Manawatu Gorge is small. Most of the traffic on SH3 on both Rangitikei Line and Napier Road is destined to or from Palmerston North. From available origin/destination data, it is estimated that only about 500vpd travel between Mt Stewart and the Manawatu Gorge. This traffic constitutes about 4.5% and 6% of the SH3 traffic on Rangitikei Line and Napier Road respectively.

The designated state highway route between Mt Stewart and Manawatu Gorge is currently via the urban area of Palmerston North on SH3. The main functions of this route are to provide access to Palmerston North from the north and west of the North Island via Rangitikei Line and from the east of the North Island via Napier Road and the Manawatu Gorge.

SH3 contains a short inner city bypass of the Palmerston North central city area between Rangitikei Street and Main Street, following the inner ring road. This is the designated route for through traffic, including state highway traffic on SH3 between Mt Stewart and the Manawatu Gorge.

Although SH3 through Palmerston North is the designated and signposted route for state highway traffic between Mt Stewart and the Manawatu Gorge, this route is significantly slower than alternative routes on the local road network through Bunnythorpe. Traffic which is familiar with the local road network tends to use these alternatives in preference to the SH3 route through Palmerston North.

Between Mt Stewart and Bunnythorpe, the alternative routes are:

- Rangitikei Line - KB Road
- Stewart Road - Kawakawa Road - Waughs Road - Campbell Road.

Between Bunnythorpe and Ashhurst, the alternative local road routes are:

- Ashhurst Road - Mulgrave Street - Cambridge Avenue
- Stoney Creek Road (or Tutaki Road - James Line) - Napier Road (SH3).

These routes are shown indicatively on the map included at Figure 4.

The travel distances and measured travel times of these alternative routes are:

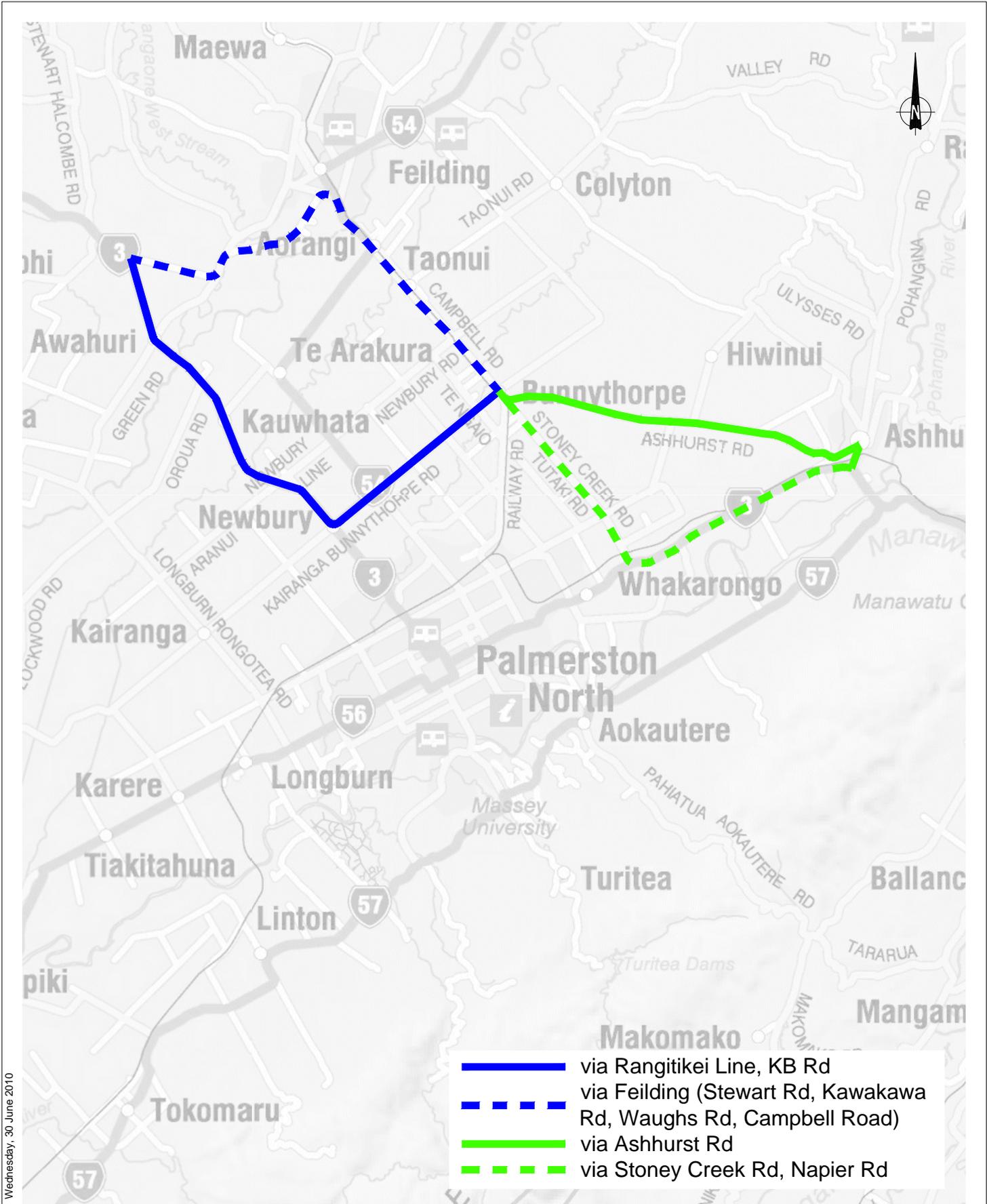
SECTION	ROUTE	DISTANCE (km)	TRAVEL TIME (min sec)
Mt Stewart (SH3) - Bunnythorpe	Rangitikei Line - KB Road	17.9	12:10
	Stewart Road - Kawakawa Road - Waughs Road - Campbell Road	15.9	13:30
Bunnythorpe - Ashhurst (SH3)	Ashhurst Road - Mulgrave Street - Cambridge Avenue	12.3	9:22
	Stoney Creek Road - Napier Road (SH3)	14.5	10:41
	Tutaki Road - James Line - Napier Road	16.5	14:01
Mt Stewart - Ashhurst (SH3)	SH3 via Palmerston North	31.7	28:35

Table 10: Mt Stewart to the Manawatu Gorge Distances and Travel Times

Factors affecting the preferred inter-regional route on each section are:

- preferred route for a bypass of Bunnythorpe
- the form of any connections from the proposed Bunnythorpe Bypass to Stoney Creek Road (or Tutaki Road) and/or to Ashhurst Road
- the location of any overpass (or underpass) of the NIMT at or near Bunnythorpe
- whether Stoney Creek Road is the preferred route to the proposed New Upstream Bridge, and whether it is a suitable alternate route to Palmerston North to relieve Railway Road
- the impacts on traffic flows of any necessary traffic controls on the alternate routes including for example, a roundabout at the Milson Line/KB Road intersection
- the feasibility of connecting the Bunnythorpe Bypass to Ashhurst Road and/or Stoney Creek Road across the NIMT.

The suitability and viability of designating inter-regional routes through Feilding and Ashhurst are also important considerations, taking account of local community impacts, particularly of heavy vehicles, and conflicts with local traffic movements.



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5.2 SH56 to SH54 Connection

There is currently no connectivity between SH54 and SH56 for inter-regional traffic between Feilding and Levin-Wellington. SH56 currently terminates on Pioneer Highway at Maxwells Line, west of the Palmerston North urban area, and SH54 terminates at the Rangitikei Line/KB Road intersection on SH3.

The preferred inter-regional route between Feilding and Levin-Wellington is currently via Awahuri Feilding Road, Green Road and either Rongotea Road or Taipo Road to SH1. Highway 56 is the preferred inter-regional route between Palmerston North and SH1. However, with an eastern bypass of Levin connecting to SH57, it is expected that SH57 and SH56 will become the preferred route between Manawatu (north) and Levin - Wellington.

The other function of an inter-regional route between SH54 and SH56 will be to provide access to the airport, NEIZ and Tremaine Avenue. Already, in preference to Pioneer Highway, heavy vehicles in particular, tend to use No. 1 Line and Tiakitahuna Road to connect with SH56 west of Longburn and, with the ongoing development of the NEIZ as an inland port, this traffic is expected to increase.

To provide an efficient inter-regional route between Feilding and Levin-Wellington which avoids the Palmerston North urban area, the options are:

- KB Road and Rongotea Road to SH56 east of Longburn
- KB Road, Rongotea Road, No.1 Line and Tiakitahuna Road to SH56 west of Longburn.

To avoid the urban area of Longburn and its associated speed restriction and narrow railway overbridge, if an inter-regional route is designated between SH54 and SH56, the existing route via KB Road, Rongotea Road, No.1 Line and Tiakitahuna Road is considered to be the preferred route to designate, with appropriate local treatments at corners and intersections and at the Kairanga settlement. While a new greenfield alignment such as alongside the NIMT line between Rongotea Road and SH56 west of Longburn may provide a more direct route, it is unlikely to be viable as an inter-regional route.

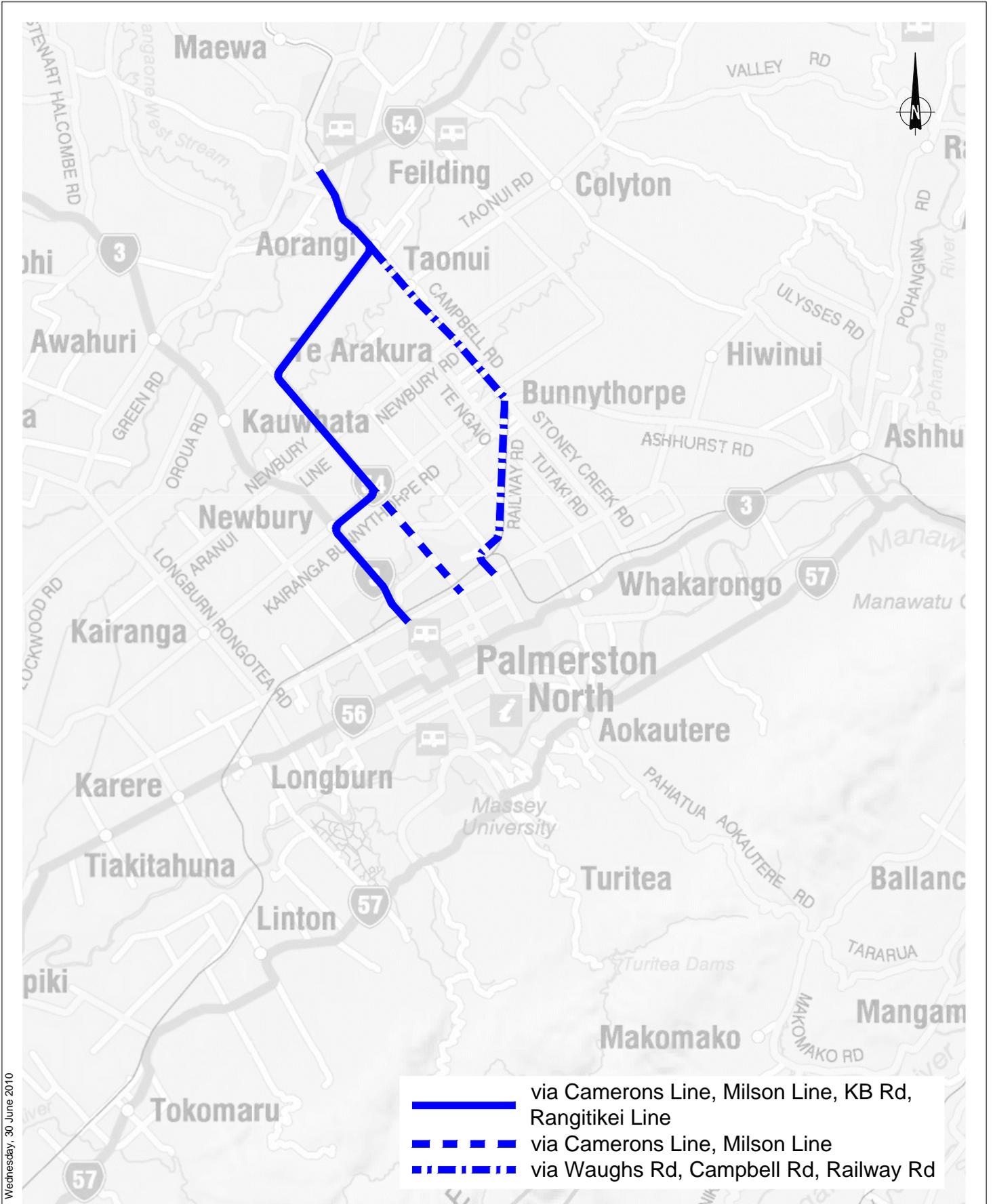
5.3 Feilding to Palmerston North

There are currently three primary commuter routes between Feilding and Palmerston North, involving:

- Camerons Line - Milson Line - KB Road - Rangitikei Line connecting to the Tremaine Avenue/ Rangitikei Street intersection
- Camerons Line - Milson Line connecting to the Tremaine Avenue/Ruahine Street intersection
- Waughs Road - Campbell Road - KB Road - Railway Road connecting to the Tremaine Avenue/Vogel Street intersection.

These routes are shown in Figure 5.

Traffic volumes on the Aorangi Bridge currently amount to near 14,000vpd which splits about 3,000vpd (20%) onto Rangitikei Line, 6,000vpd (45%) onto Milson Line and 5,000vpd (35%) onto Railway Road.



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An issue which needs to be addressed is the future role and status of Milson Line taking account of the need to relieve congestion at the Tremaine Avenue/Ruahine Street intersection and the possible need to deviate or close Milson Line to allow for any future extension of the airport runway.

With three primary routes between Feilding and Palmerston North, traffic is currently quite well distributed along Tremaine Avenue with route selection based on the destination of traffic within Palmerston North.

The options for Milson Line are:

- to retain the status of Milson Line as an arterial in the Feilding-Palmerston North corridor, without any deviation
- to reduce the status of Milson Line and allow for either a deviation or closure of Milson Line to accommodate an extension of the airport runway.

In considering these options, issues which need to be addressed are:

- the effect of the proposed western bypass of Bunnythorpe on the distribution of traffic, particularly between Railway Road and Rangitikei Line
- the effect of a deviation or closure of Milson Line on the distribution of traffic between the three commuter routes between Feilding and Palmerston North and on the efficiency of the overall road network.

The effects of reducing the volume of traffic on Milson Line and increasing the volumes of traffic on Rangitikei Line and Railway Road on the need for improvements to the Palmerston North urban road network especially along Tremaine Avenue and its associated intersections need to be addressed separately.

5.4 Bunnythorpe Bypasses

The scoping study of a bypass of Bunnythorpe, undertaken in 2007, was followed by a subsequent study which was completed in December 2009. The latter study recommended a bypass west of Bunnythorpe connecting between Waughs Road and Railway Road, with options via Te Ngaio Road and Roberts Line carried forward at the direction of MDC for further investigation. These two options are shown as Options E and F in Figure 6.

At the northern end, the recommended options connect the bypass into Waughs Road north of the existing level crossing of the NIMT via a new link north of Newbury Line. At the southern end, the options connect to Railway Road.

Commuter traffic between Feilding and Palmerston North currently crosses the NIMT at Kung Fu Corner on Campbell Road south of Feilding and in Bunnythorpe on the level crossing at the end of KB Road. A bypass west of Bunnythorpe would avoid the need for this traffic to cross the NIMT.

Consideration needs to be given to the options for connecting the southern end of the bypass to Stoney Creek Road (or Tutaki Road) and/or to Ashhurst Road. The need for this connection can be avoided if traffic to Stoney Creek Road and/or Ashhurst Road continues to use Campbell Road without bypassing Bunnythorpe, although traffic on KB Road would still need to cross the NIMT to connect into Stoney Creek Road (or Tutaki Road) and/or Ashhurst Road.

An overbridge of the NIMT on KB Road in Bunnythorpe is not feasible. Hence, to circumvent the Bunnythorpe rail level crossing of the NIMT and connect KB Road and the Bunnythorpe Bypass to Stoney Creek Road and/or Ashhurst Road would require provision for an overpass (or underpass) of the NIMT. From discussions with KiwiRail representatives, such a solution would be allowable as a new level crossing in the short term, provided the Clevely Line level crossing can be closed and the pattern of traffic use of other crossings rationalised.

Roberts Line is not continuous across Kelvin Grove Road and hence is not a suitable route for connecting to the proposed New Upstream Bridge. Accordingly, Te Ngaio Road has been adopted as the preferred route for a western bypass of Bunnythorpe.

Depending on the preferred network option, provision has also been made for a southern bypass of Bunnythorpe connecting between KB Road and Stoney Creek Road and/or Ashhurst Road.

5.5 Eastern Corridor

The possible functions of an Eastern Corridor are to provide:

- an alternative commuter route between Feilding and Palmerston North to provide some relief of Railway Road and possibly Milson Line
- a link between Feilding - Bunnythorpe and the New Upstream Bridge
- a north-south arterial on the eastern side of Palmerston North to serve local industrial and residential development.

The route options for an Eastern Corridor connecting between Feilding - Bunnythorpe and the New Upstream Bridge are Stoney Creek Road or Tutaki Road. As stated above, Roberts Line is not suitable because of the deviation between Roberts Line South and Roberts Line North via McLeavey Drive, except to serve local traffic and provide access to the NEIZ.

A western bypass of Bunnythorpe on the alignment of Te Ngaio Road, could connect to either Stoney Creek Road or Tutaki Road. Without such a connection to the bypass, the Eastern Corridor would need to connect to Campbell Road via Bunnythorpe. Similarly, at the southern end, the New Upstream Bridge could connect to either Stoney Creek Road or Tutaki Road, initially via Napier Road and eventually via a new link from Riverside Drive.

Whichever Eastern Corridor route is preferred, it is expected that the traffic flows in the Eastern Corridor will be quite modest. Nevertheless, with the proposal for a Bunnythorpe Bypass and a New Upstream Bridge, it is appropriate to define the route of an Eastern Corridor connecting these two new links.

It is shown later in this report that Stoney Creek Road is not an attractive route either for Feilding to Palmerston North commuter traffic or for inter-regional traffic to and from the Manawatu Gorge. As shown previously in Table 10, Ashhurst Road is significantly shorter and quicker than either Stoney Creek Road or Tutaki Road for traffic between Bunnythorpe and the Manawatu Gorge

and, as shown later, even if Stoney Creek Road is upgraded to the standard of a major arterial, Ashhurst Road would continue to be the preferred route.

Similarly, in regard to commuter traffic between Feilding and Palmerston North, the comparative distances and travel times between Bunnythorpe and the Tremaine Avenue/Vogel Street intersection via Railway Road, Stoney Creek Road - Kelvin Grove Road and Tutaki Road - Kelvin Grove Road are:

ROAD	DISTANCE (km)	TRAVEL TIME (min sec)
Railway Road	5.9	6:28
Stoney Creek Road - Kelvin Grove Road	8.4	9:55
Tutaki Road - Kelvin Grove Road	8.1	8:06

Table 11: Railway Road vs Tutaki Road Distances and Travel Times

As shown later in the report, even if Stoney Creek Road (or Tutaki Road) and Napier Road - Main Street East are both upgraded, Railway Road would still be more attractive and Stoney Creek Road (or Tutaki Road) would attract little commuter traffic between Feilding and Palmerston North. Hence neither Stoney Creek Road or Tutaki Road is an attractive route compared to Railway Road.

The comparative distances and travel times from the Bunnythorpe Bypass (at KB Road) to Riverside Drive for traffic destined to the New Upstream Bridge via a new link are:

ROUTE	DISTANCE (km)	TRAVEL TIME (min sec)
Tutaki Road - James Line - Napier Road - Te Matai Road	8.9	9:07
Stoney Creek Road - Napier Road - Te Matai Road	9.4	8:02

Table 12: Tutaki Road vs Stoney Creek Road Distances and Travel Times

Although the Tutaki Road option is a shorter route between the proposed Bunnythorpe Bypass and the New Upstream Bridge, it is likely to require increasing speed restrictions and therefore become a slower route. Accordingly, Stoney Creek Road will eventually become the more attractive to road users. Also, the Stoney Creek Road option is more consistent with PNCC's land use plans which are for Stoney Creek Road to define the limit of Palmerston North's urban development whereas development has already occurred along James Line and further development is anticipated along Tutaki Road.

For these reasons, Stoney Creek Road has been adopted as the preferred route for an Eastern Corridor connecting the proposed Bunnythorpe Bypass and the proposed New Upstream Bridge. That said, the function of Stoney Creek Road should be reviewed as the growth patterns and strategies for the city's eastern urban area become more certain and when the New Upstream Bridge is in place.

5.6 New Upstream Bridge

PNCC has, for many years, been investigating a new bridge crossing of the Manawatu River upstream of the existing Fitzherbert Avenue Bridge. PNCC's preference for a bridge site in the Te Matai Road area was made in 2003 as part of its adoption of the Eastern Growth Corridor policy. The policy:

- favoured development of a New Upstream Bridge to the east of the city as it was better integrated with new residential growth areas at Kelvin Grove, the NEIZ and a potential lake site at Aokautere
- did not favour the earlier preference for a downstream bridge at Maxwells Line as PNCC's urban growth priorities had changed
- did not favour an upstream urban bridge at Ruahine Street (or alternately Albert Street) as the route operates at its practical capacity and a bridge would not relieve pressure on the existing urban network.

PNCC's planning for the new bridge commenced in 2004 until completion of the Scheme Assessment Report (SAR) in February 2008. PNCC adopted the SAR in April 2008. At the same time, however, an important decision was made to review PNCC's Urban Growth Strategy, due to changed circumstances regarding residential development on flood prone areas. This review is currently underway and may result in some minor change in population distribution in future years.

The SAR initially modelled four possible population growth scenarios that were then increased to six scenarios at the request of NZTA. Five of the six growth scenarios gave sufficient economic justification for the proposed new bridge and roading corridor. The sixth scenario (Medium North), which is unlikely to eventuate, involved development primarily on the city side of the river. As five of the six population distribution scenarios tested revealed similar benefit-cost ratios it is PNCC's view that sufficient modelling of likely growth patterns has been made to have confidence in the results.

The primary functions of the proposed New Upstream Bridge are:

- to provide an additional crossing of the Manawatu River
- to relieve congestion on Fitzherbert Avenue by providing an alternative commuter route across the Manawatu River
- to form part of an integrated transport network on the eastern side of Palmerston North connecting to the proposed Eastern Corridor and thereafter to KB Road as part of a Rural Ring Road
- to provide route security for both transport and utility services to the city.

Following investigation of the options, PNCC determined a preference for a New Upstream Bridge at an estimated cost of \$55.7M (2009), with a BCR of 2.7 (2009)

Although this is the preferred option for a new bridge and PNCC has made provision for this new bridge in its LTCCP, no funding commitment has yet been made by NZTA. Notwithstanding that position, this study has confirmed the strategic importance and economic value of continuing to provide for the New Upstream Bridge as a key component of the future network, reflecting

ongoing urban growth to the south of the river and increasing traffic growth and congestion in the corridor, particularly at key intersections along Fitzherbert Avenue.

The road network needs to provide good connections to the proposed New Upstream Bridge. On its northern side, the Bridge is proposed to initially connect into Riverside Drive, Te Matai Road and Napier Road on SH3 at the Roberts Line intersection with provision ultimately for a new link between Riverside Drive and Stoney Creek Road (or Tutaki Road). The associated northern network of arterial routes is required to provide access to:

- Palmerston North
- North East Industrial Zone (NEIZ)
- SH3 (North)
- SH54 (Feilding).

Napier Road on SH3 (East) will provide access east to Ashhurst and SH57 will provide access to the Manawatu Gorge on the south side of the Manawatu River.

5.6.1 Palmerston North

Napier Road and Kelvin Grove Road - Tremaine Avenue via Roberts Line will provide an efficient access to Palmerston North for local traffic. Roberts Line is a more suitable connector to Kelvin Grove Road and Tremaine Avenue than Vogel Street, Ruahine Street and other north-south connectors.

5.6.2 North East Industrial Zone

The connection between Roberts Line North and Roberts Line South is no longer direct and it is not feasible to reinstate a direct connection on Roberts Line for access between the New Upstream Bridge and the NEIZ. The connection between Roberts Line South and Roberts Line North is now via McLeavey Drive.

The options for providing access between the New Upstream Bridge and the NEIZ are:

- Roberts Line South - McLeavey Drive - Kelvin Grove Road - Railway Road
- Roberts Line South - McLeavey Drive - Kelvin Grove Road - Roberts Line North
- Napier Road (SH3) - James Line - Kelvin Grove Road - Roberts Line North.

The comparative distances and travel times of the options are:

ROUTE	DISTANCE (km)	TRAVEL TIME (min sec)
Roberts Line South - McLeavey Drive - Kelvin Grove Road - Railway Road (at Roberts Line North)	6.4	7:29
Roberts Line South - McLeavey Drive-Kelvin Grove Road - Roberts Line North (at Railway Road)	4.8	5:05
Napier Road (SH3) - James Line - Kelvin Grove Road - Roberts Line North (at Railway Road)	6.3	5:36

Table 13: New Bridge to NEIZ Distance and Travel Time Comparisons

From this comparison, it is evident that the Roberts Line South - McLeavey Drive - Kelvin Grove Road - Roberts Line North will be the preferred and most efficient route for traffic to access the NEIZ from the New Upstream Bridge.

5.6.3 SH3 (North)

The existing routes available for providing access between the New Upstream Bridge and SH3 (North) to Mt Stewart, as shown in Figure 7, are:

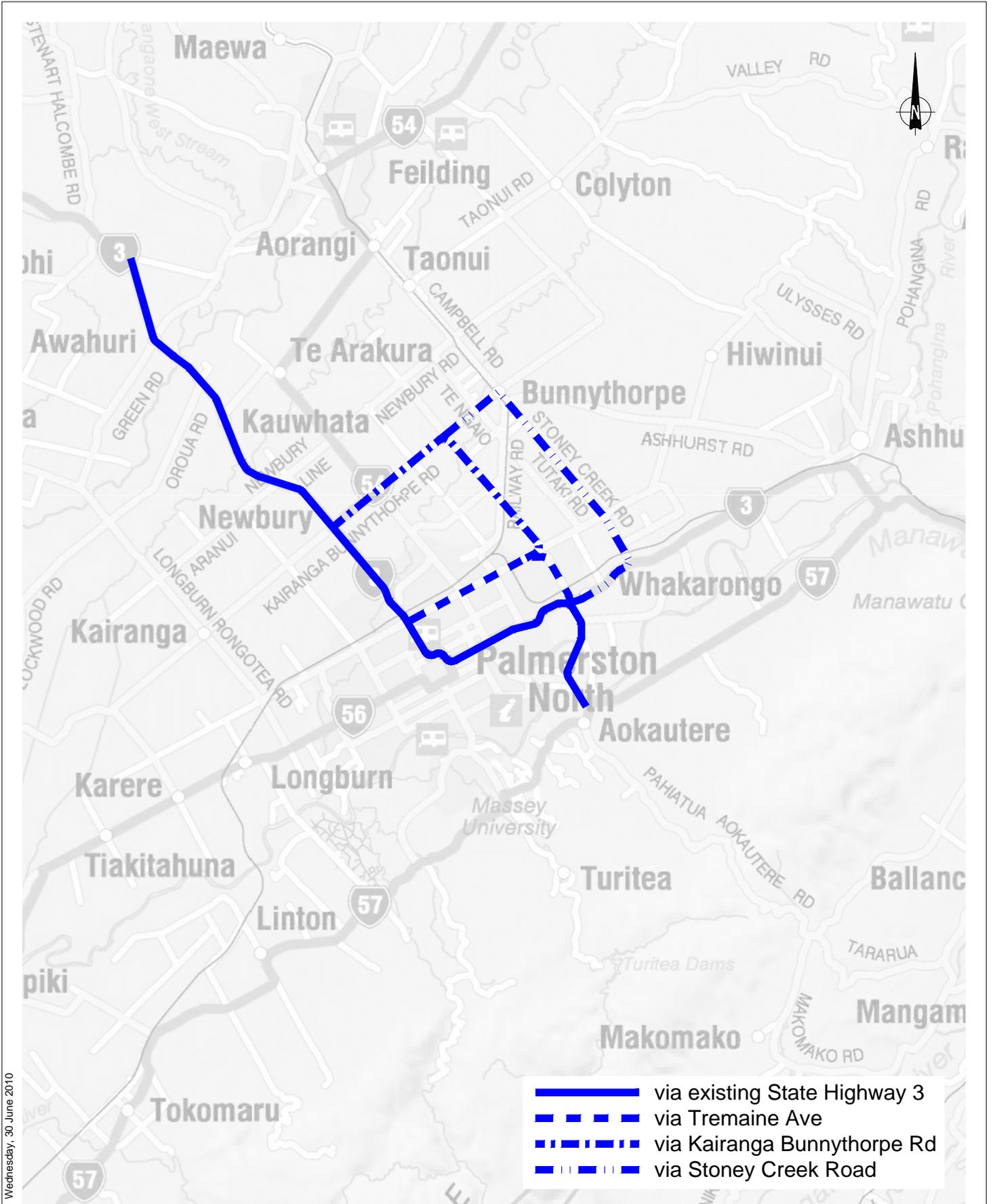
- Te Matai Road - Napier Road - Main Street East - Princess Street - Grey Street - Rangitikei Street - Rangitikei Line
- Te Matai Road - Roberts Line South - McLeavey Drive - Kelvin Grove Road - Tremaine Avenue - Rangitikei Line
- Te Matai Road - Roberts Line South - McLeavey Drive - Kelvin Grove Road - Roberts Line North - KB Road - Rangitikei Line
- Te Matai Road - Napier Road - Stoney Creek Road - KB Road - Rangitikei Line.

The comparative distances and travel times of the options are:

ROUTE	DISTANCE (km)	TRAVEL TIME (min sec)
Te Matai Road - Napier Road - Main Street East - Princess Street - Grey Street-Rangitikei Street - Rangitikei Line	21.9	23:26
Te Matai Road - Roberts Line South - McLeavey Drive - Kelvin Grove Road - Tremaine Avenue - Rangitikei Line	21.8	22:43
Te Matai Road - Roberts Line South - McLeavey Drive - Kelvin Grove Road, Roberts Line North - KB Road - Rangitikei Line	23.2	17:34
Te Matai Road - Napier Road - Stoney Creek Road - KB Road - Rangitikei Line	27.1	20:12

Table 14: New Bridge to Mt Stewart Distance and Travel Time Comparisons

Based on its travel time advantage compared to the routes through the urban area of Palmerston North, the Roberts Line - KB Road route is currently the most attractive and economic route for connecting between the New Upstream Bridge and SH3 (North).



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Beyond the current road alignments, other new greenfield routes have previously been investigated, including a diagonal link between Bunnythorpe and Stewart Road. However, such routes are difficult to justify in such instances where the volume of traffic attracted to the full route would be modest and where existing roads can be improved and upgraded with much less investment.

5.6.4 SH54 (Feilding)

The options for providing access between the New Upstream Bridge and SH54 (Feilding), as shown in Figure 8, are:

- Napier Road (SH3) - Stoney Creek Road - Campbell Road - Waughs Road
- Roberts Line South - McLeavey Drive - Kelvin Grove Road - Roberts Line North - Railway Road - KB Road - Campbell Road - Waughs Road
- Roberts Line South - McLeavey Drive - Kelvin Grove Road - Railway Road - KB Road - Campbell Road - Waughs Road.

The comparative distances and travel times of the options are:

ROUTE	DISTANCE (km)	TRAVEL TIME (min sec)
Napier Road (SH3) - Stoney Creek Road-Campbell Road - Waughs Road	14.9	11:41
Roberts Line South - McLeavey Drive - Kelvin Grove Road - Roberts Line North-Railway Road - KB Road - Campbell Road - Waughs Road	13.8	11:32
Roberts Line South - McLeavey Drive - Kelvin Grove Road - Railway Road - KB Road - Campbell Road - Waughs Road.	15.4	13:55

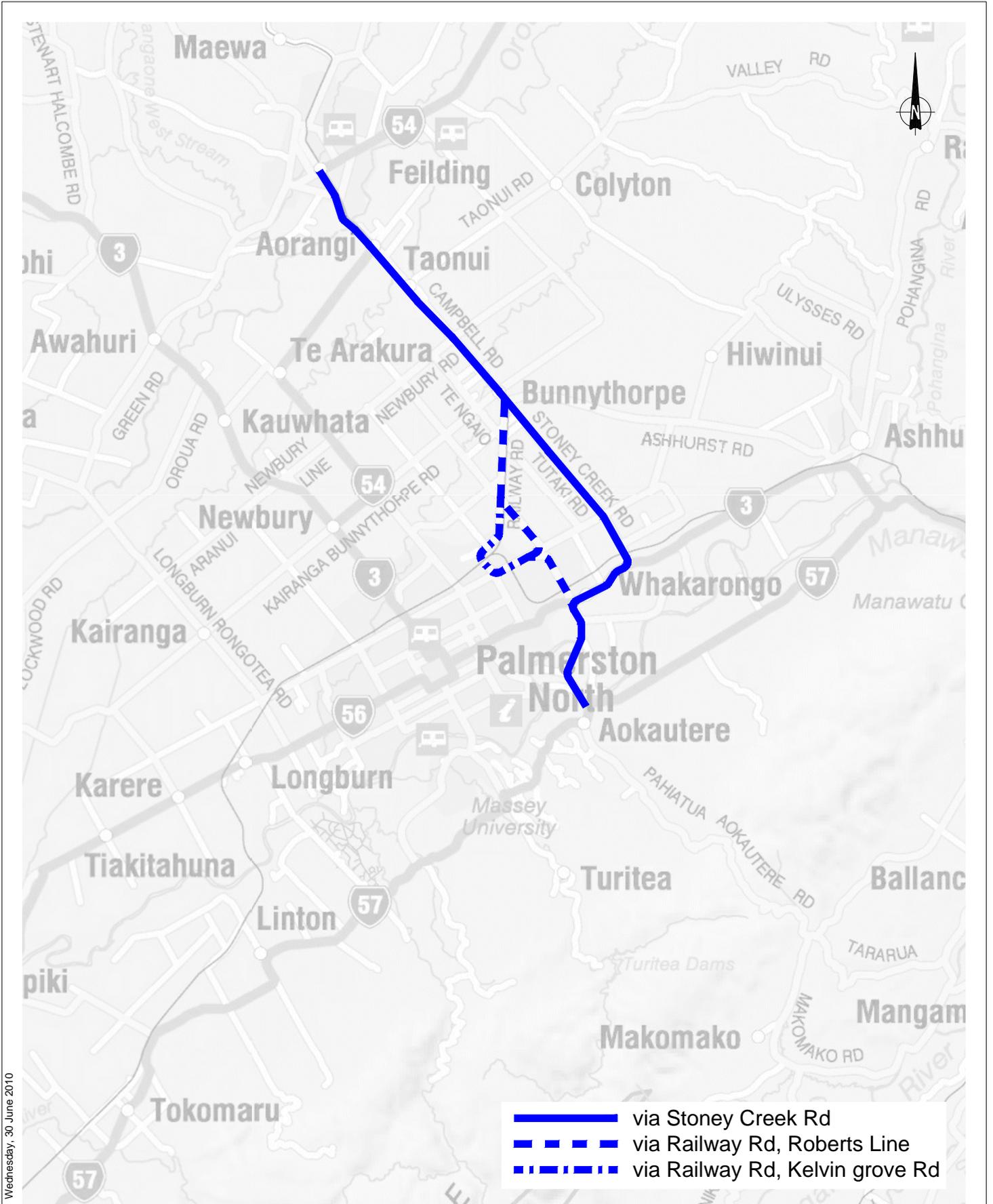
Table 15: New Bridge to Feilding Distance and Travel Time Comparisons

The Roberts Line - Railway Road route has a small distance and travel time advantage compared to other existing routes, and is expected to be the preferred route. If a new link from the New Upstream Bridge to Stoney Creek Road is ultimately constructed, it is expected that this would make Stoney Creek Road the preferred route in the long term.

5.7 Access Routes to North East Industrial Zone

The North East Industrial Zone (NEIZ) located north of and adjacent to the airport, is planned as a major industrial and distribution area. To function effectively, the NEIZ needs to be serviced by an efficient arterial road network providing good access locally to Palmerston North and regionally to the rest of the North Island.

Access to the NEIZ needs to be considered as part an integrated road hierarchy for the study area. Other options, which need to be considered for the distribution of inter-regional traffic, and their comparative distances and travel times are:



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DIRECTION	ACCESS ROUTE OPTIONS	DISTANCE (km)	TRAVEL TIME (min sec)
North	Roberts Line - KB Road - Rangitikei Line	18.9	12:29
	Railway Road - KB Road - Rangitikei Line	21.6	15:40
	Railway Road - Campbell Road/Waugh's Road - Kawakawa Road - Stewart Road	18.2	16:02
South	Roberts Line - KB Road - Rongotea Road - SH56	15.8	13:40
	Railway Road - KB Road - Rongotea Road - SH56	18.5	15:01
	Railway Road - Tremain Avenue - Botanical Road - Pioneer Highway (SH56)	11.9	18:28
East	Roberts Line-Kelvin Grove Road - Stoney Creek Road - Napier Road (SH3)	13.6	9:58
	Roberts Line-Kelvin Grove Road - James Line - Napier Road (SH3)	13.8	10:17
	Railway Road - Ashhurst Road - Napier Road - SH3	15.6	11:54

Table 16: NEIZ Access Routes Distance and Travel Time Comparisons

On the basis of these comparative distances and travel time the preferred routes are:

- to the north, the Roberts Line - KB Road - Rangitikei Line route would be preferred based on the distance and travel time advantage of this route
- to the south, the Railway Road - Tremain Avenue - Botanical Road route has a distinct distance advantage preferred by heavy vehicles, although the Roberts Line North - KB Road - Rongotea Road route has a travel time advantage and would be preferred by light vehicles
- to the east, the Roberts Line North - Kelvin Grove Road - Stoney Creek Road - Napier Road would be the preferred route based on distance and travel time advantages.

In regard to the local traffic, Railway Road provides access to Tremain Avenue which is the major east-west arterial on the north side for the distribution of traffic within Palmerston North.

5.8 Rural Ring Road

The Palmerston North Transportation Management Plan proposed a Rural Ring Road around Palmerston North.

Irrespective of the state highway route between Mt Stewart and Bunnythorpe, KB Road will be the principal east-west route on the north side of Palmerston North, providing access between SH3 (North) and the NEIZ. Hence KB Road should logically form the northern side of the ring road.

Similarly, irrespective of whether Stoney Creek Road or Ashhurst Road is the inter-regional route between Bunnythorpe and the Manawatu Gorge, it is envisaged that Stoney Creek Road will connect to the New Upstream Bridge and should logically form the eastern side of the ring road.

While Stoney Creek Road will initially connect to the New Upstream Bridge via Napier Road (SH3) and Te Matai Road, ultimately there may be a new link between Stoney Creek Road and the New Upstream Bridge which would then form part of the ring road. In the meantime, Napier Road and Te Matai Road would comprise this section of the ring road.

South of the Manawatu River, the New Upstream Bridge will connect to SH57 via Staces Road which will form the southern section of the ring road. Consideration has previously been given for this route to fully bypass Aokautere to the south, but urban development as well as local topography will constrain the ability for the full bypass route to be realised. As such, it is recommended that the existing corridor should provide the inter-regional route and, in so doing, should be supported by appropriate corridor improvements and route protection.

West of Rangitikei Line it is proposed that KB Road and Rongotea Road should form the western section of the ring road terminating on Pioneer Highway (SH56).

The final stage of the ring road could comprise a third bridge crossing of the Manawatu River between Longburn and SH57, which itself could be expected to support urban development in and around the Linton area. A route for this new river crossing has not yet been defined and is considered to lie beyond the horizon of this study.

5.9 State Highway 3 Into and Through Palmerston North

With the proposal for a state highway between Mt Stewart and the Manawatu Gorge via Bunnythorpe, SH3 through Palmerston North will no longer meet state highway criteria. Accordingly, consideration needs to be given to the status of the existing SH3 route through Palmerston North and future state highway connections to Palmerston North.

If a preferred inter-regional route between Mt Stewart and the Manawatu Gorge via KB Road is adopted, SH3 could follow this route and the state highway status of Rangitikei Line south of KB Road could be uplifted. On the other hand, if the Stewart Road - Waughs Road route via Feilding is preferred for an inter-regional route to Bunnythorpe, consideration would need to be given to whether to retain the state highway status of Rangitikei Line south of Mt Stewart.

If the preferred inter-regional route south of Bunnythorpe is via Stoney Creek Road, the state highway status of Napier Road west of Stoney Creek Road could be uplifted. On the other hand, if Ashhurst Road is preferred for an inter-regional route between Bunnythorpe and Ashhurst, then consideration would need to be given to whether to retain the state highway status of Napier Road west of Ashhurst.

6. Network Options

Based on the preceding assessment of route options, four network options, as shown in Figures 9, 10, 11 and 12 have been investigated. These options are:

- Option 1: KB Road-Stoney Creek Road
- Option 2: Feilding-Ashhurst Road
- Option 3: KB Road-Ashhurst Road
- Option 4: Feilding-Stoney Creek Road.

The most significant differences between the options are the alternative inter-regional routes between Mt Stewart and the Manawatu Gorge, as follows:

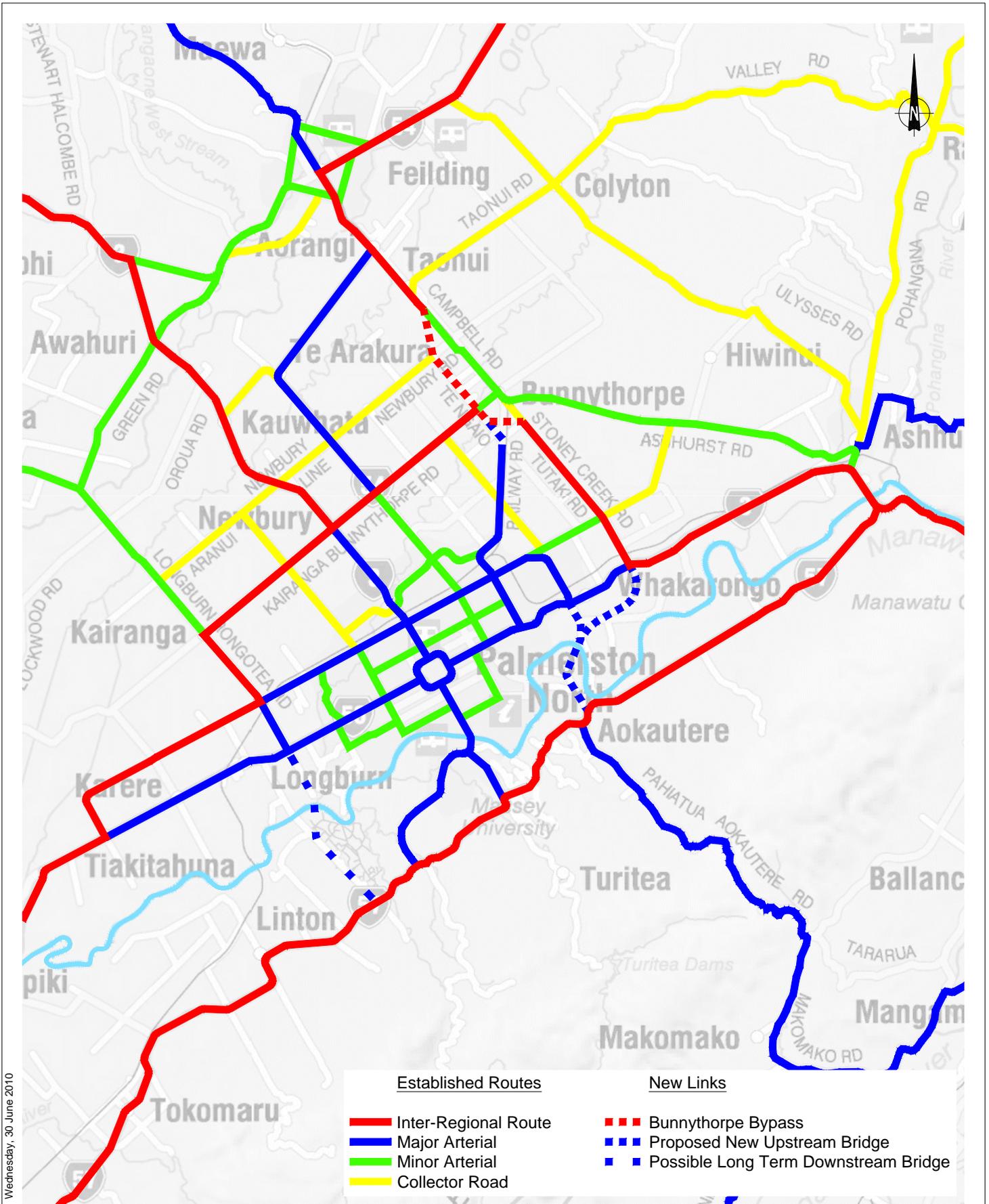
- the inter-regional routes between Mt Stewart and Bunnythorpe are via KB Road under Options 1 and 3, and via Feilding under Options 2 and 4
- the inter-regional routes between Bunnythorpe and Ashhurst are via Stoney Creek Road under Options 1 and 4, and via Ashhurst Road under Options 2 and 3.

In each option, it has been assumed that:

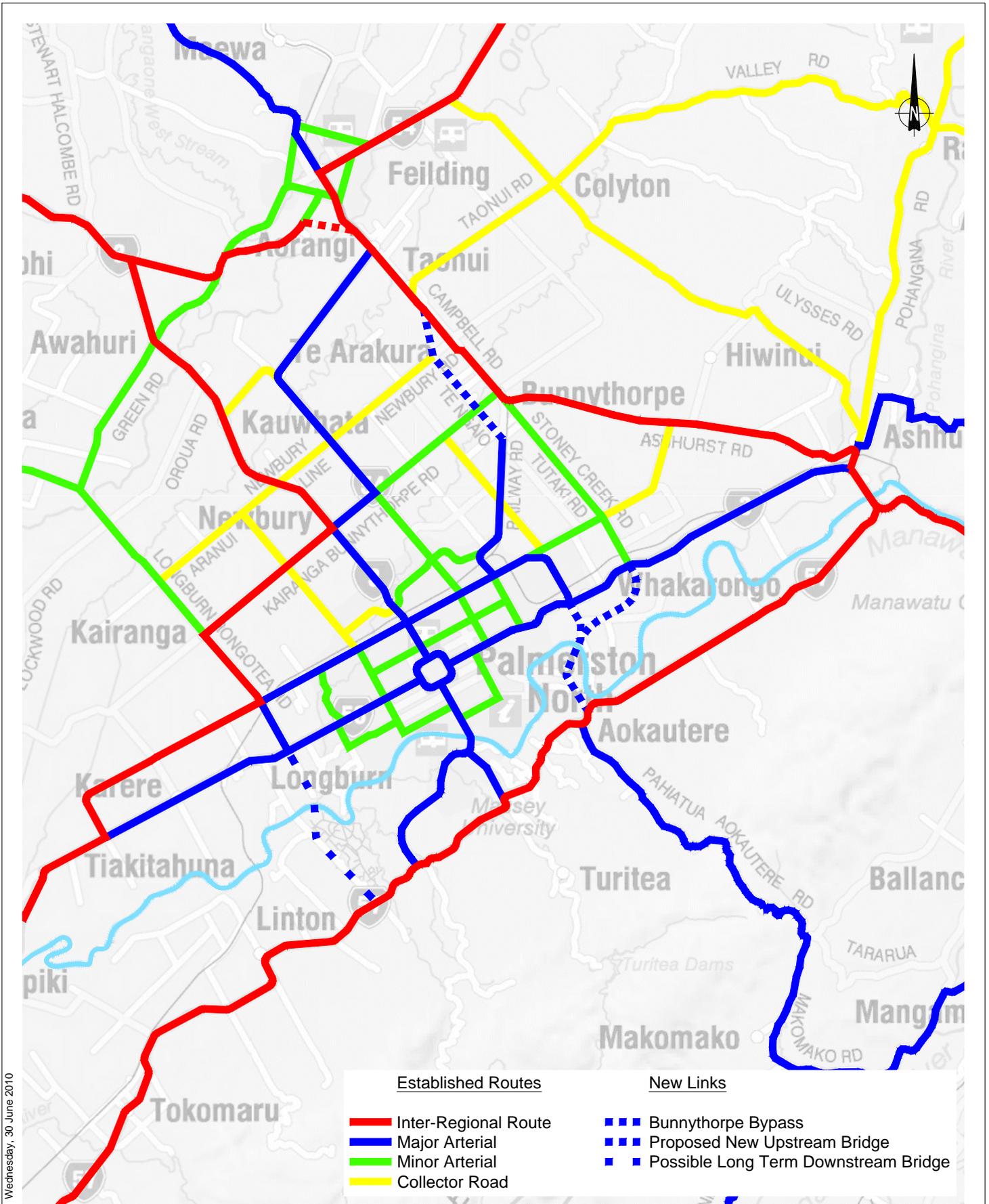
- KB Road will be upgraded to the status of an arterial road under all options to provide access to the NEIZ
- Te Ngaio Road is the preferred route for a western bypass of Bunnythorpe connecting through to Railway Road with different arrangements under each option for connecting to Stoney Creek Road and/or Ashhurst Road via a southern bypass of Bunnythorpe
- Stoney Creek Road (rather than Tutaki Road-James Line) is the preferred route connecting to the New Upstream River Bridge via Napier Road
- KB Road, Rongotea Road, No 1 Line and Tiakitahuna Road is the preferred inter-regional route connecting SH54 and SH56
- Roberts Line North and Roberts Line South would form a collector route providing access to the NEIZ from SH3 (North) and SH56 via KB Road and Roberts Line North, and from the New Upstream Bridge via Te Matai Road and Roberts Line South
- Milson Line south of KB Road will function as a minor arterial for commuter traffic between Feilding and Palmerston North, and provide for a deviation to allow for an extension of the airport runway, carrying smaller volumes of the order of 3,500vpd. In the event that Milson Line is closed, then the remaining northern section to KB Road could revert to a local road, and the southern section could be a collector as far as Flyers Line. These changes would not influence other hierarchy changes, and the remaining through-volumes would be handled instead by Rangitikei Line and Railway Road.

The options have also been developed with a view to making efficient use of the existing road infrastructure, with appropriate upgrades and improvements, rather than proposing new greenfield routes which would not have significant benefits and hence would not be viable.

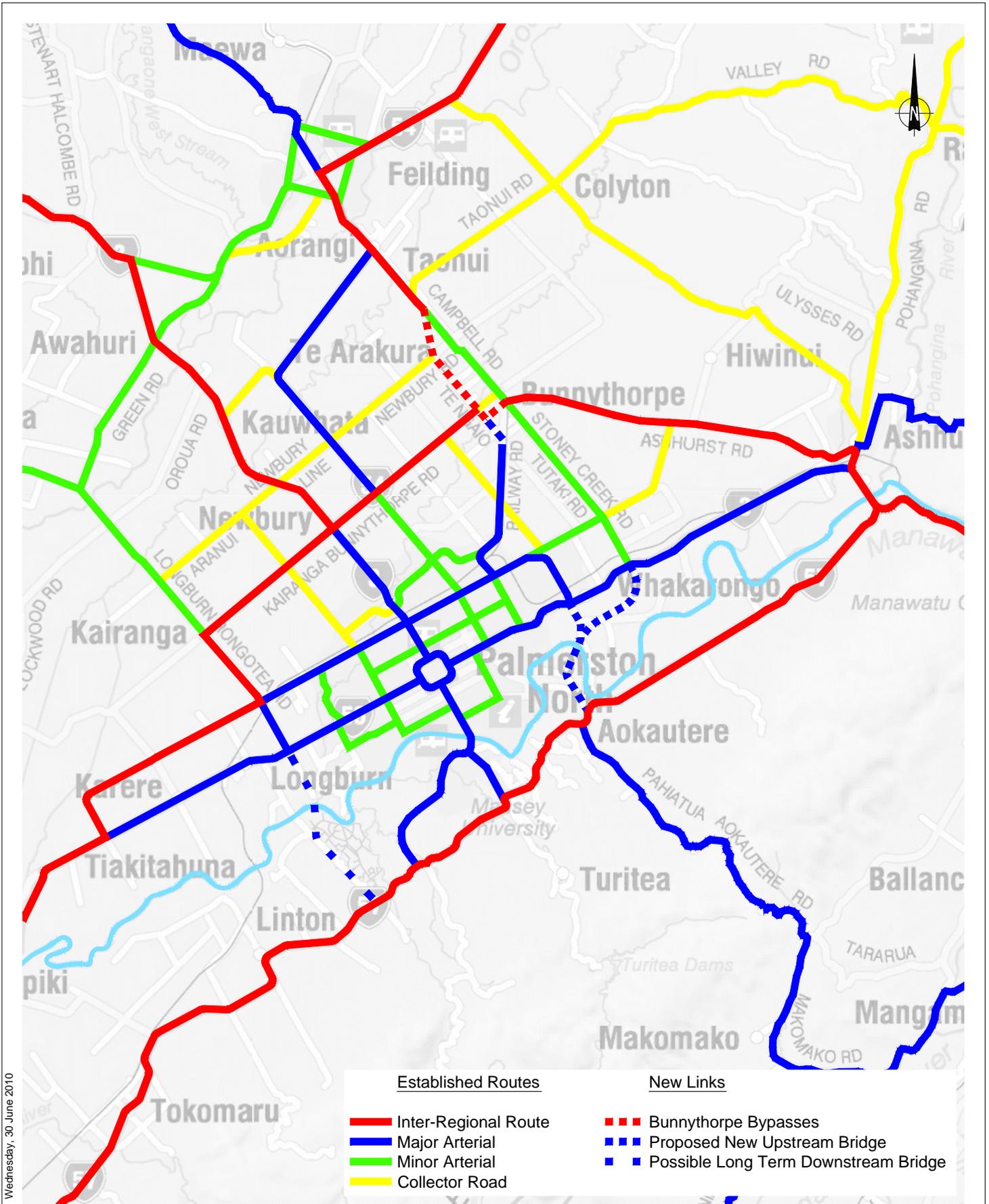
For the purpose of assessing the four options, it has been assumed that each will give rise to the package of staged improvements (with estimated costs) set out in Chapter 7. Stage 1 represents the improvements which would be a priority to be undertaken when the preferred inter-regional route is designated, and the Stage 2 improvements are those which would need to be undertaken eventually to fully comply with the desirable standards of an inter-regional route.



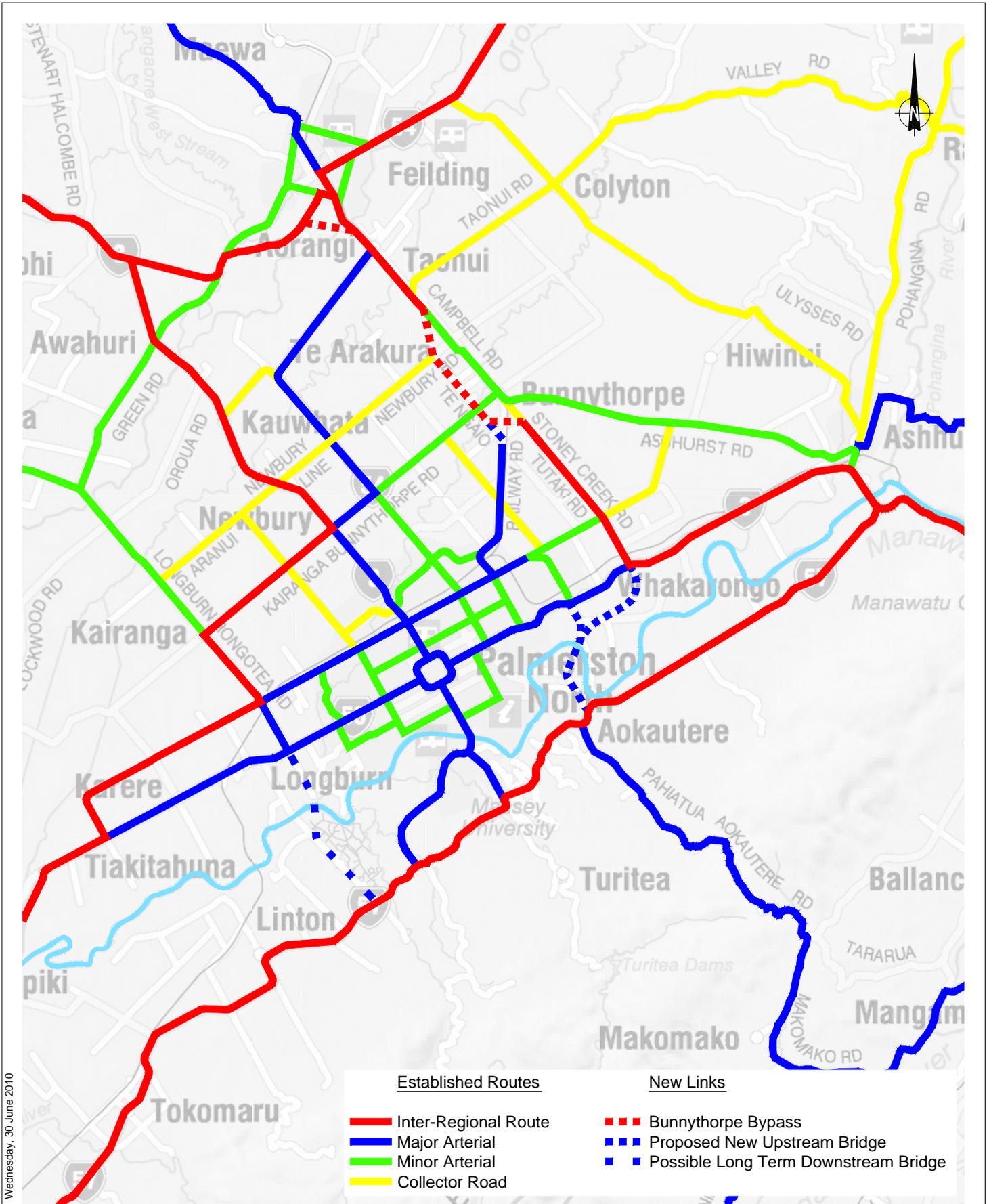
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7. Network Improvements

The network improvements required to give effect to each of the options have been identified for the following networks and network parts:

- Do-Nothing Network
- Base Network
- New Upstream Bridge
- Bunnythorpe Bypasses
- Kairanga Bunnythorpe Road
- Mt Stewart to Feilding
- Stoney Creek Road
- Ashhurst Road
- Ashhurst
- Ashhurst Road or Stoney Creek Road Connection.

The do-nothing, and base networks, and staged improvements for each option are set out next with an estimate of the construction cost to implement each improvement.

7.1 Do-Nothing Network

Improvements or changes to the network that have been included in the do-nothing network are:

- Airport Drive extension to Railway Road which has very recently been completed and is operational
- 70km/h speed restriction on Railway Road between the Rail Overbridge and Setters Line East.

The Airport Drive extension has completed the arterial route comprising John F Kennedy (JFK) Drive - Airport Drive between Rangitikei Line and Railway Road and is predicted to carry 7,500-8,000vpd in 2021. This volume supports its status as an arterial, as defined in the Palmerston North City District Plan.

The intersection of Railway Road and Airport Drive extension has taken the form of a roundabout.

7.2 Base Network

In addition to the network changes currently being implemented, it is envisaged that a number of improvements will be made to the rural network within the study area irrespective of which network option is preferred. The improvements to the rural road network which have been adopted in identifying the base network for the purpose of assessing the network options are:

- Rangitikei Line/KB Road roundabout
- KB Road seal widening to 10m between Rangitikei Line and Milson Line
- Milson Line/KB Road roundabout
- KB Road seal widening to 8.5m between Milson Line and Bunnythorpe

- Stoney Creek Road seal widening to 8.5m
- Milson Line remaining open with a deviation to allow for extension of the airport runway.

The roundabout at the Rangitikei Line/KB Road intersection which is a committed work by NZTA, is required to cater for the high volumes of right-turn traffic from Rangitikei Line (south) on SH3 into KB Road (east) on SH54 and to improve the safety of this intersection. This project has an estimated cost of \$1.6M.

Seal widening of KB Road between Rangitikei Line and Milson Line is required to meet current state highway standards. The seal width on this section of KB Road is 6.6m whereas the current traffic volume is nearly 4,000vpd, justifying a seal width of 10m. This width will also make adequate provision for cyclists. The estimated cost of this seal widening is \$2.8M.

The width of KB Road between Milson Line and Bunnythorpe is narrower again, at 5 - 6m. In recognition of its function as an access route, particularly for inter-regional heavy vehicles to the NEIZ, the base network has assumed that this section of KB Road will be widened to 8.5m at an estimated cost of \$4.8M. The base network also made provision for a roundabout at the Milson Line/ KB Road intersection at an estimated cost of \$1.6M.

Finally in the base network, Stoney Creek Road has been widened from about 6m to 8.5m at an estimated cost of \$3.6M.

While the future length of the airport runway is a matter still to be resolved, PNAL has plans for an airport runway of up to 2,500m. This will require either the closure of Milson Line or a deviation of Milson Line which will increase the length of Milson Line between KB Road and Tremaine Avenue by about 450m. Both options will require the closure of Richardsons Line at Milson Line.

In the Palmerston North urban network it will be necessary to make improvements to cater for the ongoing growth of Palmerston North and associated increases in traffic volumes. For the purposes of this study a number of capacity changes have been assumed which are merely indicative of the scale of improvements which will be required to the urban road network. These improvements are not being specifically proposed but have been adopted for the purposes of this study to ensure that capacity constraints on the urban road network do not unduly affect the assessment of the network options for the rural road network.

The indicative urban road capacity improvements which have been adopted as part of the network include particular upgrades at the Tremaine Avenue/Ruahine Street/Milson Line and Tremaine Avenue/Vogel Street/Railway Road intersections, with associated supporting improvements to Tremaine Avenue itself, possibly in the form of peak period clearways, and four-laning of Napier Road between Vogel Street and Roberts Line to cater for additional traffic diverted to the New Upstream Bridge.

Further investigations of the Palmerston North urban network are required to determine the optimum improvements to meet future traffic demands, and will best be advanced once PNCC's urban growth strategy becomes more certain. The kind of improvements required to the urban network are not expected to influence selection of a preferred rural network.

It is predicted that the series of improvements included in the base network, particularly the upgrade of KB Road and development of the Bunnythorpe Western Bypass, will reduce traffic volumes in 2021 on Milson Line south of KB Road from about 8,500vpd to about 3,500vpd. It is similarly predicted that the traffic volume on Rangitikei Line in 2021 will increase from about

- the social impacts on Bunnythorpe of heavy vehicles, and commuter traffic between Feilding and Palmerston North
- the poor standard of the Campbell Road/KB Road intersection in Bunnythorpe, particularly for southbound heavy vehicles turning from Campbell Road into KB Road
- the dual rail level crossings of the NIMT at Kung Fu Corner and on KB Road in Bunnythorpe.

The rail level crossing in Bunnythorpe is a major deficiency in two respects. Firstly, there is poor sight distance for vehicles turning out of both Campbell Road and Railway Road to cross the rail line. Secondly, there is insufficient distance between the rail line and the Campbell Road/KB Road intersection for large heavy vehicles to queue at the stop line on KB Road without a serious risk of protruding onto the rail line particularly if other vehicles are also queued.

A rail overpass or underpass on KB Road is not feasible without significantly affecting Bunnythorpe and, hence, a new link south of Bunnythorpe is the only practical solution.

The road user benefits of a western bypass of Bunnythorpe together with the intangible benefits of commuter traffic avoiding two rail level crossings of the NIMT including the rail level crossing in Bunnythorpe justify the bypass. Hence a western bypass has been included in the base network for the purpose of evaluating the network options.

7.5 Kairanga Bunnythorpe Road

NZTA has investigations underway to construct a roundabout at the Rangitikei Line (SH3)/KB Road (SH54) intersection, with associated widening of the approach roads. These improvements have been included in the base network.

Similarly, with the development of the NEIZ, KB Road has already been recognised as a future arterial to provide access to and from the state highway network in all directions. On this basis, the base network includes upgrading KB Road to the standard of a minor arterial with a minimum seal width of 8.5m, at a cost of \$2.8M, including allowances for improved road bridges and relocating the power poles. The Milson Line/KB Road intersection would be controlled by means of a roundabout.

For Options 1 and 3 with KB Road as an inter-regional route, it is envisaged that a roundabout will be required at the Bunnythorpe Bypass/KB Road intersection to control conflicting traffic movements. On the other hand, if Option 2 or 4 is preferred, with KB Road at its intersection with the Bunnythorpe Bypass serving predominantly local traffic, priority could be given to the bypass without the need for a roundabout.

7.6 Mt Stewart to Feilding

The route from Mt Stewart to Ashhurst which is commonly used by inter-regional traffic is via Stewart Road, Awahuri Feilding Road, Kawakawa Road and South Street. Alternatively, traffic uses Darragh Road and Turners Road in preference to South Street.

South Street is a residential street, and Darragh Road and Turners Road are both industrial roads. Both routes are posted with 50 km/h speed restrictions. Neither route is entirely suitable for inter-regional traffic and, if either Option 2 or 4 is preferred, further consideration of this issue

would be required including community consultation to determine the preferred route through Feilding.

In the longer term, Darragh Road could possibly be extended to connect to Aorangi Street on SH54 just north of the Aorangi Bridge which would shorten this route and reduce the length with a speed restriction. The traffic model shows only about 1,500vpd being attracted to this link and hence this link may not be economic or fundable. Further, a new intersection on Aorangi Street just north of the Aorangi Bridge may affect the capacity of the Aorangi Bridge and compromise safety on this section of Aorangi Street. These issues would require further investigation if either Option 2 or 4 for an inter-regional route through Feilding is preferred.

If either Option 2 or 4 is preferred, some seal widening and alignment improvements, particularly on the section of Kawakawa Road across the Makino Stream Bridge, would be required eventually to meet the standards of an inter-regional route, but the only major deficiency which would need to be remedied immediately is the intersection of Stewart Road and Awahuri Feilding Road. The priority at this intersection needs clarification and, if Mt Stewart to Feilding is recognised as the inter-regional route to the Manawatu Gorge, priority should be given to Stewart Road. This work could be undertaken as a minor safety work and otherwise no improvements to this route would be required in the short term.

7.7 Stoney Creek Road

The traffic model has been used to test the functions of Stoney Creek Road as an Eastern Corridor and confirms that the limited function of Stoney Creek Road, under all options, is to provide access to the New Upstream Bridge and to serve local traffic.

The traffic model predicts that, in 2021, Stoney Creek Road between Bunnythorpe and Kelvin Grove Road will attract only about 1,500vpd as a major arterial under Options 1 and 4, and less than 1,000vpd as a minor arterial under Options 2 and 3.

This traffic analysis indicates that, whether it is developed to the standard of a major or a minor arterial, the major functions of Stoney Creek Road will be to serve local traffic and to provide access to the New Upstream Bridge. A minor role would be to serve as an inter-regional route to the Manawatu Gorge but this function is dependent on Stoney Creek Road being upgraded to the standard of a major arterial. No commuter traffic between Feilding (and Bunnythorpe) and Palmerston North is attracted to Stoney Creek Road as either a major or a minor arterial.

The cost of upgrading Stoney Creek Road to the standard of a minor arterial is estimated at about \$3.6M primarily to increase the seal width to 8.5m and provide some minor improvements to the alignment. This work could be carried out progressively as traffic volumes increase primarily to serve residential development in the Kelvin Grove area. These improvements have been included in the base network.

To improve Stoney Creek Road to the standard of a major arterial under Options 1 and 4 would require major realignment of the existing roadway at an estimated cost of about \$7.2M. This substantial expenditure could not be justified by the modest volumes of traffic which are predicted to use this route, but would be required under Options 1 and 2 where Stoney Creek Road is the designated inter-regional route between Bunnythorpe and the Manawatu Gorge.

7.8 Ashhurst Road

The alignment of Ashhurst Road is already quite suitable as a minor arterial route between Bunnythorpe and Ashhurst and would require no significant improvements under Options 1 and 4 and only minor improvements to the alignment, including minor seal widening if Ashhurst Road is preferred as the inter-regional route under Options 2 and 3. This work is not urgent and can be undertaken as and when the road pavement is rehabilitated.

7.9 Ashhurst

The existing route used by inter-regional traffic through Ashhurst is via Mulgrave Street, Hillary Crescent and Cambridge Avenue. Although this route passes through a residential area with a 50km/h speed restriction, a bypass is unlikely to be economic or fundable even in the long term, so that it remains appropriate to make efficient use of the established road infrastructure. Nevertheless, it is considered appropriate for the longer term robustness of the network that provision be made for a new bypass link between Mulgrave Street and Short Street, in a location where the Palmerston North-Gisborne rail line can be grade separated. By comparison, other options for a new road further west do not lend themselves to physical separation of the rail line.

Although not entirely suitable as an inter-regional route, there are minimal delays to through traffic and minimal conflicts with local traffic. Provision has been made for some minor safety improvements if, on further investigation, any such minor improvements are required.

7.10 Ashhurst Road or Stoney Creek Road Connection

A major issue to resolve, depending on which network option is preferred, is the form of a Bunnythorpe Southern Bypass connection between the Bunnythorpe Western Bypass/KB Road intersection, and Ashhurst Road and/or Stoney Creek Road.

The Bunnythorpe Western Bypass will provide a bypass of Bunnythorpe and the existing two rail level crossings of the NIMT for commuter traffic between Feilding and Palmerston North. With the bypass merely connecting to Railway Road, it will not provide a bypass of Bunnythorpe or the rail level crossings for inter-regional traffic or other traffic using Ashhurst Road and Stoney Creek Road.

Under Options 1 and 4 where Stoney Creek Road is the inter-regional route and Ashhurst Road is merely a minor arterial between Bunnythorpe and Ashhurst, provision has been made in these network options for a diagonal link between the Bunnythorpe Western Bypass south of KB Road and Stoney Creek Road without a connection to Ashhurst Road. It is envisaged that this link would include an overpass of the NIMT. Under Option 4, some reconfiguration of the Campbell Road/Ashhurst Road/Stoney Creek Road intersection would be required in the interim to give priority to Stoney Creek Road until the new link from the bypass is constructed.

Under Option 2 where the inter-regional route is via Feilding and Ashhurst Road, the traffic modelling shows that the direct route via Campbell Road through Bunnythorpe would be preferred to the Bunnythorpe Western Bypass by inter-regional traffic whatever the form a connection between the bypass and Ashhurst Road. Accordingly, under this option no provision has been made for a link between the Bunnythorpe Western Bypass and Stoney Creek Road. Instead, provision is made in Option 2 for a rail overpass of the NIMT at Kung Fu Corner.

Under Option 3 where the inter-regional route is via KB Road and Ashhurst Road, it is proposed that provision be made for a link from the Bunnythorpe Western Bypass to Ashhurst Road including an underpass of the NIMT. This link is parallel to and south of KB Road connecting into a new roundabout at the intersection of Campbell Road/Ashhurst Road/Stoney Creek Road. This link would enable inter-regional traffic and other traffic on KB Road to bypass Bunnythorpe and the rail level crossing of the NIMT on KB Road.

While provision is made in Options 1, 3 and 4 for a Bunnythorpe Southern Bypass to link between the Bunnythorpe Western Bypass and Stoney Creek Road and/or Ashhurst Road, the need for and timing for the provision of this link will depend primarily on the extent to which the level crossing is still a hazard with the provision of the Bunnythorpe Western Bypass which will divert most of the existing traffic away from the rail level crossing and Bunnythorpe.

7.11 Summary of Improvements

The indicative standards and costs of the improvements required to implement the four network options are set out in relation to:

- Option 1 Improvements: KB Road/Stoney Creek Road (Table 17)
- Option 2 Improvements: Feilding/Ashhurst Road (Table 18)
- Option 3 Improvements: KB Road/Ashhurst Road (Table 19)
- Option 4 Improvements: Feilding/Stoney Creek Road (Table 20).

The costs are in addition to the base network improvements set out at Section 7.2, the New Upstream Bridge (\$55.7M) and the Bunnythorpe Western Bypass (\$8.6M).

STAGE	IMPROVEMENTS	ESTIMATED COST
1	Bunnythorpe Western Bypass/KB Road Roundabout	\$1.6M
	Subtotal	\$1.6M
2	Bunnythorpe Southern Bypass to Stoney Creek Road incl NIMT Railway Overpass	\$5.7M
	Stoney Creek Road Upgrade	\$4.0M
	Napier Road/Stoney Creek Road Roundabout	\$1.6M
	Subtotal	\$11.3M
TOTAL		\$12.9M

Table 17: Option 1 Improvements

STAGE	IMPROVEMENTS	ESTIMATED COST
1	Mt Stewart to Feilding Minor Improvements	\$0.5M
	Ashhurst Minor Improvements	\$0.5M
	Subtotal	\$1.0M
2	Kawakawa Road Upgrade	\$0.8M
	Darragh Road Extension	\$1.1M
	NIMT Railway Overpass at Kung Fu Corner	\$3.8M
	Ashhurst Road Upgrade	\$3.0M
	Subtotal	\$8.7M
TOTAL		\$9.7M

Table 18: Option 2 Improvements

STAGE	IMPROVEMENTS	ESTIMATED COST
1	Bunnythorpe Western Bypass/KB Road Roundabout	\$1.6M
	Ashhurst Minor Improvements	\$0.5M
	Sub total	\$2.1M
2	Bunnythorpe Southern Bypass to Ashhurst Road incl NIMT Railway Underpass	\$5.7M
	Ashhurst Road Upgrade	\$3.0M
	Subtotal	\$8.7M
TOTAL		\$10.8M

Table 19: Option 3 Improvements

STAGE	IMPROVEMENTS	ESTIMATED COST
1	Mt Stewart to Feilding Minor Improvements	\$0.5M
	Ashhurst Road/Stoney Creek Road Roundabout	\$1.0M
	Subtotal	\$1.5M
2	Kawakawa Road Upgrade	\$0.8M
	Darragh Road Extension	\$1.1M
	Bunnythorpe Southern Bypass to Stoney Creek Road incl NIMT Railway Overpass	\$5.7M
	Stoney Creek Road Upgrade	\$4.0M
	Napier Road/Stoney Creek Road Roundabout	\$1.6M
	Subtotal	\$13.2M
TOTAL		\$14.7M

Table 20: Option 4 Improvements

The cost of improvements required under the options varies between \$9.7M and \$14.7M.

8. Network Options Assessment

The assessment of the network options comprises:

- a detailed analysis of traffic flows
- a detailed economic evaluation
- a broad assessment of the options against the objectives of the NZTS and the GPS.

In addition, an assessment has been made of the attractiveness of Stoney Creek Road and Napier Road as an alternative commuter route between Feilding and Palmerston North by making further and significant improvements to Stoney Creek Road, Napier Road and Main Street East.

8.1 Traffic Analysis

Features of the traffic flows derived from the 2021 traffic model are:

- around 1,000 vpd travel between Sanson and the Manawatu Gorge
- the New Upstream Bridge carries 8,000 to 9,000vpd of which about 8,000vpd are to or from Palmerston North and only about 1,000vpd are going to or from the Eastern Corridor
- SH56 has 6,000vpd of which only 300vpd is to or from north Manawatu.

On Stoney Creek Road north of Kelvin Grove Road, the traffic model predicts that traffic volumes will increase to about 1,000vpd. This volume is still low indicating that there is only a small demand for traffic to flow between Feilding - Bunnythorpe and the New Upstream Bridge.

As explained in Section 7.2, the other major effect on traffic flows due to the base network improvements, is the shift of about 4,500vpd from Milson Line, primarily to Rangitikei Line and Railway Road. This change in the distribution of traffic is in part influenced by the increase in travel time compared to the overall travel time between Feilding and Palmerston North and more significantly by the future development of the Palmerston North urban road network. Further investigations of the Palmerston North urban road network should be undertaken to more fully understand this shift in traffic off Milson Line which the traffic model has predicted.

The Bunnythorpe Western Bypass is predicted by the traffic model to attract about 7,000vpd, while the traffic volume on Campbell Road reduces from 8,500vpd to 4,000vpd. The additional 2,500vpd in the corridor comprises traffic which is attracted from Milson Line and other rural roads in the study area.

For the purposes of comparing the network options, the base network has been taken to include the New Upstream Bridge, plus the western bypass of Bunnythorpe, both of which are found by this study to provide good strategic outcomes and economic gains for the region. Compared to this base network, the four network options have little effect on the routes chosen by inter-regional traffic with, for example, traffic between Mt Stewart and the Manawatu Gorge shown to be attracted to KB Road and Ashhurst Road in all instances. By comparison, and for other routes such as the commuter alternatives between Feilding and Palmerston North, the modelled outcomes are shown to be sensitive to small changes, reflecting the slight travel differences between each route.

8.2 Economic Evaluation

The economic benefits of the network options have been based on the reductions in road user costs, in particular the reductions in travel times and vehicle operating costs, resulting from each option. The predictions of these reductions in travel times and vehicle operating costs have been derived from the traffic model, and the network improvements adopted for each option, as set out in Section 7.11.

As for the traffic analysis described above, the base case for undertaking an economic evaluation of the network options assumed:

- the construction of the proposed New Upstream Bridge and the Bunnythorpe Western Bypass
- a deviation of Milson Line between KB Road and Tremaine Avenue connecting to Ruahine Street to allow for an airport runway extension.

The economic benefits of the network options compared to the base case, based on the 2021 traffic model, is in the order of \$1M per annum. The difference between the road users costs of the options, as predicted by the traffic model, is generally within the order of accuracy of the model.

Options 1 and 4 have about \$0.5M per annum of additional benefits compared to Options 2 and 3 but as described above, because Ashhurst Road is a shorter and quicker route than Stoney Creek Road, all traffic between Bunnythorpe and Ashhurst, including inter-regional traffic to and from the Manawatu Gorge, has a preference for Ashhurst Road. If, by some traffic management means, Ashhurst Road was made less attractive than Stoney Creek Road, the effect would be an increase in travel times and travel distances for traffic which would otherwise prefer to use Ashhurst Road. This would increase road user costs of Options 1 and 4 by \$1-2M per annum.

Taking account of these additional road user costs, the overall road user benefits of Ashhurst Road (Options 1 and 4) compared to Stoney Creek Road (Options 2 and 3), are about \$1M per annum.

The difference between Options 2 and 3 is in the order of \$0.5M per annum which, as stated above, is within the order of the accuracy of the model and is barely significant compared to the total road user costs within the modelled area of \$630M per annum. For these reasons the preference between Options 2 and 3 needs to take account of other factors which may be more significant than the difference in road user benefits.

The economic assessment of the KB Road and Ashhurst Road option (Option 3) but with Stoney Creek Road, Napier Road and Main Street East upgraded in an attempt to make this route attractive to commuter traffic shows that the 500vpd which would be diverted off Railway Road to Stoney Creek Road would yield road user benefits of about \$0.25M per annum. These benefits are not significant or sufficient to justify the considerable cost of upgrading these routes to achieve the standards required to attract even the modest traffic diversion off Railway Road which the model predicts.

8.3 NZTS and GPS Assessment

A detailed assessment of the four network options has been undertaken in terms of the key factors related to the objectives set out in the New Zealand Transport Strategy (NZTS) and the Government Policy Statement (GPS).

This assessment has been advanced by comparing the options alongside the base scenario, based on the following ranking criteria:

- +H highly better than the base scenario
- +H/M
- +M moderately better than the base scenario
- +M/L
- +L slightly better than the base scenario
- +VL
- -VL
- -L slightly worse than the base scenario
- -M/L
- -M moderately worse than the base scenario
- -H/M
- -H highly worse than the base scenario.

This analysis has been completed on the basis that the options are fully implemented. The broad results to arise are summarised in Table 21 below, with the detail following in Table 22. Then in Table 23, account has been taken of the factors which could affect the implementation of the options.

NZTS OBJECTIVES	1. ECONOMIC DEVELOPMENT	2. SAFETY AND PERSONAL SECURITY	3. ACCESS AND MOBILITY	4. ENVIRONMENTAL SUSTAINABILITY	5. PUBLIC HEALTH
GPS Objectives	1. Economic Growth and Productivity	2. Deaths and Serious Injury	3. Transport Choices	4. Environmental Effects	5. Public Health
Option 1	+M	+M	+M	+M	+M/L
Option 2	+M	+M	+M/L	-L	+VL
Option 3	+H/M	-H	+M/L	+L	+L
Option 4	+M/L	+M	+M	+L	+L

Table 21: Broad Assessment of Options

FACTOR	OPTION 1	OPTION 2	OPTION 3	OPTION 4
1. Economic Development				
Speed restrictions (Feilding, Bunnythorpe, Ashhurst)	+H	+M	+H/M	+H/M
Road User Costs (Travel Time and Travel Distance)	+M/L	+H/M	+H	+L
Inter-Regional Connections & Legibility				
- Mt Stewart to Manawatu Gorge	-L	+L	+H	-M
- SH54 to SH56	+H	+M	+H	+M
- access to Palmerston North (excl Feilding/PN)	Neutral	Neutral	Neutral	Neutral
- SH1 north & SH3 west vs Halcombe Road	-L	-L	-L	-L
- SH1 south (RoNS)	Neutral	Neutral	Neutral	Neutral
Intra-Regional Connectivity & Legibility				
- access to new upstream bridge	+H	+M	+M	+H
- eastern corridor	+H	+M	+M	+H
- ring road (KB Road-Eastern Corridor linkage)	+H	+M	+M	+H
- for Feilding-Palmerston North commuters	+H/M	+H	+H	+H/M
Palmerston North urban network	+L	+V/L	+V/L	+L
Network Capacity	+M	+M	+H	+L
	+M	+M	+H/M	+M/L
2. Safety				
Through vs local traffic conflicts in Feilding, Bunnythorpe, Ashhurst	+M	+L	+M/L	+M/L
Property access conflicts (Stoney Creek Road)	-L	-VL	-VL	-L
Road crashes	+M	+M	+H	+L
Railway crossings crashes	+L	+M	-H	+M
	+M	+M	-H	+M
3. Accessibility and Transport Choices				
To NEIZ	+H/M	+H/M	+H/M	+H/M
To Airport	Neutral	Neutral	Neutral	Neutral
To western growth nodes	+L	+L	+L	+L
To eastern growth node	+M	+M/L	+M/L	+M
To other growth areas (Aokautere)	+M	+M/L	+M/L	+M
Choice for rail (for freight)	+L	+L	+L	+L
Choice for public transport	+L	+L	+L	+L
Choice for cycling	+VL	+VL	+VL	+VL
	+M	+M/L	+M/L	+M
4. Social Environmental Effects				
Community				
Feilding	+L	-M	+L	-M
Bunnythorpe	+H	+L	+L	+H
Ashhurst	+L	-L	-L	+L
Rural lifestyle (Stoney Creek Road)	-L	-VL	-VL	-L
Physical environment	-VL	-VL	-VL	-VL
Property purchase	-L	-L	-VL	-M/L
	+M	-L	+L	+L

FACTOR	OPTION 1	OPTION 2	OPTION 3	OPTION 4
5. Public Health				
Emissions	Neutral	Neutral	Neutral	Neutral
Noise (HVs on designated routes)	+M/L	+VL	+L	+L
	+ML	+VL	+L	+L

Table 22: Detailed Assessment of Options

Factor	Option 1	Option 2	Option 3	Option 4
Implementation				
- Staging	+L	+H	+M	+L
- Fundability	-H	+M	+H	-H
Network improvement costs	-H/M	-M	-M	-H
	-M/L	+H	+H	-M

Table 23: Implementation of Options

Based on this broad and detailed assessment of the options, the major advantages and disadvantages can then be described as set out next.

8.4 Ashhurst Road vs Stoney Creek Road

The major advantages of Ashhurst Road compared to Stoney Creek Road for an inter-regional route between Bunnythorpe and the Manawatu Gorge are:

- Ashhurst Road is a shorter and quicker route for inter-regional traffic and, even if Stoney Creek Road is upgraded to the standard of a major arterial, inter-regional traffic will prefer to use Ashhurst Road
- Stoney Creek Road would require major upgrading to achieve the standard of a major arterial and tight planning restrictions on local road and frontage property development
- Ashhurst Road is already of a standard suitable for declaring it as an inter-regional route and eventually would require upgrading as suggested in the context of the base network, which could readily be staged.

The disadvantage of Ashhurst Road compared to Stoney Creek Road is:

- inter-regional traffic through Ashhurst would cause some conflicts with local traffic and minor community impacts, but these effects are not considered to be very significant.

The major advantage of Stoney Creek Road is:

- it would require this route to be developed as a Major Arterial, thereby improving the standard for an Eastern Corridor connecting to the New Upstream Bridge.

Both options could be improved by a direct link in the form of a southern bypass of Bunnythorpe from the KB Road/Bunnythorpe Western Bypass intersection to either Ashhurst Road or Stoney Creek Road.

On balance, the advantages of the Stoney Creek Road option and the disadvantages of Ashhurst Road are both minor and the Ashhurst Road option is preferred.

8.5 KB Road vs Feilding

The major advantage of the Rangitikei Line - KB Road option compared to the Feilding option for an inter-regional route between Mt Stewart (SH3) and Bunnythorpe are:

- as an arterial east-west route, KB Road could serve multiple functions of an inter-regional route between both Mt Stewart (SH3) and Bunnythorpe, Feilding (SH54) and SH56, and for access to the NEIZ as part of a Rural Ring Road
- inter-regional traffic between Mt Stewart and Bunnythorpe would avoid Feilding without causing local traffic conflicts and local community conflicts, and would avoid speed restrictions through Feilding.

The major advantage of the Feilding option is that inter-regional traffic would avoid the rail level crossing in Bunnythorpe which is considered to be less safe than the rail level crossing at Kung Fu Corner. In the long term this problem can be overcome by construction of a southern bypass of Bunnythorpe between KB Road and Ashhurst Road.

The major disadvantage of the KB Road option is:

- it intersects with Milson Line and the Bunnythorpe Bypass causing disruptions to the flow of commuter traffic on these two routes.

The improvements to upgrade each route could be readily staged.

On balance, the Rangitikei Line - KB Road option is preferred.

8.6 Levin to Wellington RoNS

The proposed road hierarchy for the study area is consistent with the RoNS project for the Levin to Wellington corridor on SH1. An expressway between Levin and Wellington will significantly improve access to the study area.

An eastern bypass of Levin would result in an improved connection between SH1 and both SH56 and SH57 thereby providing improved access to both Palmerston North and the Feilding area. The proposal for a designated inter-regional route between SH56 and SH54 via KB Road will also improve the connectivity between Wellington and Levin, and the Feilding area in northern Manawatu.

A western bypass of Levin, which has previously been rejected but is understood to now being further investigated, will not improve access to Palmerston North or the Feilding area to the same degree as an eastern bypass.

9. Route Assessments

Pursuant to the determination of a preferred network option based on KB Road and Ashhurst Road as the inter-regional route, consideration has been given to a number of specific routes or areas, in addition to the Bunnythorpe Western Bypass and New Upstream Bridge.

These specific routes or areas are Bunnythorpe including the Bunnythorpe Southern Bypass, KB Road, and Stoney Creek Road.

9.1 Bunnythorpe

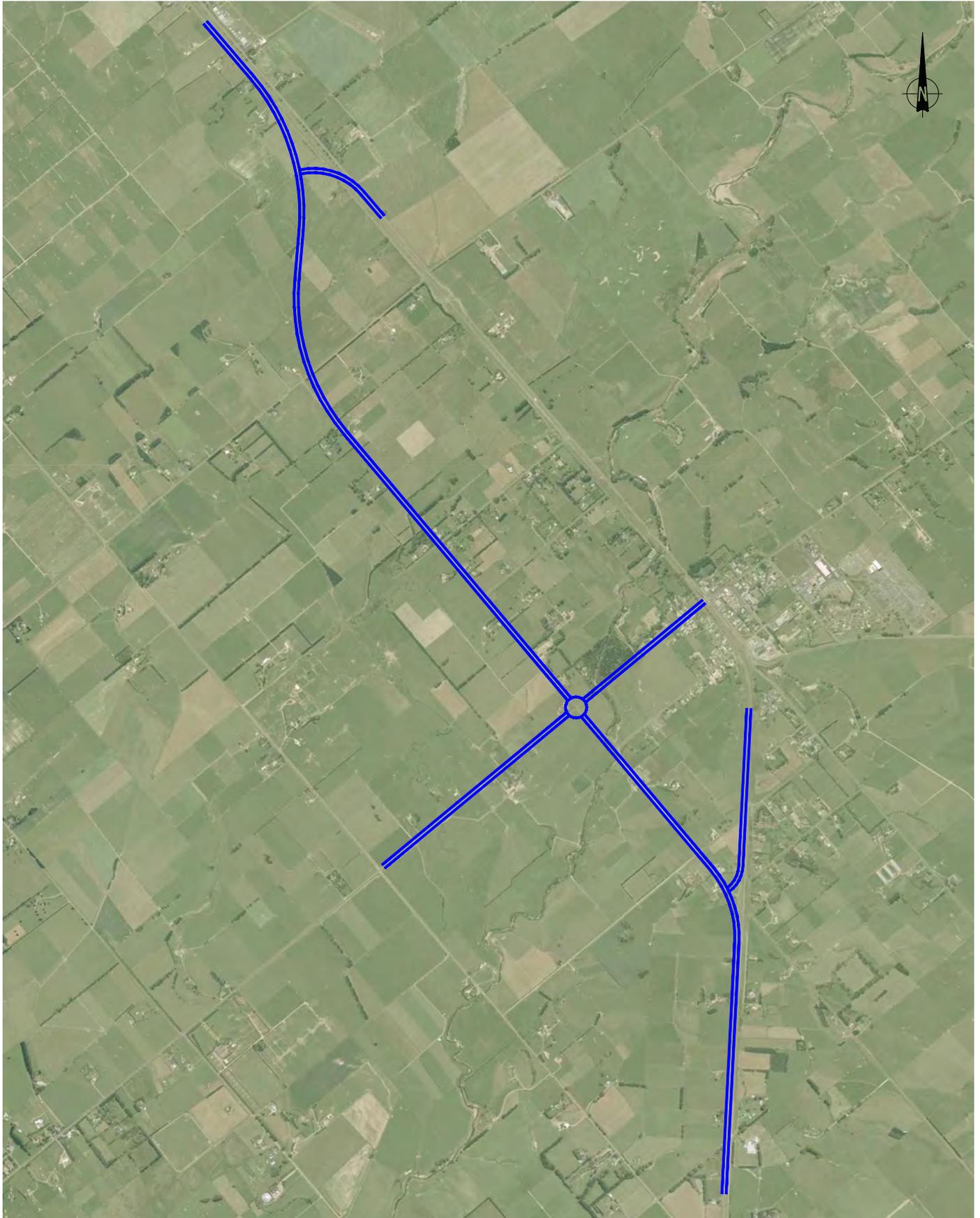
The alignment which is preferred by MDC and endorsed by this study for a north-south bypass of Bunnythorpe is via Te Ngaio Road on the western side of Bunnythorpe in the manner shown earlier in Figure 6 and also in this section as Figure 13. While other options have not been studied in detail, a western bypass via Te Ngaio Road is consistent with the road hierarchy which has been proposed.

Consideration has also been given to a southern bypass of Bunnythorpe between KB Road and the Ashhurst Road/Stoney Creek Road intersection, as shown conceptually in Figure 14. While this proposal requires further investigation to determine an overall roading plan for Bunnythorpe including connections to KB Road and Railway Road within Bunnythorpe, it is found by this study to be a key component of the preferred hierarchy and an integral part of delivering the inter-regional route via KB Road and Ashhurst Road. In providing for a future overpass or underpass of the NIMT, further consideration should also be given to whether a level crossing could be provided initially as part of an overall long-term rationalisation of level crossings of the NIMT within the Bunnythorpe area.

While the preliminary analysis shows that the Bunnythorpe Western Bypass would give rise to a larger order of benefits than previously determined, further consideration is also required to more fully evaluate the combined benefits of constructing a Bunnythorpe Western Bypass and a southern bypass as illustrated in Figure 15.

The proposed road hierarchy and improvements to the road network which are required to give the hierarchy full effect are not dependent on the Bunnythorpe bypass proposals or the sequence in which they are constructed. The road hierarchy and road improvements can be implemented progressively with the bypass proposals implemented as and when funding is available for these projects.

In the event that the fuller scheme assessment work to follow finds that Campbell Road is a suitable alternative to the western bypass, then its length to Railway Road would need to be retained as a major arterial, and could be achieved in the context of the proposed road hierarchy remaining valid.



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Palmerston North-Manawatu Strategic Transport Study
Bunnythorpe Western Bypass



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SCALE: 1:25,000



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9.2 Kairanga Bunnythorpe Road

KB Road is predicted to carry around 8,500vpd in its length between Rangitikei Line and Milson Line, and some 3,000-3,500vpd between Milson Line and Bunnythorpe. Its key functions will be to serve as an inter-regional route to provide access, particularly for heavy vehicles to the NEIZ, and to provide other local access to Bunnythorpe and surrounding area. It is also likely that there will continue to be demands for local commercial and industrial development to have access off KB Road.

To balance these conflicting requirements, a structure plan needs to be prepared showing possible local road connections and intersection treatments, and property access arrangements. With the designation of KB Road as an inter-regional route between SH54 and SH56, the issue of access within Kairanga township and including Kairanga School also needs to be addressed.

9.3 Stoney Creek Road

The prediction of traffic volumes on Stoney Creek Road range between 1,000vpd and 1,500vpd depending on the standard to which Stoney Creek Road is developed, with some traffic able to be attracted to an upgraded road from other routes, especially Roberts Line.

If Napier Road and Main Street East were also developed to operate at 100km/h and 70km/h respectively a further 500vpd could be attracted to Stoney Creek Road but this would result in significant extra vehicle distances and hence road user costs.

The cost of upgrading Stoney Creek Road to the standard required to attract greater volumes of traffic from other routes will be significant and requires scheme assessment to determine the costs of various options, the traffic diversions which will be achieved and the resulting road user benefits. That assessment should also take account of the restrictions which would need to be placed on local development, both in relation to local road connections and property access, if Stoney Creek Road were treated as a major arterial carrying higher traffic volumes.

The preliminary assessment emerging from this study is that the costs of achieving higher standards would not be justified by the road user benefits and that, pending further review as the city's eastern urban growth patterns and strategies become more certain and when the New Upstream Bridge is constructed, Stoney Creek Road should be treated as a minor arterial.

A structure plan also needs to be prepared for Stoney Creek Road. This plan should address the issues of local road connections and property access to Stoney Creek Road, including access to Whakarongo School.

10. Alternative Modes

A major element of the current (2006-2015) and next update of the Regional Land Transport Strategy for the Manawatu-Wanganui region to meet the objective of a sustainable land transport system involves provision for alternative modes, specifically public transport and cycling.

10.1 Public Transport

While there has historically only been a skeleton public transport system providing bus services into the Palmerston North City centre, the Horizons Regional Council has recently been adding improved services. Apart from the need to provide public transport services for the 'transport disadvantaged' who do not have ready access to a private car, a critical public transport issue in the region is the need to provide comprehensive services between Palmerston North and Feilding, to minimise private car dependency for trips in this corridor.

Currently, a total of 20 services (10 to Palmerston North and 10 to Feilding) travel this corridor each weekday, with between 400 and 500 passengers per day. These services will continue to cater for commuter trips as well as for off-peak school trips and other non-work trips.

Even with the prospect of a 50% increase in bus passenger numbers, the resulting change to traffic volumes would be modest and of the order of 1-2%, and not of a level to influence the strategic preferences and recommendations of this study.

10.2 Cycling

The concept of offering and promoting alternative and sustainable travel choices is also reflected in the Manawatu Active Transport Strategy, which is a joint initiative by the Palmerston North City Council and Manawatu District Council towards the Vision that *"More Manawatu people and visitors use active transport more often for travel, health and enjoyment"*. This Vision reflects the same general outcomes also sought through the policies and initiatives of the Regional Land Transport Strategy.

The cycling strategy of the Palmerston North City Council provides for a comprehensive network of cycleways on most primary roads in Palmerston North which have been well implemented over many years, in conjunction with a series of attractive off-road paths. The city's topography combined with its role as a 'student city' is reflected by the significant presence of cycling as a transport mode. Specific provision should be made for cyclists by way of widened roads, as appropriate, on the improved strategic network as the road designs are developed, including specifically in the north-south Feilding to Palmerston North corridor.

10.3 Travel Demand Management

The current Regional Land Transport Strategy sets out policies and actions for managing travel demands and to promoting a change in travel behaviour in order to reduce the use of private motor vehicles and promote public health through more active modes of transport. These policies are to:

- encourage a reduction in car use by promoting ways to reduce the need to travel
- promote the use of active transport modes and public transport in order to reduce car dependency
- promote more efficient use of vehicles by increasing vehicle occupancy
- integrate land use and transport network planning
- support the development of higher density residential developments close to main urban transport routes/modes
- promote the adoption of urban design protocols
- manage parking supply and pricing as a means of managing travel demand.

These policies and their associated actions will influence future traffic growth rates, although not to the extent that would result in changes to the preferences and recommendations of this study.

10.4 Travel Plans

Travel plans are a means of encouraging commuters in particular to use alternative modes of transport rather than relying solely on the use of private cars.

As industries continue to develop to the north of Palmerston North City, the Councils should encourage them to develop travel plans involving the use of alternative modes, especially public transport and cycling. New commuters between Feilding and Palmerston North should be encouraged to form patterns of travel behaviours from the outset which rely less on the use of private cars in order to reduce traffic growth in this corridor.

11. Stakeholder Involvement

Beyond the immediate study partners, initial engagement with key stakeholders was made in November 2009 during Phase 1 to obtain relevant information and supporting material on issues and options.

More recently, stakeholders were further engaged in May 2010 for feedback on an earlier version of the Phase 2 report. This second round of engagement was with the same stakeholders as for Phase 1, included as 'Target' and 'Key' stakeholders in the table below, as well as with an additional 11 stakeholders identified by Palmerston North City Council.

TARGET STAKEHOLDERS	KEY STAKEHOLDERS	PNCC STAKEHOLDERS
Ezibuy	Destination Manawatu	AFFCO Manawatu
Fonterra	Federated Farmers	Brandlines
Foodstuffs Cold Storage	Horowhenua District Council	Cam Arnott Transport
Foodstuffs Distribution	IPC	Fonterra
KiwiRail	Landcare Research NZ Ltd	Fonterra Research
New Zealand Automobile Association	Mainfreight Transport Ltd	Foodstuffs
		Higgins Contractors
New Zealand Police	Manawatu Chamber of Commerce	Hooker Pacific
NZ Defence Force	Massey University	JP Ware Transport Ltd
NZ Railways Corp	Mid Central Health Ltd	Royal NZ Airforce
Palmerston North Airport	NZ Fire Service	Toyota
Progressive Enterprises	AgResearch	
Road Transport Association	Rangitikei District Council	
	Royal NZ Airforce	
	St Johns Ambulance Service	
	Tararua District Council	
	UCOL	
	Vision Manawatu	

Table 24: Stakeholders Engaged in Phase 2

An earlier version of the Phase 2 report was provided to each stakeholder in early May, with feedback requested by 4 June 2010 on the conclusions reached and future direction recommended for the region's transport network. Particular follow-ups have been made with the identified target stakeholders, and individual contact made with each.

Written and verbal responses have been received from the following 12 stakeholders (listed alphabetically):

- Destination Manawatu
- Foodstuffs (as a single consolidated response for their cold storage and distribution centres in Palmerston North and head office in Wellington)
- Fonterra
- Horowhenua District Council

- JP Ware Transport
- KiwiRail
- Massey University
- NZ Defence Force
- NZ Heavy Haulage Association, via contacts at the Road Transport Association
- Palmerston North Airport
- Road Transport Association
- Vision Manawatu.

A copy of the responses received from these stakeholders is included at Appendix A to this report, with a summary of each provided below.

Destination Manawatu. In their response, Destination Manawatu point to the need for a second river crossing (that should connect with Stoney Creek Road) and for a future third river crossing to the west of the city. The response also refers to a need for the airport's growth potential not to be compromised. The proposed extension of the runway and function of Milson Line are crucial in this regard.

Foodstuffs. Tim Kelly Transportation Ltd provided the submission on behalf of Foodstuffs, noting that Foodstuffs fully supports the proposed strategy and changes to the roading hierarchy with further comment provided on specific issues as follows:

- consider localised realignment of the inter-regional route at Kairanga to minimise the impacts on this community
- investigate a more direct alignment of the inter-regional route adjacent to the NIMT line between Rongotea Road and SH56 (west of Longburn)
- widen KB Road to at least 10m for its full length consistent with its proposed status as an inter-regional route
- upgrade Railway Road to a seal width of at least 10m.

In addition, Foodstuffs supports Option F for a western bypass of Bunnythorpe following Roberts Line to ensure a continued high standard of access to the Foodstuffs distribution centre.

Foodstuffs' preference is for the eastern connection to SH3 to be by means of Ashhurst Road and for Bunnythorpe to be bypassed to the south.

Fonterra. The submission from Fonterra sets out the various aspects of the study and its proposals which are relevant to their operations, but notes particularly that the recommendations have no significant impact to their operation at Longburn since Palmerston North is not a central point to their business.

Horowhenua District Council. The Council bounds the study area to the south and has interests in ensuring good transport linkages between the district and both Palmerston North City and the Manawatu Gorge. At its interface to the south, the Council remains with a preference for an eastern bypass of Levin. The Council also concurs with all study conclusions, except for the Mt Stewart to Gorge route being via KB Road, where instead there is a preference for a new rural bypass of Feilding connecting between Kawakawa Road and Aorangi Street. In addition, the Council also comment that there is an option for a new arterial route to be built west of Ashhurst

to avoid the urban area, and that attention needs to be given to preventing a loss of integrity from mixing local and through-traffic on inter-regional and arterial routes.

JP Ware Transport. This major heavy haulage operator presents a need for existing road bridges to be strengthened and new road and rail bridges to be built to appropriate standards for heavier loads. The SH56 to SH54 route is supported as desirable, provided suitable corner works are included. The Rural Ring Road and specifically the western bridge is considered advantageous to the heavy haulage industry in avoiding present deficiencies.

KiwiRail. KiwiRail's broad objective over the next ten years is to improve services to rail based freight facilities, so that the proposed improvements to road traffic efficiency and safety, and adoption of the proposed road hierarchy are viewed by KiwiRail as contributing to this objective. KiwiRail also note their support for improving level crossing safety, and make specific reference to the good opportunities presented by the Bunnythorpe bypasses to reduce the volume of traffic at the KB Road and Kung Fu corner level crossings. Furthermore, KiwiRail supports early addition of the southern bypass to the network, with eventual grade separation of the NIMT.

Massey University. The University states its support for:

- the New Upstream Bridge
- the Eastern Corridor
- the Rural Ring Road
- the preferred road hierarchy, with particular support for the inter-regional function of State Highway 57.

The point is also made that the road bridge on Old West Road near the University's entrance at Albany Drive needs to be widened to enable State Highway 57 to fully function as an inter-regional route.

NZ Defence Force. In their verbal submission, the NZ Defence Force shows a particular interest in the location of the third bridge crossing of the Manawatu River and accepts the location shown.

NZ Heavy Haulage Association. The Association has a key function in providing for over-dimension and overweight loads, and requests that they be consulted further during the subsequent design and construction phases of the improved network.

Palmerston North Airport. The Airport company makes specific mention of the importance of the transport network for the regional economy, endorses the reasoning for the Ashhurst Road link to the Gorge, and agrees with the findings in determining the preferred hierarchy option, but with the prospect of further improvements particularly in relation to the ring road and Milson Line. Specifically, the early development of a new road connection between the New Upstream Bridge and Stoney Creek Road is considered key to development of Stoney Creek Road as the eastern edge of the ring road. In terms of Milson Line, PNAL view the option to retain Milson Line past the airport as an arterial route (Minor Arterial) as a significant constraint on the airport with consequences for the wider economy and also noting that it unnecessarily duplicates investment in the strategic routes. Regional connectedness with the airport is also seen as important in delivering a future network. The concept of a Manawatu River bridge downstream of the city is also endorsed.

Road Transport Association. The Association has an interest for the heavy vehicle portion of the motoring public, and expects that the proposals will be agreeable by the heavy vehicle

industry. Specifically, it is sought that any future upgrading to new inter-regional and arterial routes be future-proofed for increased vehicle weights.

Vision Manawatu. The high level outcomes that Vision Manawatu supports relate to:

- ensuring the region's roading capacity is equipped to encourage heavy through traffic to avoid coming into the city
- protecting and enhancing the region's strategic position and competitive advantage as a distribution hub.

Vision Manawatu support the New Upstream Bridge, the concept of a western bypass of Bunnythorpe, the conclusions reached in respect of the arterial routes between Feilding and Palmerston North, and the road improvements required to give effect to the proposed road hierarchy. However, the organisation expresses concern that a southern bypass of Bunnythorpe would remove the opportunity for construction of a new road connection between Stewart Road and Roberts Line. It is also requested that a separate study be undertaken of a tunnel alternative between Ashhurst and Woodville south as a replacement for the existing SH3 route through the Manawatu Gorge.

All of these various matters raised by the stakeholders and including the fuller detail of their responses included at Appendix A have been reviewed and considered in the further development of the earlier draft report, with updates and changes made as appropriate to the report to recognise and address the matters raised.

12. Conclusion

The key conclusions of the study are:

- a western bypass of Bunnythorpe and the New Upstream Bridge are sufficiently economic to warrant these projects being adopted for the purpose of planning the road network within the study area
- the hierarchy of the rural road network within the study area should:
 - retain three arterial routes between Feilding and Palmerston North via:
 - Camerons Line, Milson Line, KB Road and Rangitikei Line connecting to Rangitikei Street (as a major arterial)
 - Camerons Line, Milson Line, connecting to Ruahine Street (as a minor arterial), noting that, in response to any closure of Milson Line arising from an extension of the airport runway, Milson Line would then be downgraded to a local road in the remaining northern section south of KB Road and to a collector in the remaining southern section as far as Flyers Line
 - Waughs Road, Bunnythorpe Western Bypass and Railway Road connecting to Vogel Street (as a major arterial)
 - recognise three inter-regional routes:
 - between Mt Stewart and the Manawatu Gorge via Rangitikei Line, KB Road and Ashhurst Road
 - between SH54 (Feilding) and SH56 via Bunnythorpe, KB Road, Rongotea Road, No 1 Line and Tiakitahuna Road
 - between Ashhurst and south of Levin via SH57
 - recognise Stoney Creek Road as a Minor Arterial road in an eastern corridor connecting to the New Upstream Bridge, but also recognising that its function should be reviewed as the growth patterns and strategies for the city's eastern urban area become more certain and when the New Upstream Bridge is in place
 - provide for a Rural Ring Road around Palmerston North including KB Road and Stoney Creek Road and a new Bunnythorpe Southern Bypass between KB Road and a new intersection of Stoney Creek Road/Ashhurst Road
- road improvements required to give effect to the proposed road hierarchy, in addition to the Bunnythorpe Western and Southern Bypasses and the New Upstream Bridge, comprise:
 - widening KB Road between:
 - Rangitikei Line and Milson Line to 10m
 - Milson Line and Bunnythorpe to 8.5m
 - intersection improvements likely in the form of roundabouts at:
 - Rangitikei Line/KB Road
 - Milson Line/KB Road
 - Bunnythorpe Western Bypass/KB Road
 - Campbell Road/Ashhurst Road/Stoney Creek Road
 - widening Ashhurst Road to 8.5m

- upgrading Stoney Creek Road, including some improvements to the alignment and seal widening to 8.5m
- minor improvements in Ashhurst to improve safety and efficiency
- planning provision, with a view to later construction, should be made for new links comprising:
 - the Bunnythorpe Western Bypass
 - a Bunnythorpe Southern Bypass between KB Road and Stoney Creek Road/Ashhurst Road
 - a connection between Stoney Creek Road and Riverside Drive including an intersection upgrade at Napier Road/Stoney Creek Road, possibly in the form of a roundabout
 - a bypass within Ashhurst, between Mulgrave Street and Short Street
- structure plans to manage local road and property access should be prepared for:
 - KB Road
 - Railway Road
 - Stoney Creek Road
 - SH57 through Aokautere
 - Ashhurst Road in the event that development pressures emerge
 - the proposed new links involving the western and southern bypasses of Bunnythorpe and the approaches of the New Upstream Bridge
- traffic and access management plans should be prepared for the NEIZ, and the local rural schools involving Taonui School on Waughs Road, Kairanga School on KB Road and Whakarongo School on Stoney Creek Road
- a separate traffic study should be undertaken of options to optimise the Palmerston North urban road network and to develop an integrated roading plan to cater for future traffic demands, both to 2021 and to the longer term horizon of this study. This study will need to allow for the land use changes emerging from the current urban growth strategy.

This plan for the development of the road network in the study area, particularly the rural road network between Feilding and Palmerston North, addresses the deficiencies in the existing road network and is entirely compatible with the RoNS project of NZTA for the Levin to Wellington corridor, including an eastern bypass of Levin.

Traffic Design Group
June 2010

Appendix A

Stakeholder Responses

4 - JUN 2010

3 June 2010

Mr Mark Georgeson
Traffic Design Group
P O Box 30 721
LOWER HUTT 5040

Dear Mark

Thank you for the opportunity to make a submission on the Manawatu Strategic Transport Study "Phase II". Palmerston North is becoming increasingly important as a logistical hub for the North Island. A key for our future economic success is to ensure that the connectivity of our central location is maximised. The current arterial roading network is not conducive to this goal.

We need an integrated network that maximises connectivity from each point of the compass to, in particular, the North Eastern Industrial area of Palmerston North. In our view this is a core growth node for industry and without adequate roading and district planning, industrial activity will be forced into other areas such as to the south side of the river. If that were to happen, future residential growth for Palmerston North will be constrained as the area towards Linton is the most logical residential growth area.

We need to not only make provision for a second river crossing (and that should connect with Stoney Creek Road rather than Roberts Line in our opinion), but also for a future third river crossing to the west of the City. This will be particularly important if residential growth does occur in the region towards Linton.

Any plan needs to ensure that we achieve an efficient ring road system around the centre of Palmerston North rather than a hap-hazard arrangement that results in transit traffic heading through the CBD as we have at present.

A most crucial issue, in our opinion, is to make sure that Palmerston North Airport's future growth potential is not compromised. There is no doubt in our minds that Palmerston North will at some point need a 2500 metre runway, even if it ends up only being required in 20 to 30 years. We strongly submit that nothing is proposed that would inhibit the airport from being able to expand to this length. Clearly then, how Milson Line can be re-aligned to cope with this is important.

As an associated issue, we contend that access to and from the airport by travellers from out of Palmerston North is not currently easily understood nor negotiated. Any ring road, and access arterial road network, needs to take this into account.

Palmerston North, and Manawatu generally, is not a classic tourism destination but it is a very important destination for major events and as a stopover point as part of an itinerary. These travellers and visitors also need good access to and through the City. My points raised in my comments above are equally important for visitor travel.

Thank you again for the opportunity to make comment.
Kind Regards

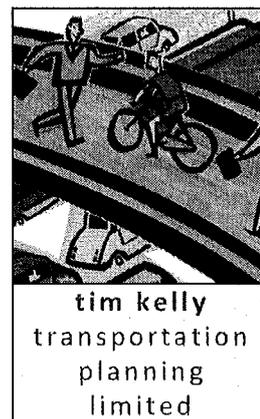
A handwritten signature in black ink, consisting of several loops and a vertical line, positioned above the printed name.

Lance Bickford
Chief Executive

4 June 2010

Traffic Design Group
PO Box 30-721
6 Raroa Road
LOWER HUTT

For the Attention of : **Mark Georgeson**



Mark

**DRAFT PALMERSTON NORTH-MANAWATU STRATEGIC TRANSPORT STUDY:
CONSULTATION**

Submission On Behalf of the Foodstuffs (Wellington) Co-Operative Society Ltd

Background

Palmerston North City Council (PNCC) and Manawatu District Council (MDC) have jointly commissioned a Strategic Transport Study to review the functionality and hierarchy of the strategic road network in the vicinity of Palmerston North and the south-eastern part of the Manawatu District.

Draft proposals for the future development of the roading network have been published in a report¹ dated May 2010, prepared by consultants Traffic Design Group (TDG), to which submissions have been invited.

This letter presents a submission on behalf of Foodstuffs.

Foodstuffs Interests

Foodstuffs operates a number of stores and distribution facilities in the area affected by the strategy, including:

- a recently opened regional distribution centre at Roberts Line, serving the North Island south of Taranaki and Hawkes Bay;
- a regional distribution coolstore at Mihaere Drive in Palmerston North;
- a Pak'n Save store at Ferguson Street in Palmerston North;
- a Write Price supermarket in Feilding;
- New World stores at Pioneer Highway, Broadway Avenue and Aouketere in Palmerston North, and in Feilding;
- a Toops wholesale warehouse at Jasper Place, Palmerston North; and
- associated warehousing and logistics activities associated with its subsidiary AF Transport Ltd.

Together, these activities employ approximately 1,500 staff and generate a significant

¹ Palmerston North-Manawatu Strategic Transport Study, Phase 2 Report. Traffic Design Group, May 2010.

volume of traffic activity. As a result, Foodstuffs has a significant interest in the economic development and prosperity of the district, and specifically in the efficiency and safety of the rural and urban road network.

General Position

Foodstuffs supports the objective of the study to define the future form of the roading network, and the need for a programme of improvement works in order for this to be realised. Certainty around roading provision is essential in order to promote the economic growth and development of the district.

In this regard, Foodstuffs encountered some problems during the development of the distribution warehouse project at Roberts Line which related to an apparent absence of longer-term planning for the roading network, and a mainly reactive rather than proactive approach to problems of accessibility. Further problems were associated with responsibilities split between the two local authorities.

As such, Foodstuffs applauds the initiative shown by the commissioning of this joint study, and seeks an assurance that this momentum will be followed through by a commitment to funding and timely implementation.

The issues which follow relate to the detail rather than the overall direction of the strategy.

Specific Issues

Kairanga – Bunnythorpe Road / Rongotea Road Intersection

The proposed roading hierarchy includes an upgrading of the Kairanga – Bunnythorpe Road to an 'inter-regional' route, to connect to the Longburn – Rongotea Road. This would result in a significant increase in traffic, especially commercial vehicles, through the Kairanga settlement, which includes a primary school and community centre a short distance to the north-east of the intersection of these two roads.

Foodstuffs suggests that consideration be given to a localised realignment of the roads in this area to minimise the impacts upon this community.

Linkage Between Rongotea Road and SH56

The proposed roading hierarchy proposes formalising the current route utilising No. 1 Line and Tiakitahuna Road as the preferred 'inter-regional' route between the Rongotea Road (north) and SH56.

Foodstuffs' drivers are often frustrated by the sharp bends and poor standard of this route. Whilst it is acknowledged that the road standard would be improved, a more direct alignment with a new section of road adjacent to the NIMT line (between the Rongotea Road and SH56 west of Longburn) should be investigated.

Width of Kairanga – Bunnythorpe Road

Table 8 of the draft report notes that the width of this road is currently 6.0m, and this is identified as a deficiency at Section 4.5, with a recommendation (Section 10) for this to be widened to a seal width of 8.5m between Milson Line and Bunnythorpe, and 10m between the Rangitikei Line and Milson Line.

Foodstuffs submits that the full length of this road should be widened to at least 10m, consistent with its proposed status as an 'Inter-Regional' route and an expectation that this will carry significant numbers of commercial vehicles.

Width of Railway Road

Similarly, the report notes (Table 9) that the current width of Railway Road (to the north of Tremaine Avenue) is 8.5m.

This section of road carries significant volumes of traffic with a high proportion of commercial vehicles. Foodstuffs submits that this section of road should be upgraded to a seal width of at least 10m.

Bunnythorpe Western Bypass Option

Foodstuffs supports the proposal for a western bypass of Bunnythorpe and specifically Option F (Figure 6 of the report) for a route by means of Roberts Line. Foodstuffs submits that the existing section of Roberts Line between the Railway Road and Richardsons Line intersections be retained to ensure a continued high standard of access to the Foodstuffs distribution centre.

Truck Routes for Foodstuffs Distribution Centre

Whilst Foodstuffs acknowledges that the conditions associated with its consent for the operation of the Roberts Line distribution centre are a matter of public record, it is nonetheless concerned that part of the Memorandum of Understanding between itself and PNCC has been reproduced as Table 16.

This is because the 'short-term' route to the north has been interpreted as requiring its drivers to use the Awahuri Road / SH3 intersection, which its drivers consider to be unsafe due to the sweeping bend, limited visibility and high speeds in this area.

The intent of this route was for trucks to use Awahuri Road only as far as Stewart Road, which would then be used to access SH3 further to the north-west, and at an intersection offering a good standard of visibility.

As this matter has yet to be clarified and resolved with PNCC, Foodstuffs requests that this table be excluded from the document to avoid any potential confusion.

Option 3: Proposed Road Hierarchy

The Option 1 Proposed Road Hierarchy (Figure 9, page 36 of the report) is largely consistent with Foodstuffs' preferences for an east-west truck route, providing connectivity to SH56 to the west and SH3 Manawatu Gorge to the east and south. This is subject to the comments above regarding the need for localised measures in the vicinity of the Kairanga community, and a more direct linkage between Rongotea Road and SH56.

Foodstuffs' preference is for the eastern connection to SH3 to be by means of Ashhurst Road.

Access to Ashhurst Road

Foodstuffs supports a proposal to bypass Bunnythorpe to the south (in addition to the western bypass by means of Roberts Line), as trucks currently encounter some difficulties making turns in the vicinity of the existing rail crossing.

Foodstuffs' preference is for the option shown by Figure 14 (page 57) of the report, as it considers that this would address these problems and provide more convenient accessibility to/from Ashhurst Road.

Closure

Subject to the specific comments raised above, Foodstuffs fully supports the proposed strategy and changes to the roading hierarchy.

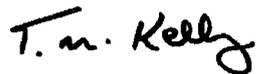
The area offers many potential locational advantages attractive to existing and prospective

activities which to date have not been fully realised due to uncertainty around roading provision.

Once the strategy has been adopted, Foodstuffs believes that there should be a strong and co-ordinated commitment from the agencies involved to ensure that its implementation is not impeded by funding or political issues.

Foodstuffs confirms that it would be willing to continue to constructively engage with PNCC and MDC as required in order to ensure the best outcomes for this area.

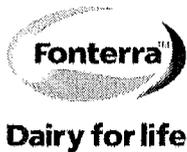
Yours sincerely,

A handwritten signature in black ink that reads "Tim Kelly". The signature is written in a cursive style with a large, looped 'y' at the end.

Tim Kelly

Tim Kelly Transportation Planning Limited

(Phone : 04-233-8752, E-mail : Tim.Kelly@paradise.net.nz)



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3 June 2010

Mr Mark Georgeson
Director
Traffic Design Group Ltd
P O Box 30721
LOWER HUTT 5040

Dear Mark

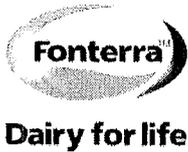
**Palmerston North – Manawatu Strategic Transport Study
Key Stakeholder Engagement**

Thank you for your letter of 14 May 2010 and copy of the Phase 2 Report. I have read and discussed the report with our Longburn – Pahiatua transport depot personnel and summarise the feedback below.

The report and recommendations indicate no significant impact or benefit on our operation at Longburn, largely due to Palmerston North not being a central point for our operation, unlike most transport operations in the area. Our focus points are Longburn, Pahiatua and Oringi, with milk being sourced from logical feeder areas and transported to these points.

The following sections have relevance:

- 2.2 ... the effects of through traffic on Palmerston North and the townships of...Longburn.
- 4.1 Existing Network SH 56 between SH 57 north of Shannon...and...a rural by pass of Longburn off SH56...
- 4.5 Deficiencies- limited capacity along Fitzherbert Avenue. There is also a need for additional capacity along...and... Speed restrictions, conflicts with local traffic... and Longburn
- 5. Network Development
SH56 and SH 54 Connection
Rural ring road
- 5.2 SH56 to SH54 Connection. (Reserve road (Transport site location) connects to SH56 and the No1 line Road. This section would not affect milk transport into Longburn Milk or Milk to Whareroa as Rongotea Road is used now.



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5.7 Access to NEIZ. This is the location of Vendor support and Kapiti Fine Foods and is used now.

5.8 Rural ring road
Last 2 paragraphs

6.0 Network Options, the assumption is KB rd, Rongotea Rd, No1 Line Rd and Tiakitahuna Rd is the preferred inter regional route connecting SH54 and SH56. This option has no impact on our business operation. The conclusion states that this is one of two options for an inter-regional route. This route will give us better access to suppliers north of Feilding if intersections are created to allow continuity of motion, we can use both SH56 and the new route to access suppliers south of Longburn.

All other sections have little or no relevance to our operation.

Thank you for the opportunity for Fonterra to provide comments on the study and would hope that they have added some value. If any of the comments need further clarifying please contact myself or Mr Stephen Kahura, Depot Manager for Longburn – Pahiatua.

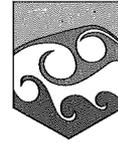
Yours faithfully

FONTERRA CO-OPERATIVE GROUP LIMITED

A handwritten signature in black ink, appearing to read "Barry McColl".

Barry McColl

National Transport & Logistics Manager – Milk Collection



HOROWHENUA DISTRICT COUNCIL

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28 MAY 2010

25 May 2010

Mark Georgeson
Traffic Design Group
PO Box 30721
Lower Hutt 5040

Dear Sir

Palmerston North – Manawatu Strategic Transport Study

Thank you for providing a copy of the draft Phase 2 report, which has been passed to me to provide feedback on behalf of Horowhenua District Council.

Our interests are to ensure good transport linkages between our District and Palmerston North City and between our District and the Manawatu Gorge. While the strategy focuses on the nominated area it has some bearing on wider regional transport management, and our comments arise from a regional perspective.

Executive Summary

When the reader first encounters the North East Industrial zone, it would help if it was annotated as being north of and adjacent to the airport. Some stakeholders will not know where it is, and will find out only near the end of the report.

On page 3 it is stated that all options for an inter-regional route between Mt Stewart and the Manawatu Gorge pass through Bunnythorpe. Later in the report you discuss by-passes. It might be less confusing if you added in parentheses to the sentence on page 3 "(with provision for a future by-pass)."

Also on page 3 you assert that a rural bypass of the Darragh Road industrial area in Feilding connecting between Kawakawa Road and Aorangi Street is not viable. There is no explanation as to why this is the case within the executive summary, nor is there sufficient explanation later in the body of the report. I return to this point later; it is significant in the choices that led to the final recommendation. Suffice to note that I do not concur with your conclusion that the preferred route between Mt Stewart and Bunnythorpe is via KB Road.

I concur with your findings on page 4 with respect to the SH 56 to SH 54 link.

I do not concur with your comment on page 4 in the final paragraph relating to Bunnythorpe Bypasses. The hierarchy loses integrity wherever through traffic and local traffic is required to mix on inter-regional and arterial routes.

The purported functions of the proposed upstream bridge on pages 4 and 5 include three important ones that would be met by duplication of the existing bridge. It is not clear that the other two functions (Feilding to Pahiatua Track route and ring road) are important.

Horowhenua - the best rural lifestyle district in New Zealand

I concur with the conclusion on page 5 that Stoney Creek road should be the eastern corridor, because of the concept that it will form the eastern limit of urban development. That development should have limited access to Stoney Creek road lest local service detracts from the road's arterial function.

The ring road concept discussed on page 5 is flawed in that there is no commitment to the bridges. The ring road should be developed only west of the river, and a more appropriate term such as the "Western rural bypass" should be used for it rather than "ring road".. It would be worthwhile designating the land required as approaches to the two bridge sites to secure the option for the long term if a ring road is genuinely needed.

I view the findings in the second paragraph under Ashhurst on page 6 as flawed. The through route is to service traffic, and in the longer term it must be separated from local traffic. Without separation we will not produce a safe system, nor yet an efficient system. A new link should be incorporated that will start approximately 700 metres west of Ashhurst and connect to Napier Road at the Hacketts Road intersection. This provides an opportunity to use Hacketts Road in the longer term to provide an arterial through to the bridge passing along the western boundary of the orchard. I accept that formation of the new link must await its economic justification, but planning provision must be made now to preserve the option.

I strongly disagree with the comment on page 8 "There is also a need to utilise the road network, including inter-regional routes and major arterials, to provide a safe and efficient access for local traffic and to support local economic and residential development." As stated above there has to be separation between through traffic and local service traffic to avoid conflict. Where that traffic mixes we reduce our safety outcomes, and we make the system inefficient.

Section 2.2 Issues for consideration

From a regional perspective I would see the important issues as being numbers 1, 2, 5, 6 and 9 of the list on page 2. I would add the words and vice versa to the sixth issue – "The effects of through traffic on Palmerston North and the townships of Feilding, Bunnythorpe, Longburn and Ashhurst". It is efficient movement past these towns that is important for the regional economy.

I also agree that Tremaine Avenue needs to be seriously considered; it is an important route to the regional base hospital and it is important that traffic can flow freely along it.

Section 3.3 Road Hierarchy

I agree with the hierarchy adopted for the study. I fear that it is compromised by being insufficiently vigorously protected. Your proposal to use roads high in the hierarchy for locals traffic servicing will make the arterials dysfunctional.

Figures 2 and 3, pages 10 and 13

The drawings need to be switched.

Section 4.5 Deficiencies

I concur with the first three bullet points on page 16, and the comment about Tremaine Avenue.

I also note the final comment on page 17, and suggest that the modifications required to the Aorangi Bridge might well provide an opportunity for a new arterial route to approach it from the west.

Section 5.1 Mt Stewart to Manawatu Gorge

I am interested in the finding that there are only 500 vpd using this route. The report should give an indication of how robust the available origin destination data is. I understand that one shipping line has rationalised its ports of call resulting in a reduction in service at Port Taranaki. It might well be the case that Napier is now attracting some heavy traffic from the Wanganui - Taihape area, which would not be reflected in older traffic data.

I disagree with the routes options at the top of page 19 and I would like to have seen an option with a new alignment from Kawakawa Road that passes west and south of the Darragh Road industrial area in Feilding linking with a widened Aorangi Bridge where the widening might provide an option for improving the alignment. Bringing the inter-regional route close to, but not through, Feilding would add value for the travelling public by giving them a convenient servicing option. The time penalty indicated in table 10 would be reduced or even reversed. This option ensures that the local traffic on the KB road does not interfere with the through traffic.

Section 5.2 SH 56 to SH 54 connection

I concur with your conclusion on page 21 that the second option using Tiakitahuna Road is preferred.

Section 5.4 Bunnythorpe Bypasses

It is not clear why an option linking the end of Waugh Road to the KB/Railway intersection cannot be built. There would be considerably less construction required.

Section 5.5 Eastern Corridor

I view the third 'possible function' as being fanciful, and as such it detracts from the credibility of the report.

I suggest that recreating the missing link in Roberts Line should have been given some consideration. There appears to be only two houses that are on the alignment. Nevertheless, I concur with the conclusion that Stoney Creek Road is most suited for the eastern corridor.

Section 6 Network options

I am not sure that the final bullet point on page 35 (relating to Milson Line) makes sense. It seems to say that the section south of KB road will be an arterial but with provision for it to be closed.

Section 7.3 New Upstream Bridge

I note that this item is included in the base network. The report should tell us whether the findings are sensitive to its inclusion.

Section 7.9 Ashhurst

It is not good enough to cement in an inter-regional route through the streets of the village. As discussed above in my comments on the executive summary, there is an option for an arterial to be built west of Ashhurst and the minimum that should be done at this stage is to protect that route. Clearly construction of this bypass is not yet fundable, but that does not mean that we should not be planning for the necessary future infrastructure.

Section 8.1 Traffic Analysis

Your comment in the final paragraph relating to traffic being attracted to the KB Road is true only because the model has not allowed for the bypass of Darragh Street. It is not clear to what extent that choice is affected when the traffic on KB road arising from the development of the NEIZ is taken into account.

Section 8.4 Ashhurst Road vs Stoney Creek Road

I concur with your findings and note that a western bypass of Ashhurst (described above) would remove the "major disadvantage" of Ashhurst Road.

Section 8.5 KB Road vs Feilding

I disagree with the findings in this section. I do not concur that the multiple functions are an advantage for KB Road. Mixing traffic is not an optimal approach when we are looking for efficiency and safety.

Speed restrictions through Feilding are not necessarily a permanent feature, if a bypass is designated now to be built when economically justified.

Section 8.6 Levin to Wellington

We are not aware of further investigation of a western by pass of Levin. Our preference remains for the eastern bypass, primarily because we wish to retain the linkages between the town and the Lake that would be disrupted by a western bypass.

Section 10 Conclusions

I concur with all but one of your conclusions. The exception is the Mt Stewart to Gorge Route being via KB road.

I hope that the above comments are of assistance.

Yours faithfully

A handwritten signature in black ink, appearing to read 'RR Nicholson', written in a cursive style.

RR Nicholson
Infrastructure Assets Manager



JP Ware Transport Limited,
Bainesse, RD 7, Palmerston North
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3 June 2010

Traffic Design Group
P.O. Box 30-721
LOWER HUTT 5040

9 - JUN 2010

ATTENTION: Mark Georgeson

Transport Study

Thank you for your letter dated 14-5-10 with the Phase 2 Report of the Palmerston North-Manawatu Strategic Transport Study and the opportunity to make a submission.

As you know our company J.P. Ware Transport Ltd (formerly J.B. Ware & Sons Ltd) has been the longest Heavy Haulage Operator in the Lower North Island, and is still very active in the Manawatu, Palmerston North, Rangitikei, Horowhenua and Wellington areas. We have been transporting in these areas for over 35 years and John (JP Ware) for over 25 years, this is proven by the great association and rapport with all our local authorities.

After reading the Transport Study, we have listed our concerns below.

SH3, Mt Stewart to Manawatu Gorge

Our preferred route is Rangitikei Line, Kairanga-Bunnythorpe Rd and Ashhurst Rd. The rail overbridge on Cambridge Ave, Ashhurst is currently impassable by heavy haulage operators due to its instability. We would like this bridge to be investigated (and if possible renewed) if it is to become a SH or Heavy Haulage Route. The two rail crossings alongside the bridge are also impassable due to the steep grade each side not allowing low loaders to cross.

Kairanga-Bunnythorpe Rd

The two bridges on the KB Rd, between Te Ngaio Rd and Railway Rd are of concern to us. Although the new SH will deviate away from these bridges, the access into Bunnythorpe will need to be considered and these bridges may need to be included within the study.

SH56 to SH54

The idea of the route between Tiakitahuna Rd, No.1 Line is a long and existing route for use within our industry due to the inability to cross the rail overbridge at Longburn, although most use No.1 Line to access Tremaine Ave and SH3. If the new route is to go ahead, the corners are our biggest concern. The corner from No. 1 Line to Rongotea Rd has a substation on it, and the corner from Rongotea Rd into KB Rd has a school. We like to encourage the new route, but would like our concerns known for what type of corner is intended and to strongly encourage not to include traffic islands. As this would then force us to return to the Tremaine Ave to SH3 route, this would then defeat the purpose, to eliminate more heavy vehicles within residential areas of Palmerston North. We would also like to see widening of No.1 Line.

Bunnythorpe Bypass

The main issue we have with this bypass is mentioned above; the low standard bridges between Te Ngaio Rd and Railway Rd.

The other issue we have is to ensure the new rail overbridge is built to a standard to ensure Overweight Transporters are able to use it. Transfield Services are a main site for Overweight and Overdimensional loads, with Power Transformers frequently moving in and out of Raymond St for refurbishment, therefore consideration needs to be made for departure on the east side of the railway line.

Upstream Bridge

As recorded in the study, the upstream bridge is essential. Our concern here is that again it is built to a high standard to enable overweight travel. It will also be an essential route for us to access the Pahiatua Track, as Overweight and Overdimensional loads cannot use the gorge.

Rural Ring Road

The eventual ring road completion would be a definite advantage to the Heavy Haulage Industry. This would enable us to reduce the amount of loads using the PNCC roads. If the western bridge could be higher up the hierarchy list this would again reduce the amount of city travel. Currently heavy loads cannot use SH57 due to the 'do not cross' of Tokomaru Bridge, and cannot use SH56 due to the 'do not cross' of the Manawatu River Bridge at Opiki, we are forced to either use SH3 or Highway 56 from Himitungi and use Tiakitahuna Rd, No.1 Line, Tremaine Ave, through town to Massey University or Ashhurst then back down SH57. Therefore the bridge from Shirriffs Rd to Camp Rd would reduce this travel away from town and also allow heavy and wide loads from Wellington to access the Pahiatua Track with ease.

Ashhurst

While the main concern for us is the overbridge at Ashhurst, we would like to take this opportunity while a study is being preformed, to look at the access between the new proposed SH3 to the Saddle Rd. Most Heavy Haulage units prefer to use this route between Woodville and Ashhurst; therefore we would like to see a route proposed that does not force us into a town with low power wires, and heavy local traffic and heavy residential area to access the Saddle Rd. Most Overweight and Overdimensional loads use this route within the early hours of the morning (upsetting most residents).

Palmerston North Urban Network

As we are reasonably happy with this network, although the constant inclusions of traffic islands are a continuous problem to us, currently we only have one issue. The new road from Airport Drive to Railway Rd is not owned by the PNCC and we can see this being a future problem within our industry. If this road could be purchased, it would allow us easy to access the new industrial area.

SH1 Link to Western Link

Allowing Highway 56 (between Himitungi to Tiakitahuna) to be reinstated as a State Highway. Due to Opiki and Tokomaru being impassable by our industry, this road would give a direct link from SH1 to the western corridor from Wellington.

Please take the above into consideration, and I hope our local knowledge and experience will come in handy when making future decisions of our area.

Thank you.

Yours faithfully,
J.P. Ware Transport Ltd



Tina Ware
Director

Copy to
Jono Naylor: PNCC (letter dated 27-4-10)



Our Ref TLA/100/05

Your ref: 10426/1

9 - JUN 2010

4 June, 2010

Mark Georgeson
Traffic Design Group Limited
6 Raroa Road
P O Box 30-721
Lower Hutt 5040
New Zealand

Dear Mark,

RE: DRAFT PALMERSTON NORTH – MANAWATU STRATEGIC TRANSPORT STUDY

Thank you for providing KwiRail with a copy of your Palmerston North- Manawatu Strategic Transport Study.

Manawatu-Wanganui is strategically important in the lower North Island as a transport hub, both for north-south and east-west travel and as a focal point for a wide range of social services for the central North Island.

The Wanganui-Manawatu region (June 2007-July 2008) contributes 6% to the country's exports. The North Island Main Trunk Line handles both passenger and freight traffic, with approximately 25 trains per day. In the future this level of traffic will grow and trains will become longer; necessitating longer waits at level crossings for trains to pass.

Palmerston North also sits astride the main trunk line with links to all three ports in the lower North Island. Most of the growth is occurring north-east of Palmerston North, including near the airport around the North East Industrial Park.

The study is principally aimed at the development of an appropriate roading hierarchy to improve economic efficiency and safety for road users in the region. The main issues of concern to rail in the document can be grouped into 3 main areas:

1. Rail enabled freight services

KiwiRail's broad objective over the next 10 years is to improve services to rail based freight facilities. Freight traffic is likely to double over the next 30 years and the rural sector will form a large part of that growth. The region already experiences high levels of through freight traffic. There are also opportunities to improve the intra-regional transport of goods by rail and Kiwi Rail is keen to

encourage appropriate land use planning which will enable this. To this end we are keen to encourage Council's to work with us to determine opportunities for how this might be achieved and to enable the development of rail freight options. The proposed improvements to road traffic efficiency and safety will contribute to this objective and the adoption of the proposed hierarchy will improve the integration of the road network with key freight facilities.

2. Level crossings

In general KiwiRail is in favour of improving level crossing safety by;

- Reducing the number of level crossings on the network. This is achieved by closing level crossings where replacement ones are proposed, or where suitable alternatives exist.
- Encouraging reductions in the volume of traffic being forced to use existing at-grade level crossings.
- Improving the safety and sightlines at existing level crossings.
- Consolidating traffic to specific level crossings and encouraging grade separation where possible. This is especially important where heavy vehicles are involved.
- Ensuring adequate stacking distance between road intersections and level crossings, especially on crossings used by long vehicles.

At-grade level crossings are typically looked at as a safety issue; however in some areas they can have also a significant effect on traffic flow. The barrier arms on the active crossings around Bunnythorpe are in operation for approximately 30 minutes per day. With rail freight traffic predicted to grow by 75% over the next 20 years, level crossings in the area may be closed for up to an hour per day (with the frequency and timing of these closures contingent upon train formations i.e. length).

It is not clear that the implications of increased waiting times at level crossings has been specifically included in the traffic models and travel time estimates and it would be beneficial to confirm this. Taking this into account may increase the B/C ratio for a Southern Bypass with a grade separation intersection.

3. Bunnythorpe

Any changes to the road hierarchy will impact on the use of level crossings in and around Bunnythorpe. In particular:

Kiaranga-Bunnythorpe (KB) level crossing

It is pleasing to note that the western bypass will potentially reduce traffic using this level crossing. However, for safety reasons, our preference is to also see a reduction in the inter-regional east-west traffic. The KB level crossing is not particularly suitable for use by heavy vehicles due to distances to the adjacent intersections. This safety concern has been noted in the TDG report, but we would emphasise the undesirability of the current situation and KiwiRail's desire to see a reduction in traffic volumes over the level crossing.

Southern Bypass

KiwiRail views the proposed Southern Bypass as an excellent opportunity to reduce inter-regional east-west traffic using the KB level crossing. The TDG report discusses the desirability of a southern bypass with grade separation, but notes this is some time away. It does recommend inclusion of this route in the longer-term planning provisions.

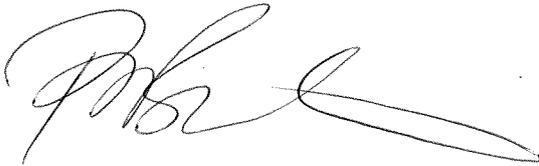
KiwiRail would support accelerating this process. A grade-separated crossing on a southern bypass would improve both road and rail safety, reduce traffic waiting time, and allow closure of the Clevely Line level crossing.

Western bypass

The western bypass is similarly supported as it will reduce the volume of traffic using the Kung Fu corner level crossing, and assist in reducing the volume of north-south traffic using the KB level crossing.

We have appreciated the opportunity to comment on the report, and if you have any queries please contact me on (04) 498 3389.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Pam Butler', with a long horizontal flourish extending to the right.

Pam Butler
Senior RMA Advisor
KiwiRail



MASSEY UNIVERSITY

9 - JUN 2010

Our Ref: RR 03 37 01

3 June 2010

Traffic Design Group Ltd
PO Box 30-721
LOWER HUTT 5040

Attention: Mr Mark Georgeson

**Re: Palmerston North - Manawatu Strategic Transport Study
Key Stakeholder Engagement**

Dear Mr Georgeson

Thank you for your letters of 30 April 2010 and 14 May 2010. I have read the letters and the Phase 2 Report enclosed and present the following comments for your consideration. Massey University's campuses are located within the boundary of Palmerston North city, and I have therefore copied this letter to David Murphy (City Planner) for his information as well as Anne Redgrave of Horizons Regional Council. Please circulate to your project's study partners as required.

I have the following comments, listed using the referencing in your report Reference Contract No. 2009/18, dated May 2010.

Pages 1 and 4, Current Proposals: A New Upstream Bridge. Massey University wishes to state its support for the upstream bridge project and the eastern corridor. The 2004 flood event showed just how high the risk is to the University with most staff and students living in town. Massey University supports the development of a second bridge across the Manawatu River near Palmerston North.

Pages 1 and 6, Current Proposals: A Rural Ring Road around Palmerston North. Massey University notes this proposal and has no objections in principle. With a proposed second bridge over the Manawatu River, this would be partly achieved in any case. The two dotted lines shown crossing the Manawatu River presumably indicate notional locations for bridges associated with this, and again Massey University has no objection to these in principle and subject to further public consultation and detailed design.

Page 1, Road Hierarchy: Massey University supports the proposed Road Hierarchy described in this section and set out in Diagram A on Page 2.

Section 2.2, Issues for Consideration: The need to designate routes which bypass Palmerston North for inter-regional traffic. The designation of Old West Road (State Highway 57) as an inter-regional route is supported by Massey University. Encouraging the use of its alternative entrance to campus on Old West Road will relieve some of the traffic congestion on Tennent Drive, at the university's main entrance, to the benefit of all road users.

Section 4.1 confirms SH57 as being a major feature of the existing rural road network. This highlights the need for SH57 to be fully functional as such. The bridge on Old West Road near the University's entrance at Albany Drive is in urgent need of widening and currently presents a danger to non-motorised road users including cyclists, equestrians from the University's Equestrian Centre, and pedestrians using nearby walkways. Indeed, even with two saloon cars passing on the bridge at the same time there is no hard shoulder. This is confirmed by your own figures for SH57, Page 14 Table 7 identifying it as being some of the narrowest State Highway and Page 11 Table 4 confirming SH57 as also having the highest average traffic volume growth rate per annum 1997-2008. Massey University strongly suggests that widening of this bridge is added to your proposals, in order to bring this section of State Highway up to the required functionality of an inter-regional route.

In relation to the above, I would assume that 'traffic movement' in your report refers to motorised vehicles, and wonder whether for the roads around Massey whether this is appropriate – or whether the classification should provide also for non-motorised traffic movements and functions. At present 14% of journeys to campus are by bicycle and the point has been made above regarding the university's equestrian centre that regularly uses Old West Road (SH57).

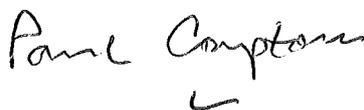
Other Developments by Massey University that may effect the proposed Road Hierarchy

Massey University has formally approved the strategic decision to dispose of its Hokowhitu Campus, in the south-eastern section of Palmerston North city adjacent to the Manawatu River. This is a property of some 10.5 hectares and represents a significant development opportunity within Palmerston North city. The future use of this site is currently not known, therefore the potential effect on the major and minor arterial routes within Palmerston North is uncertain. I do not anticipate that this will have a fundamental effect on the Rooding Hierarchy, although this is an issue that is worth noting and monitoring. Massey University engages closely with the Palmerston North City Council and is keeping the Council updated as the project proceeds. At present, we anticipate that the property is unlikely to have a new occupant within the next two to five years.

Massey University has recently updated its 3-yearly Campus Transportation Review report that deals with a number of issues both strategic and operational in relation to transportation, including the impact of the unlimited access ("free") bus service funded jointly with Horizons Regional Council and NZTA. If you believe this would be useful for your study, I would be happy to send you a copy.

I trust the above is clear and I am available to answer any questions or provide further information as required. Thank you for the opportunity to contribute to your report, and I confirm that I remain your first point of contact for Massey University in relation to this matter.

Yours faithfully



Paul Compton
CAMPUS DIRECTOR - BUILDING & FACILITIES, MANAWATU

cc: David Murphy - Palmerston North City Council
Anne Redgrave - Horizons Regional Council
Joanna Ross - Opus International Consultants Ltd
Dr Sandi Shillington, Campus Registrar, Manawatu
Graeme Tong – Palmerston North City Council Rooding Manager



Filenote

Job: 10426/1
From: Mark Georgeson
Date: 2 June 2010
Subject: **Palmerston North-Manawatu Strategic Transport Study**

Item	Action
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This filenote summarises an incoming call from Mr Rob Owen of the NZ Defence Force.

1. Rob has received and reviewed the May draft report
2. he wishes to make the following comment:
 - ▣ is comfortable with the location of the third bridge crossing of the Manawatu River and way in which we have described it at Page 34 as being undefined and beyond the horizon of this study
 - ▣ considers it would be helpful to provide further interpretation on the hierarchy maps with a fuller key detailing the bridge
3. Rob will not otherwise be providing a written response.

Notes by Mark Georgeson

From: Sandy Walker [swalker@nzrta.co.nz]
Sent: Monday, 24 May 2010 11:41 a.m.
To: Mark Georgeson
Cc: 'Jonathan Thomson'; 'M R Dennehy'; tcloke@nzrta.co.nz
Subject: FW: Manawatu Transport Study - Executive Summary

Morning Mark

I read with interest the Manawatu Transport Study and it appears some well thought out routes are to be considered from previous information provided. As you know I am also on the board of the New Zealand Heavy Haulage Association and it is imperative dialog is engaged with them prior to design or tender as some of these routes are either already on or will become NZTA approved routes for Overdimension and Overweight loads and must meet design criteria of which some of these include:

- Road carriageway (12m) minimum
- Overhead height clearances (6.5m) minimum
- Planting and vegetation
- Placement of signage
- Placement of light poles
- Placement of other roadside furniture (pedestrian cages) etc
- Swept paths at roundabouts

Could I suggest that some of the carriageways could include painted cycle lanes either side to accommodate 12m consistency.

At present most overdimensional loads have to go through the centre of Palmerston North because of the Bridge structures (Fielding to Bunnythorpe) with Tremaine Ave being a common thoroughfare to the North from Rangitikei Line, Shelly St and Napier Rd and to the South it is hampered by trees where as KB Rd would alleviate this to both the North and South.

No doubt you will have heard of the issues with the Taupo District Council over the Eastern Arterial Route roundabouts and this is due to no consultation with the NZHHA so I would ask that the above is kept in mind and consultation is a must to avoid lengthy delays in both design and construction.

Here are some guidelines that need to be used:

Standard units:

Current Prime mover and Semi Trailer Forward Distance = 8.5m (Swept Path)

New VDAM (HPMV) Prime Mover and Semi Trailer Forward Distance = 9.2m (Swept Path)

Overdimension units:

Prime Mover and Trombone Semi Trailer Forward Distance = 14.2m – 16.480m) Swept Path.

House moving trailers need to cater for both length (14.2 – 19m) and width (up to 12m).

I look forward to further discussions in the near future.

Regards

Sandy Walker

Area Manager

New Zealand Road Transport Association

Hawke's Bay & Manawatu

ph 0274 856 038

Fax 06 876 0572

Email swalker@nzrta.co.nz

10/06/2010



Ref: 16106grg
File: AP300/5

4 June 2010

Mark Georgeson
Traffic Design Group Ltd
P O Box 30 721
LOWER HUTT 5040

Dear Mark

PALMERSTON NORTH - MANAWATU STRATEGIC TRANSPORT STUDY

Thank you for your letter of 14 May 2010 providing a draft copy of the "Phase 2" report dated May 2010 and inviting feedback as a key stakeholder. Thanks also for your earlier advice of this forthcoming consultation.

We appreciate that the airport is recognised as a key stakeholder and accordingly are pleased to be able to provide these comments for you.

We also acknowledge that the study is being undertaken in a well structured manner, and the roading authorities involved are to be congratulated in endeavouring to take a regional perspective that potentially integrates their respective authority jurisdictions.

Before looking at detail I wish to reiterate that the unique strategic strength of the Manawatu is its central location. For the regional economy to benefit from that uniqueness, it is more imperative for this region than any other that transport networks and the "connectedness" of the Manawatu are of the highest quality.

The report states (3.4) that the network options will be assessed against (amongst other criteria) the NZTS which includes objectives of economic development, access and mobility and the GPS which similarly has objectives of economic growth and productivity and transport choices.

I also understand that the Government has policies which aim to better integrate planning for different transport modes.

The draft report leaves an impression that -

- (i) not enough weight may have been given to the importance of the transport network for the regional economy;

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- (ii) the emerging development of distribution and logistics sector business activity and the likely expansion of that in the short to medium term may be underestimated (in the context that industrial land development for this purpose will extend beyond the NEI area and 'older' industrial areas, such as Tremaine Ave, have little scope for expansion and are in any case too close to residential areas).

Logistics and distribution in the Manawatu region has grown strongly over the last decade, with a 45% growth in employee numbers significantly higher than the 21% increase in total employment in the region, and much higher than national growth in the logistics and distribution sector at just 8%. Part of this success relates to the proximity of the airport and the key role that it plays in the national air freight main trunk (Auckland - Palmerston North - Christchurch).

- (iii) while the role of the airport and its plans for runway expansion to 2,500m are acknowledged in several places in the report (such as clause 7.2 "Base network") the integration of this planning with the gateway/distribution role of the road network does not appear to have been adequately addressed, and we may need to clarify references to different runway extensions in the report.
- (iv) there has been significant fragmentation of investment in the Manawatu road network - expenditure has not necessarily (in the past) been directed well at achieving strategic transport goals across road authority 'silos', and the consequences of this is reflecting in existing travel patterns that may be inappropriately affecting the modeling/option development and issues to be addressed to achieve good outcomes.
- (v) insufficient weight may have been given to the value of the ringroad concept to address the growth of the Palmerston North urban area which is centred historically on the Square and its intersection of major road routes from all four directions.

The following are specific areas in the report that encourage the above impressions, and that we would recommend be the subject of further consideration:

(i) Ringroad concept

The integrity of the ringroad concept doesn't come across as being fully embraced. If it were, then we submit

- (a) the upstream bridge would connect to Stoney Creek Road rather than Roberts Line (even if showing an interim connection to James Line).

The maps do not seem to convey messages that are consistent with the text - eg clause 5.5 'Roberts Line is not suitable because of the deviation between Roberts Line South and Roberts Line North via McLeavey Dr, except to serve local traffic and provide access to the NEIZ' but the maps show the upstream bridge feeding Roberts Line and its residential environs. The risk with this as an interim stage is that pressure will occur for progressive incremental upgrade of the route, making the strategic switch to Stoney Creek Road very difficult. Also see clause 5.6.2 where

the table presumes connectivity to SH3 at Roberts Line for the comparisons (presumably). The text refers to a James Line route, but none of the maps seem to reflect that.

- (b) access to the NEI and an expanded industrial area off Stoney Creek Road would be more obvious
- (c) the need for Milson Line between KB Road and JFK Drive would be substantially reduced if not able to be eliminated from the outset after taking the whole bigger picture into account
- (d) the Te Arakura section of SH54 would no longer be required at an arterial standard.
- (e) a downstream bridge (Longburn area) would be within the scope of this study/report (and certainly explained to be servicing future city growth that recognised and protected the importance of Linton Camp to the economy of the region - not just simply shown as discharging into Camp Road without any further signals of planning for the protection of Defence, and Massey, and planned development areas that respect that protection).

(ii) Milson Line past airport

Milson Line remaining as an arterial route represents a significant constraint on the airport with consequences for the wider regional economy (potentially impacting on the whole lower half of the North Island). It also unnecessarily duplicates investment in the strategic new arterial routes proposed by this study.

The NZTS and GPS assessment (p.52) of access to transport choices shows all options as "neutral" to air transport.

This may be an outcome of the basis of the economic evaluation (clause 8.2) which seems to be limited to road user benefits? Should not the road network planning integrate with a bigger picture view of how air and rail modes are to also deliver for the regional (if not national) economy. This should go beyond road access to air and rail, and consider the way in which the transport modes might impact inappropriately on each other.

At least one option developed, should consider Milson Line completely closed with the balance of the road network meeting the road transport requirements.

In several places the report refers to runway extensions in such a way that it might reflect some confusion about the airports plans which perhaps warrant explanation here.

The Airport's current plans for the reintroduction of international flights require an existing section of Milson Line to be closed to comply with new safety rules (Runway End Safety Areas) while maintaining current operating lengths.

The earlier Memorandum of Understanding between Transit, PNCC and MDC allowed the road to be fully closed subject to the SH 54 section of KB Road being upgraded from the current sub-standard with other incident road improvements. This allowed staged development of the runway up to 2,500m.

At the later Environment Court hearing the strategic roading proposals now contemplated in this study had not been sufficiently advanced to satisfy the Court that the road could be fully closed.

This situation caused the Court to propose an interim deviation to Milson Line that would enable not only the RESA, but also a stage of extension of the runway to 2,100m (which provides more efficient trans-Tasman services than otherwise available in the lower half of the North Island).

Palmerston North City Council, Manawatu District Council and PNAL were opposed to a deviation as being unnecessary and a waste of expenditure on a temporary solution, given the planning for and intention to ultimately construct a runway extension out to 2,500m.

In its judgment the Court "decoupled" the road closing from 'strategic roading' proposals. It ordered that if the safety area or the stage extension to 2,100m were to be constructed, then the relevant existing section of Milson Line could only be closed if a deviation were first constructed (and that deviation does not address the proposals which still exist to ultimately extend the runway up to 2,500 plus RESA).

The Airport hopes that approval of the works proposed by this study, and in particular with the priority recommended for the upgrade of Kairanga - Bunnythorpe Road, the necessity for a temporary deviation might be removed, thereby avoiding expenditure which by the time extension out to 2,500m is required, would be considered wasted.

We are currently working on feasibility studies for air services (combined passengers and freight) that would necessitate at least the 2,500m runway length possibly much sooner than we were signaling at the time of the Environment Court hearings.

While Airport Drive connected through between Railway Road and Rangitikei Line is considered for this study as the 'Base Network', the airport company has advanced that road construction ahead of its own development requirements solely in response to roading authorities seeking that connection as an 'airport contribution' to the roading network (refer MOU between roading authorities re stopping Milson Line).

In any case the retention of Milson Line as an arterial for regional connection must have significant flow-on consequences for the Palmerston North City road network (particularly Milson Line rail overbridge, capacity at the Tremaine-Ruahine intersection and capacity over the balance of Ruahine Street at least).

(iii) Regional connectivity with airport

There is no reference in the report (that we have found) that addresses specifically how to provide excellent road connectivity to the airport (or to rail) for the wider region. Aside from servicing air travel for the regional population, most of the major (national) rental car companies are also based at the airport.

The routes to/from the airport at present are not naturally clear. At least one of the options should demonstrate improved clarity of access for regional road travel (visitors and regional population) to the airport. Executed properly, this is likely to closely align with ease of access for inter-regional road freight transport to the industrial environs developing around and to the north of the airport.

My 30 November 2009 letter included in the list of matters that we have previously submitted, "the coordinated planning of public transport terminus for road, rail and air" and "inter-regional bus public transport routes and terminus". We believe there is scope for progressively improving the way in which these inter-regional services are delivered, with the goal of providing more efficient services and infrastructure, and higher levels of service. These however are dependent on being integrated with the road network.

I am happy to discuss further with you our view/vision for the long term air, road and rail transport needs of the region.

(iv) Downstream river bridge

We are not sure of the detail that has been provided to you to assess the impact of future urban growth of Palmerston North. The concept of a Manawatu River bridge downstream of the city is nevertheless endorsed.

However, we suggest that its existence should be for much more than simply completing the 'ringroad'. Indeed there is an inevitability of the need for urban development in the Linton area, and this bridge connection becomes a key piece of infrastructure connecting not only the SH57 route to the northern and western parts of the city, but also providing essential connectivity within the city.

It is important for the planning of the city that the Defence facilities at Linton are boldly and explicitly protected from the risk of reverse sensitivity from urban development in the Linton area. (Refer in my 30 November letter, to the slide on 'Defence' in our 2001 submission on the Transportation Management Plan.) For that reason we suggest the bridge concept should link to SH57 at a point further south, and that the future urban growth area be clearly separated from Linton Camp.

Of the four options presented, we agree with the preferred option, but suggest that in light of the above comments, that option may be further improved.

We endorse the reasoning for the Ashhurst Road link to the Gorge. The treatment of the intersection of this route with Kairanga-Bunnythorpe Road and Feilding / Stoney Creek route at Bunnythorpe will be important for its success.

As an observation, many of the difficulties for arterial routes for inter-regional traffic arise from the development of land fronting existing roads that are often relied upon for those routes. Even at this early stage of planning, should there be identified roads where access should be actively managed to avoid this issue?

This appears to us to be particularly important where these inter-regional routes traverse more than one roading authority's jurisdiction. For example, we have been highlighting Railway Road as being at risk from such degradation, however your report highlights other areas, such as Stoney Creek Road, Kairanga-Bunnythorpe Road and No1 Line which could easily face the same risk.

Thank you for the opportunity to provide this feedback to your study.

I am happy to elaborate or clarify any of the points that we have attempted to make.

Yours sincerely

A handwritten signature in black ink that reads "Garry Goodman". The signature is written in a cursive style and is positioned above a horizontal line.

Garry Goodman
CHIEF EXECUTIVE OFFICER

From: M R Dennehy [mdennehy@nzrta.co.nz]

Sent: Tuesday, 8 June 2010 3:57 p.m.

To: Mark Georgeson

Subject: RE: Manawatu Transport Study - RTA Response

Morning Mark, please accept my apologies for my lateness in making comments upon your report. You have examined most of the issues in the Manawatu Feilding region in depth and I am of the opinion that most of your proposals will be found agreeable by the heavy vehicle portion of the motoring public. As well as the points raised by my colleague Sandy Walker some emphasis needs to be given to the following points:

Although altering the intersection at Bunnythorpe to better cater for trucks turning into KB Road to head towards S H 3 makes good sense it needs to be noted that the two bridges on KB Road near the Bunnythorpe intersection are only rated at about 50 or 60 % of GCW. These bridges are quite short and it may make sense to strengthen them but with the likely possibility of future maximum combination weights increasing substantially to possibly as high as sixty two tonnes it is likely that total replacement may be a more viable option. It is our belief that any new state highway or arterial roads that are constructed should be future proofed for increased vehicle weights.

Despite any improvements as mentioned above it is also highly likely that the substantial existing stock truck traffic that travels to Feilding will still continue to use the existing route to there as it is more direct than the proposed KB route. I am uncertain how much of the HVM counts are made up of stock trucks in this area but the proportion is probably greater than the national or even regional average as the Feilding sale yards handle significant numbers of animals on a daily basis.

That said, the proposals all achieve some improvement to journey times and with the proposed wider carriageways and better alignments will enhance road safety in the area.

Again I thank you for the opportunity to comment on your group's proposals,

Regards,

Michael Dennehy

Area Manager

Central Area Road Transport Association

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4 June 2010

Mark Georgeson
Director
Traffic Design Group
P O Box 30-721
Lower Hutt 5040

Dear Mark

Palmerston North Manawatu Strategic Transport Study, 3 June 2010

You will have received detailed feedback to your draft plan from my colleague Richard Forgie and, in addition, I thought it was worth underscoring some high level outcomes that Vision Manawatu would support:

1. Ensuring our roading capacity is equipped to encourage heavy through traffic to avoid coming into the city.
2. Our strategic position and competitive advantage as a distribution hub should be protected and enhanced.
3. We appreciate that transport and connectivity is a key driver for economic growth for many regions, and we believe that, with the appropriate investment, it will serve the hub of Palmerston North and Manawatu, as well as the lower North Island.

Yours sincerely

A handwritten signature in cursive script that reads "Elaine Reilly".

Elaine Reilly
Chief Executive Officer

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1st June 2010

Mark Georgeson,
Director,
Traffic Design Group.

PALMERSTON NORTH MANAWATU STRATEGIC TRANSPORT STUDY

Thank you for your letter of 14th May 2010, requesting feedback on the conclusions reached in the Phase 2 report of the above study, and on the future direction recommended for the region's transport network.

- I am supportive of the concept of a western bypass of Bunnythorpe. Bunnythorpe is a small community with a school, and residential properties. Key elements of a western bypass need to include substantial road widening, and elevation of low lying sections and upgrading of Te Ngaio Road, which is currently a little-used collector road. The principal advantages of the proposed western bypass route are that it would remove much of the traffic from the intersection of Waughs Road, Campbell Road, and the main trunk railway line, which is known locally as "Kung Fu Corner", and would eliminate the need for vehicles travelling between Feilding and Palmerston North along this route to cross the railway line twice, once 1.6 kms north of Bunnythorpe, and again at the crossing in the village of Bunnythorpe itself. The new railway crossing south of the Bunnythorpe village which would presumably be part of the concept of a southern bypass of Bunnythorpe, would presumably be a key element of the concept of a southern bypass of Bunnythorpe, to take heavy traffic from Sanson or Feilding directly through to Ashhurst and the Manawatu Gorge. It is important from a both a safety and a traffic flow perspective that the railway crossing is an overpass or underpass, so that the trains pass over or under the crossing, depending on the exact location selected.

Whilst I am supportive of this concept, I am also concerned that if it goes ahead, we will miss an outstanding opportunity for a cost effective solution in the long-term to build a very direct route from Sanson to the Manawatu Gorge, which would offer some very significant long-term advantages in terms of transport efficiency.

Specifically, the process of extending Stewart Road, directly across the existing road between Awahuri and Feilding, and proceeding straight ahead south of the existing Feilding Municipal effluent ponds, building a new bridge across the Oroua River, and after crossing more flat farm land, crossing Camerons Line just west of Pine Road, and joining Roberts Line near the right angle corner on the northern section of Roberts Line, is in my view one worthy of reconsideration before potential future subdivision of this farmland renders such a direct new route impractical or impossible. The distance from Mount Stewart via Awahuri, Rangitikei Line, and Kairanga- Bunnythorpe (KB) Road to a likely junction with the southern Bunnythorpe bypass on the Bunnythorpe-Ashhurst Road is 16 kilometers. The direct distance of the new route proposed in the above paragraph is 12 km, a saving in transport distance of 4 kilometers, which would take a lot of heavy traffic off the section of highway

between Mount Stewart and Palmerston North via Rangitikei Line, and obviate the necessity of widening and upgrading more than 6 kilometers of Kairanga-Bunnythorpe Road between Rangitikei Line and Bunnythorpe. This new road would also pass within 2 kilometers of North East Industrial Park, producing significant time and cost savings for all the heavy vehicles servicing Foodstuffs new distribution centre, EziBuy, and other tenants yet to occupy the vacant territory within this industrial area.

I am supportive of the conclusion on Page 60 of the Phase 2 report that the hierarchy of the rural road network within the study area should retain three arterial routes between Feilding and Palmerston North via;

- Camerons Line, Milson Line, KB Road, and Rangitikei Line connecting to Rangitikei St as a major arterial
- Camerons Line, Milson Line, Connecting to Rangitikei St (as a minor arterial)
- Waughs Road, Bunnythorpe Bypass, and Railway Road connecting to Vogel St, (as a major arterial)

The private motorist's choice of road will depend on their destination or departure point within Palmerston North however, rather than whether the transport planners choose to classify the arterial route as minor or major.

(I am also strongly supportive of the need to extend the Palmerston North airport runway length to retain the Airport's compliance with modern international standards.)

The inter-regional route between Mt. Stewart and Ashhurst is a logical part of the hierarchy (if the alternative proposed in the fourth paragraph above is rejected), and the route between Feilding and Longburn (via Awahuri Feilding Road, Green Road, and Rongotea Road) has long been used by stock trucks, and frozen freight trucks moving from Kawakawa Road to Longburn.

The upgrading of Stoney Creek Road is long overdue. It is far too narrow to be a safe road shared by schoolchildren biking to school, and heavy trucks used in the course of their normal industrial activities by e.g. drainage contractor Blackleys Construction, which is based in this road with over 50 employees) and experienced people justifiably consider us lucky not to have more fatalities on this section of Stoney Creek Road. Provision for cycle lanes should be made on Stoney Creek Road when this work proceeds.

I concur with all the road improvements listed under the third green bullet point on the bottom half of Page 60 in the Phase 2 report. They are all essential from the perspectives of safety, traffic flow efficiency, and coping with the prospective traffic flows predicted in the model.

New Upstream Bridge Across The Manawatu River

I am in favour of the upstream bridge between Te Matai Road and Staces Road. I recognise that funding for this is not likely in the short term, but the city has a history of procrastination on this issue which has not been mirrored in similar size cities like Hamilton and Tauranga who have regularly built new bridges and increased the capacity of their existing bridges to facilitate economic growth. If we wait too long we will have more costly hurdles, preventing building of the second bridge which has significant contributions to make to the region;

1. Relieving existing congestion on the Fitzherbert Road bridge as Massey and subdivisions in the Summerhill and Aokautere areas continue to grow.
2. Linking Palmerston North's North East Industrial Park and eastern (Mihaere Drive) industrial areas more directly with Pahiatua and the Wairarapa.
3. Providing a cost-saving and effective route south for logistically significant freight movements to and from businesses like EziBuy, Foodstuffs, Woolworths, Toyota, Higgins, and many others located in industrial areas in the east and the north east of the city.
4. Contributing significantly toward risk management in the event of the catastrophic failure in flood or earthquake of the Fitzherbert bridge.
5. Providing an efficient link between Palmerston North, Feilding and the Manawatu Gorge in the event of the catastrophic failure in flood or earthquake of the bridge over the Manawatu at Ashhurst.
6. Significantly improving the safety of cyclists in Palmerston North, particularly those using the city's streets to commute from residential dwellings to Massey University or to the Fitzherbert Science Centre research community.
7. Reducing the costs incurred by vegetable growers in the Te Matal district in transporting their crops to markets in the Horowhenua, Kapiti Coast, Wellington, and Wairarapa districts.
8. Significantly reducing travel times and distances for commuters, and all other categories of traffic to Massey from Feilding, Bunnythorpe, Kelvin Grove and Whakarongo, to Massey University, Fitzherbert Science Centre, Kelvin Grove, Pahiatua, and Shannon.

Manawatu Gorge

I would also like to see a quick and dirty study done by an experienced and suitably qualified engineering organisation of the costs and benefits of building a six kilometer long tunnel capable of carrying two way road freight traffic between the Gorge side of the Ashhurst bridge, and Ormond Road, south of Woodville. This tunnel would logically be about five to six kilometers long and would go straight ahead from the Ashhurst bridge centre line, and underneath North Range road. It would cross underneath the North Range Road, and cross the Manawatu River (a new Bridge) north of existing power lines on poles, to join up with the existing Ormond Road, which would need to be widened and join the existing Napier Road on the eastern side of Woodville effecting a bypass of central Woodville. The existing Gorge Road could then become part of the national cycle way. This would be shorter than the Kaimai tunnel (8.8 kms) but wider, and would likely cost in excess of \$100 million. (The Kaimai tunnel cost \$43 million and was completed in 1978.)

A cheaper alternative would be to have the tunnel exit just before the bridge over the Manawatu at the northern end of the Gorge. This would reduce the length of the tunnel to five kilometers, but would incorporate a bend of close to ninety degrees at the Woodville end of the tunnel, to align the tunnel with the existing bridge over the Manawatu River.

I recognise that that we cannot afford this project regionally or nationally at present, due to the cost. I would not accord it priority over the proposed upgrading of the route between Wellington and Levin which has the potential to take half an hour off the time required to

travel between Palmerston North and Wellington. But I believe that as climate change is likely to increase the winter rainfall significantly in the Gorge itself, so will the annual cost of clearing slips and debris from the Gorge increase, and the construction of a well sealed and lined tunnel with appropriate ventilation, would eventually reduce the status of the existing road through the Gorge to that of a recreational cycling route, when this project eventually becomes affordable.

Thank you for the opportunity to provide submissions on these plans. They are obviously critically important to ongoing economic development in the region. Industrial sectors which will benefit include storage, transport and distribution, wholesaling, retailing, manufacturing, agriculture, education, health services, forestry, and tourism.

The volumes of steady traffic flow during the normal hours of weekday business on the eastern end of Tremain Avenue will also likely be alleviated significantly by the above proposals.



Richard Forgie,
Growth and Investment Director,
Vision Manawatu