Rangitīkei District Council
Proposed Plan Change 3 – Urban Growth

Integrated Transport Assessment

Prepared for:
Rangitīkei District Council

19 February 2026

Prepared by:

Project/File:
310206364

Stantec New Zealand

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
0	3 April 2025	Draft for comment	S. Jiang	J Whittaker	M. Georgeson	J Whittaker
1	26 May 2025	2nd Draft	S. Jiang	J Whittaker	M. Georgeson	J Whittaker
2	19 February 2026	Final	S. Jiang	J Whittaker	M. Georgeson	J Whittaker

Disclaimer

The conclusions in the report are Stantec's professional opinion, as of the time of the report, and concerning the scope described in the report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The report relates solely to the specific project for which Stantec was retained and the stated purpose for which the report was prepared. The report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the client and third parties in the preparation of the report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This report is intended solely for use by the client in accordance with Stantec's contract with the client. While the report may be provided to applicable authorities having jurisdiction and others for whom the client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Table of Contents

1 Introduction 1

1.1 Purpose of this Report 1

2 Potential Growth Areas 2

2.1 Description of Sites 2

2.2 Site Locations 2

2.2.1 Bulls 2

2.2.2 Marton 3

2.2.3 Mangaweka 4

2.3 Site Visit and Investigations 5

3 Existing Road Environment 6

3.1 Bulls 6

3.1.1 Road Network 6

3.1.2 Road Safety 7

3.1.3 Sustainable Transport 9

3.2 Marton 9

3.2.1 Road Network 9

3.2.2 Road Safety 11

3.2.3 Sustainable Transport 13

3.3 Mangaweka 14

3.3.1 Road Network 14

3.3.2 Road Safety 15

3.3.3 Sustainable Transport 16

4 Future Changes 17

4.1 Consented Development 17

4.2 Transport Network Improvements 17

4.3 Stakeholder Liaison (NZTA) 19

5 Growth Area Traffic 20

5.1 Traffic Generation 20

5.2 Traffic Distribution 21

5.3 Key Network Points....21

6 Transport Effects Assessment....22

6.1 Site Assessment....22

6.1.1 Transport Planning Review....22

6.1.2 Traffic Engineering Review....22

6.1.3 Bulls....24

6.1.4 Marton....25

6.1.5 Mangaweka....27

7 Intersection Capacity....28

7.1 Assessment Methodology....28

7.2 Modelling Results....29

7.2.1 SH1 / SH3 Intersection....30

7.2.2 SH1 / BUL 02 Site Access....31

7.2.3 Bond Street / Broadway / Calico Line / Tutaenui Road....31

7.2.4 Milne Street / Bond Street / Skerman Street....31

7.3 Wider State Highway Intersection Review....31

7.4 Summary....32

8 Conclusion....33

List of Tables

Table 2-1: Estimated Growth Area yields (# residential lots).... 2
Table 3-1: Bulls Study Area: Existing Roading Characteristics.... 7
Table 3-2: Marton Study Area: Existing Roading Characteristics.... 11
Table 3-3: Mangaweka Study Area: Existing Roading Characteristics.... 15
Table 4-1: Notable Consented Development.... 17
Table 4-2: Roading Changes / Improvements under Review.... 18
Table 5-1: Forecast Growth Area Trips.... 20
Table 5-2: Key Network Intersections.... 21
Table 6-1: Sight Distance and Spacing Requirements (District Plan).... 23
Table 6-2: Bulls Growth Areas Assessment.... 24
Table 6-3: Marton Growth Areas Assessment.... 25
Table 6-4: Mangaweka Growth Areas Assessment.... 27
Table 7-1: Intersection Modelling Summary.... 30
Table 6-1: Wider District State Highway Intersection Review.... 32
Table 8-1: Transport Intervention Summary by Growth Area.... 34

List of Figures

Figure 2-1: Aerial Photograph of the 'Bulls' Growth Area Locations (Source: LINZ maps).... 3
Figure 2-2: Aerial Photograph of the 'Marton' Growth Area Locations (Source: LINZ maps).... 4

Figure 2-3: Aerial Photograph of the 'Mangaweka' Growth Area Locations (Source: LINZ maps) 5
Figure 3-1: 'Bulls' Roading Hierarchy and Indicative Growth Area Access Locations 6
Figure 3-2: 'Bulls' Crash Search Area for 2020-2024 (Source: CAS) 8
Figure 3-3: 'Marton' Roading Hierarchy and Indicative Growth Area Access Locations 10
Figure 3-4: 'Marton' Crash Search Area for 2020-2024 (Source: CAS) 12
Figure 3-5: 'Mangaweka' Roading Hierarch and Growth Area Access Locations 14
Figure 3-6: 'Mangaweka' Crash Search Area for 2020-2024 (Source: CAS) 16
Figure 4-1: Spatial Plan Focus Areas 18
Figure 7-1: BUL 02 'Option B' Site Extent 28

List of Appendices

Appendix A Road Network Photographs

Appendix B SIDRA Analysis Summary

1 Introduction

The Rangitīkei District Council (Council) 'Community Spatial Plan - Pae Tawhiti Rangitīkei Beyond' has identified a need for 2,000-4,000 new dwellings across the district by 2050 (using low and high growth rates, respectively) to keep pace with current population forecasts. To appropriately accommodate this increase, new housing stock will be required beyond that able be accommodated as infill.

In response, Council's current 'Proposed Plan Change 3 – Urban Growth' (PPC3) includes identification of greenfield sites suitable for future rezoning to accommodate residential development where there is associated demand. At the time this report was commissioned Council had selected a number of sites close to established urban areas within Bulls, Marton and Mangaweka for further investigation, with these ranging in size with potential for future development from 20 lots up to approximately 590 lots.

It is noted that for the purposes of this report the term 'study areas' is used to describe the three urban centres (i.e. Bulls, Marton and Mangaweka) and the term 'growth areas' refers to the individual land blocks that could be proposed to be rezoned through PPC3, of which a total of 10 have been identified.

1.1 Purpose of this Report

This Integrated Transport Assessment (ITA) has been prepared to assess the anticipated transport implications of residential development within each of the potential growth areas, and to address the following key project objectives:

- assess the overall transport connectivity, including proximity to established key services (schools, retail etc.);
- assess the individual site traffic generation based on the forecast yields provided;
- identify the key external transport links and likely connection points, and identify any potential pinch points in terms of network capacity that may require improvements to support site development; and
- provide an ITA report detailing the analysis and assessment.

Accordingly, the ITA has been structured as follows:

- Chapter 2: Potential Growth Areas – description of the growth areas identified by Council for potential rezoning, including potential lot yields;
- Chapter 3: Existing Road Environment – summary of the transport environment surrounding the growth areas, including descriptions of key roads and intersections and a review of road safety;
- Chapter 4: Future Changes – description of any planned changes to the transport environment, including proposed network upgrades or background traffic growth associated with consented development nearby;
- Chapter 5: Growth Area Traffic – describes the forecast traffic generation and distribution for the individual growth areas;
- Chapter 6: Transport Effects Assessment – assesses growth area access and connectivity opportunities and constraints, including any required improvements to frontage roads and access routes;
- Chapter 7: Intersection Capacity – provides an analysis of key network intersections that may require mitigation to appropriately accommodate growth area traffic on the network; and
- Chapter 8: Conclusion - identifies a number of forward recommendations.

2 Potential Growth Areas

2.1 Description of Sites

A total of 10 potential growth areas have been identified by Council for review as part of PPC3, with three located in Bulls, five in Marton, and two in Mangaweka. **Table 2-1** provides a summary of the individual growth area yield estimates based on an average lot size of 650sqm, and a land area allowance of 20-30% for roading and recreation space.

Table 2-1: Estimated Growth Area yields (# residential lots)

Area	Site ID	Yield
Bulls	BUL 01	342-391
	BUL 02	429-490
	BUL 03	22-25
Marton	MAR 01	591
	MAR 02	362
	MAR 03	41-47
	MAR 04	19-22
	MAR 07*	291
Mangaweka	MAN 01	42-48
	MAN 02	183-209

** Average lot size of 1000sqm was estimated due to topography and other site constraints*

It is noted that not all these potential growth areas will be rezoned under PPC3, but rather the purpose of the current exercise is to identify which are most suitable for accommodating future residential activity, from a transportation and roading perspective. For this purpose, the growth areas have been considered individually, with the exception of grouping MAR 01, MAR 02 and MAR 07.

2.2 Site Locations

A description of the individual growth area locations within each of the three study areas is set out in turn below. Commentary on the potential access strategy for the individual sites is provided in the following chapter.

2.2.1 Bulls

There are a total of three potential growth areas identified for Bulls, all of which are located around the urban edge of the established township. Each site is illustrated within the detail of **Figure 2-1** below, noting all are currently subject to a ‘General Rural’ zoning.

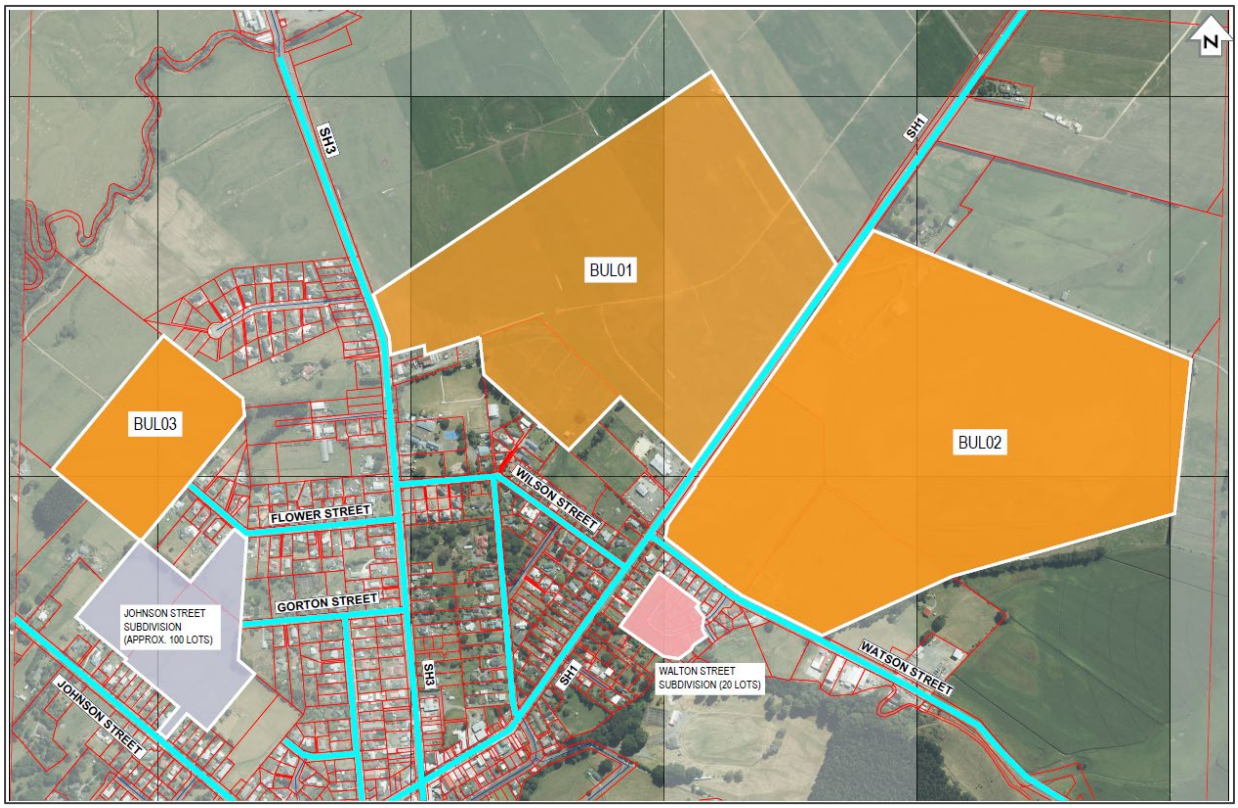


Figure 2-1: Aerial Photograph of the 'Bulls' Growth Area Locations (Source: LINZ maps)

As shown, the two larger sites of BUL 01 and BUL 02 are situated at the northern end of town on either side of State Highway 1 (SH1), whilst BUL 03 lies to the west of State Highway 3 (SH3).

In addition to having frontage to SH1, BUL 01 has frontage to SH3 to the west, whilst BUL 02 has frontage to Watson Street to the south, presenting opportunity for multiple accesses to these development areas to assist in distributing site traffic on the network. The site BUL 03 has the potential to access Flower Street, which in turn connects with SH3 to the east.

2.2.2 Marton

A total of five potential growth areas in Marton have been selected by Council for review, as illustrated in **Figure 2-2**. Each of the growth areas is zoned 'General Rural', with the exception of MAR04 which is zoned 'Rural Lifestyle'.

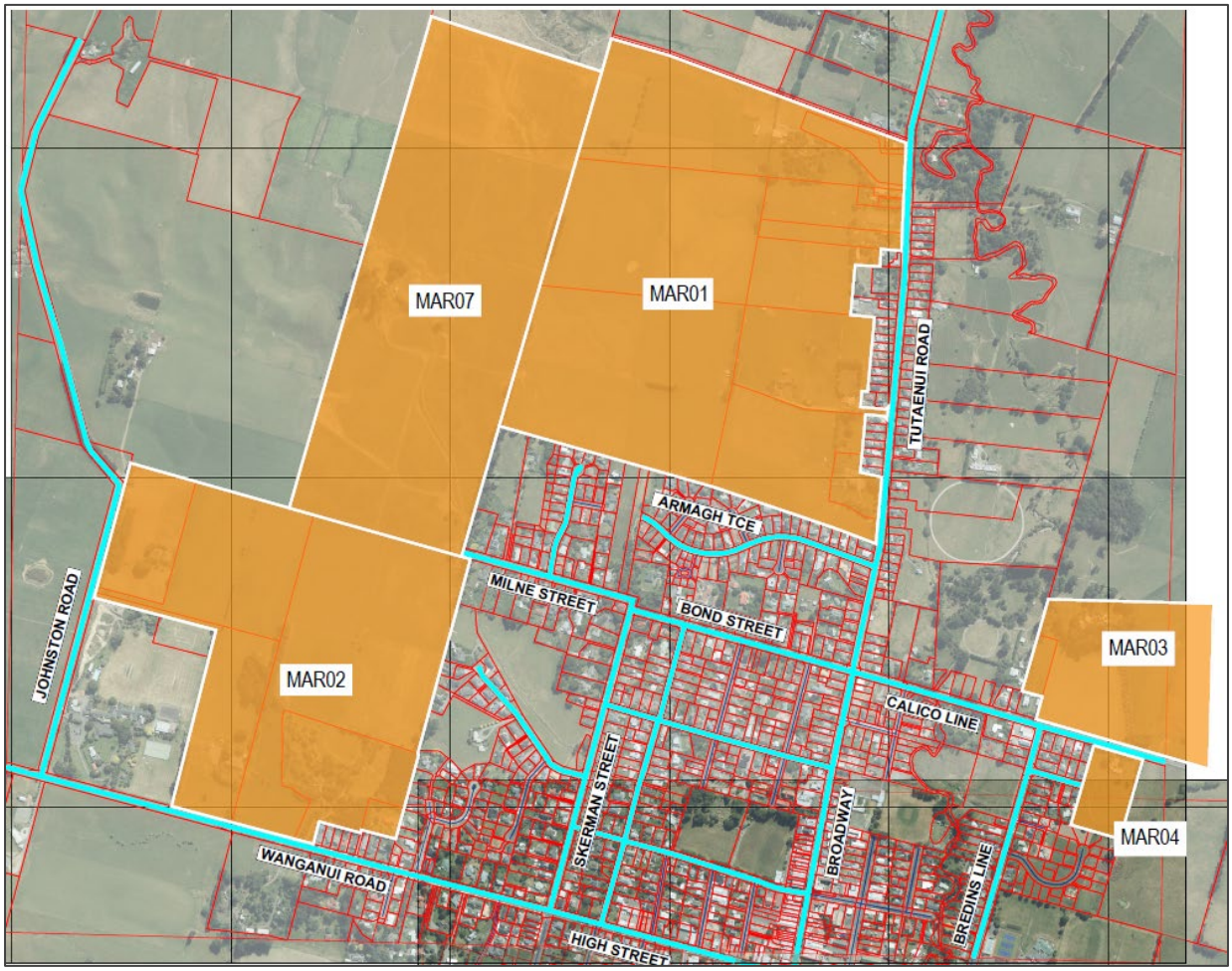


Figure 2-2: Aerial Photograph of the 'Marton' Growth Area Locations (Source: LINZ maps)

As shown, the three growth areas of MAR 01, MAR 02 and MAR 07 extend out from the current urban fringe on the northwest part of the town. MAR 03 and MAR 04 are located out to the east fronting onto Calico Line, and again generally form a continuation of the established residential edge.

2.2.3 Mangaweka

Two potential growth areas have been identified by Council for further investigation in Mangaweka, as illustrated in **Figure 2-3**, with both having a current 'General Rural' zoning.

As shown, MAN 01 is situated to the north of the current township on the western side of SH1, whilst MAN 02 is located on the eastern side of the Highway representing an extension of the current urban area towards the Rangitīkei River.

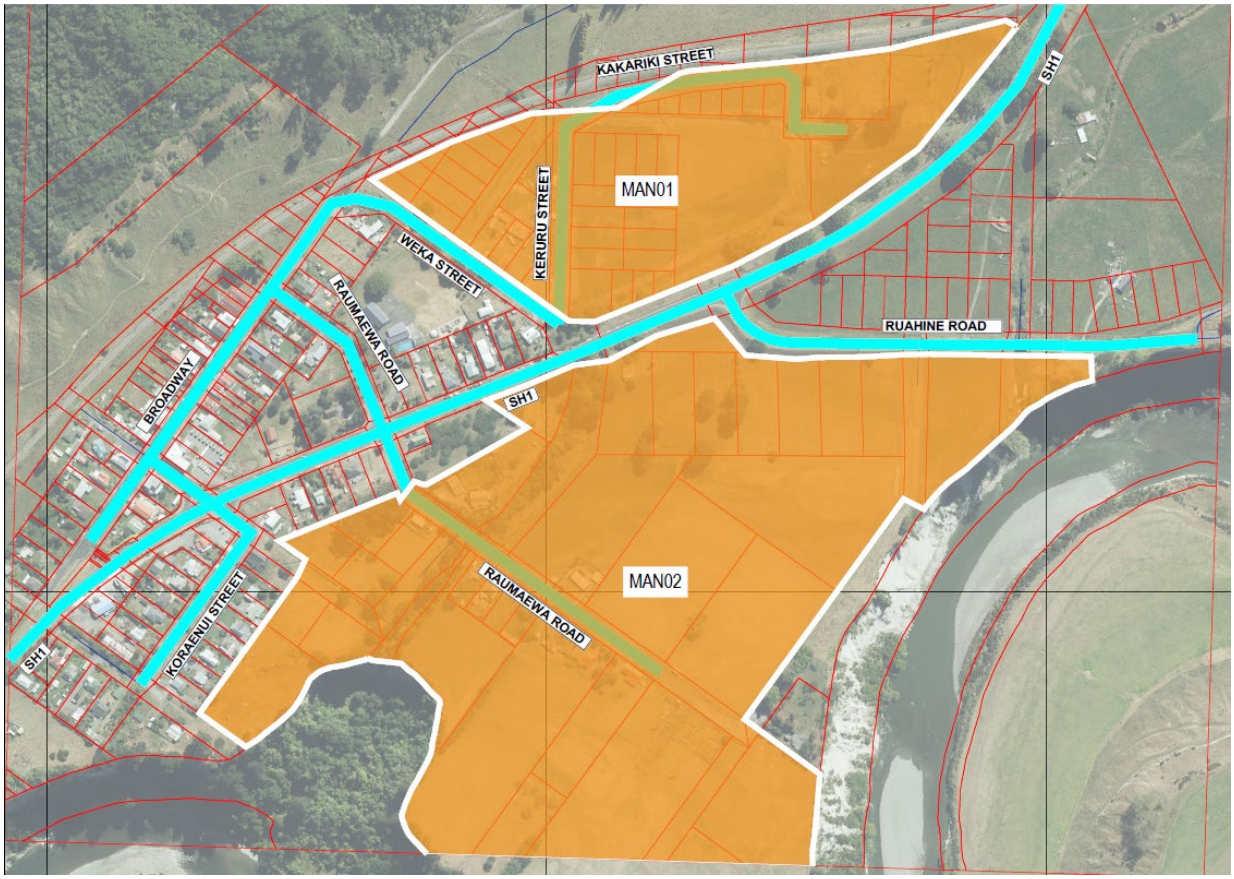


Figure 2-3: Aerial Photograph of the 'Mangaweka' Growth Area Locations (Source: LINZ maps)

2.3 Site Visit and Investigations

A site visit to each of the potential growth areas was undertaken on Monday, 24 February 2025 to review the surrounding transport environment and road characteristics, to assist in understanding potential external site connections. Photographs captured during the site visit are included in **Appendix A.**

3 Existing Road Environment

This chapter provides details on the established transport network in the vicinity of each of the potential growth areas including road hierarchy, traffic volumes, road safety, and active mode infrastructure.

3.1 Bulls

3.1.1 Road Network

The roading hierarchy as defined by the Operative District Plan for the network surrounding the Bulls growth areas is shown within the detail of **Figure 3-1**. The map also includes the location of key services including schools and shops / neighbourhood centres, already consented residential subdivisions, and the location of possible new roading links to serve residential activity within the potential growth areas.

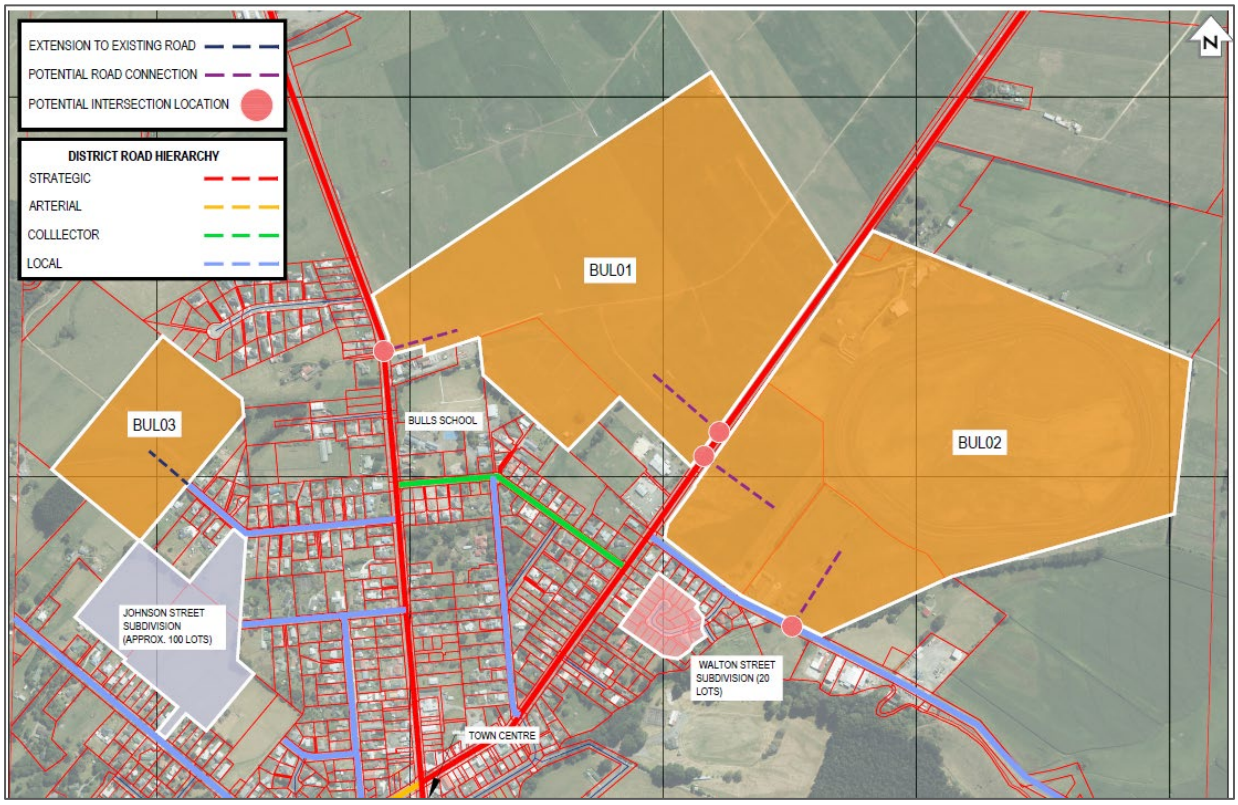


Figure 3-1: 'Bulls' Roading Hierarchy and Indicative Growth Area Access Locations

SH3 and SH1 form the primary strategic road network through Bulls, connecting with key district and regional destinations to the north (including Taranaki and the Waikato) and south (including Manawatu and Wellington).

Of relevance to the growth areas are the secondary road connections including:

- Flower Street is a no exit 'local road' that connects to SH3 and from which access to BUL 03 is likely;
- Watson Street is a 'local road' that accesses off SH1 and shares frontage with BUL 02; and
- Wilson Street is a 'collector road' that extends between SH3 and SH1 which could provide connection to BUL 01, noting this would require property purchase to create access through to the site.

Table 3-1 sets out the key roading characteristics of the surrounding network relevant to the potential growth areas, as identified above. Associated photographs of these roads are included in Appendix A.

Table 3-1: Bulls Study Area: Existing Roading Characteristics

Road	Daily Traffic Volume	Speed Limit	Formation	Active Mode Provision
SH3*	8,000vpd (2024 Count)	50kph adjacent BUL 01 frontage	Semi-urban formation with kerb and channel on west side, grass berm and no kerb on east (photos 1&2 in Appendix A)	Footpath on one side only
SH1**	6,700vpd (2024 Count)	100/50kph transition approximately midway along BUL 01 / BUL 02 frontage	Rural formation (photos 3&4 in Appendix A)	none
Flower Street	320vpd (2024 Count)	50kph	Urban formation (photos 5&6 in Appendix A)	Footpath on one side
Watson Street	250vpd (2024 Count)	50kph adjacent BUL 02 frontage	Urban formation for initial section from SH1 across BUL 02 frontage, then semi-urban with footpath and kerb on south side of carriageway, grass berm and no kerb on north side (photos 9&10 in Appendix A)	Footpath on one side extending from SH1 as far as Walton Street
Wilson Street	500vpd (2021 Count)	50kph (30kph school zone)	Urban formation (photos 11&12 in Appendix A)	Footpath on at least one side of the road, with footpaths on both sides adjacent to Bulls school / Kindergarten

*SH3 north of Bulls (Site Ref: 00300442)

**SH1 north of Bulls (Site Ref: 01N00923)

3.1.2 Road Safety

A review of the NZTA Crash Analysis System (CAS) has been undertaken for the roading network around the proposed growth areas for the latest five-year period for which full data is available (2020-2024). The search area is shown below in **Figure 3-2** and covers those streets and intersections that are considered to be the relevant extent for which all traffic movements to / from the individual growth areas would be concentrated. Any numbers indicated on map denote the number of crashes at that point / intersection, whilst the colours indicate the severity of the crash (i.e. green = non injury, yellow = minor injury, orange = serious injury, and red = fatal).

Figure 3-2: 'Bulls' Crash Search Area for 2020-2024 (Source: CAS)

A total of 35 crashes have been recorded within the study area in the five years 2020-2024, with 21 of these occurring at or close to the SH1 / SH3 intersection in the town centre, south of the potential growth areas.

Of these crashes at the highways intersection, the majority involved vehicles failing to give-way to priority traffic, with a number of rear-end crashes also recorded. Except for one minor injury, all these crashes were recorded as non-injury, being representative of the lower town centre urban speed environment.

For the remaining crashes around the town centre close to the SH1 / SH3 intersection, these involved mainly failure to give-way to turning traffic or rear end collisions at intersections, with six minor injury, one serious injury and the balance all being damage only (i.e. non-injury). The serious injury crash involved a northbound vehicle on Bridge Street (SH3) losing control and colliding with a parked car, with alcohol recorded as a contributing factor.

The accident record for SH3 north of the town centre indicates six accidents occurred at or near the Gorton Street intersection. In reviewing the details of these, there are no obvious commonalities, with two rear end collisions involving vehicles turning right off SH3 into Gorton Street, two loss of control accidents with vehicles colliding with roadside infrastructure, one collision between a through vehicle on SH3 colliding with another undertaking a U-turn, and finally a vehicle colliding with a parked car. Of these crashes, one resulted in minor injury whilst the balance were damage only (i.e. non-injury).

Three accidents were recorded on SH3 at the northern edge of the Bulls township at or close to the George Street intersection. Two crashes (one minor injury and one non-injury) were rear-end collisions involving traffic either slowed for a queue or a vehicle turning off the highway. The remaining crash was a loss of control and involved a southbound vehicle leaving the road and colliding with a fence, with the crash recorded as non-injury.

Two loss of control accidents have occurred on Flower Street at the 45-degree bend near the western end of the road. One crash was recorded as non-injury whilst the other (motorbike) resulted in serious injury. One accident was recorded at the Flower Street / SH3 intersection involved a vehicle evading police losing control leaving the road; the accident was recorded as non-injury.

The remaining crashes involved the following:

- southbound vehicle on Johnston Street (west of Aitken Street) collided with a parked car;
- southbound vehicle on SH1 lost control (near the Watson Street intersection) left the carriageway and hit a fence, with the crash recorded as a minor injury; and
- a vehicle on Wilson Street reversing into a light pole, which was recorded as a non-injury.

In reviewing the crash record for the roads around the potential growth areas, there is one location where accident trends suggest further investigation is warranted, irrespective of new development trips on the network, which is the SH1 / SH3 intersection. The crash review indicates poor conspicuity of the give-way priority arrangements for vehicles on the non-priority approaches, in particular traffic arriving on SH1 from the north. In addition, the high volume of larger vehicles at the intersection is noted to have caused obstruction of sightlines to other drivers waiting to turn in some accidents. Discussions with Council's transport team indicate this intersection continues to be a focus point on the network for investigating potential improvements to the current layout, in collaboration with NZTA.

3.1.3 Sustainable Transport

As set out in Table 3-1, an existing series of footpaths are provided on most roads in and around the potential growth areas, which in turn connect with the wider pedestrian network. There are currently no formal cycling facilities on the adjacent roading network, with cyclists instead sharing the carriageway or using the shoulder.

Whilst bus services in Rangitīkei District are limited given the small population base and dispersed nature of the rural communities, there is a weekday commuter service that links Marton, Bulls and Palmerston North. This route operates an inbound and outbound service on weekdays connecting through Bulls at 7:10am and returning at 5:40pm, and provides an alternative to private vehicle travel. Pick-up and drop-off is available along SH1 through Bulls, presenting a good level of convenience for future residents in the adjacent BUL 01 and BUL 02 growth areas.

3.2 Marton

3.2.1 Road Network

Figure 3-3 below shows the Operative District Plan road hierarchy for those streets in the vicinity of the potential growth areas in Marton. As before, the map also illustrates key services and amenities in relation to the growth areas, along with indicative access road locations for connecting development with the external network.

Separate to this study, Council has undertaken a structure planning exercise for the Marton North-West growth areas comprising MAR 01, MAR 02 and MAR 07. The decision to develop a structure plan for these sites was taken based on the larger scale of land and the multiple landowners involved. As such, the purpose of the structure plan is to ensure an integrated and coordinated development pattern where primary access points can be safeguarded, appropriate provision for vehicular and active mode connectivity realised, and associated infrastructure effectively planned and delivered over time.

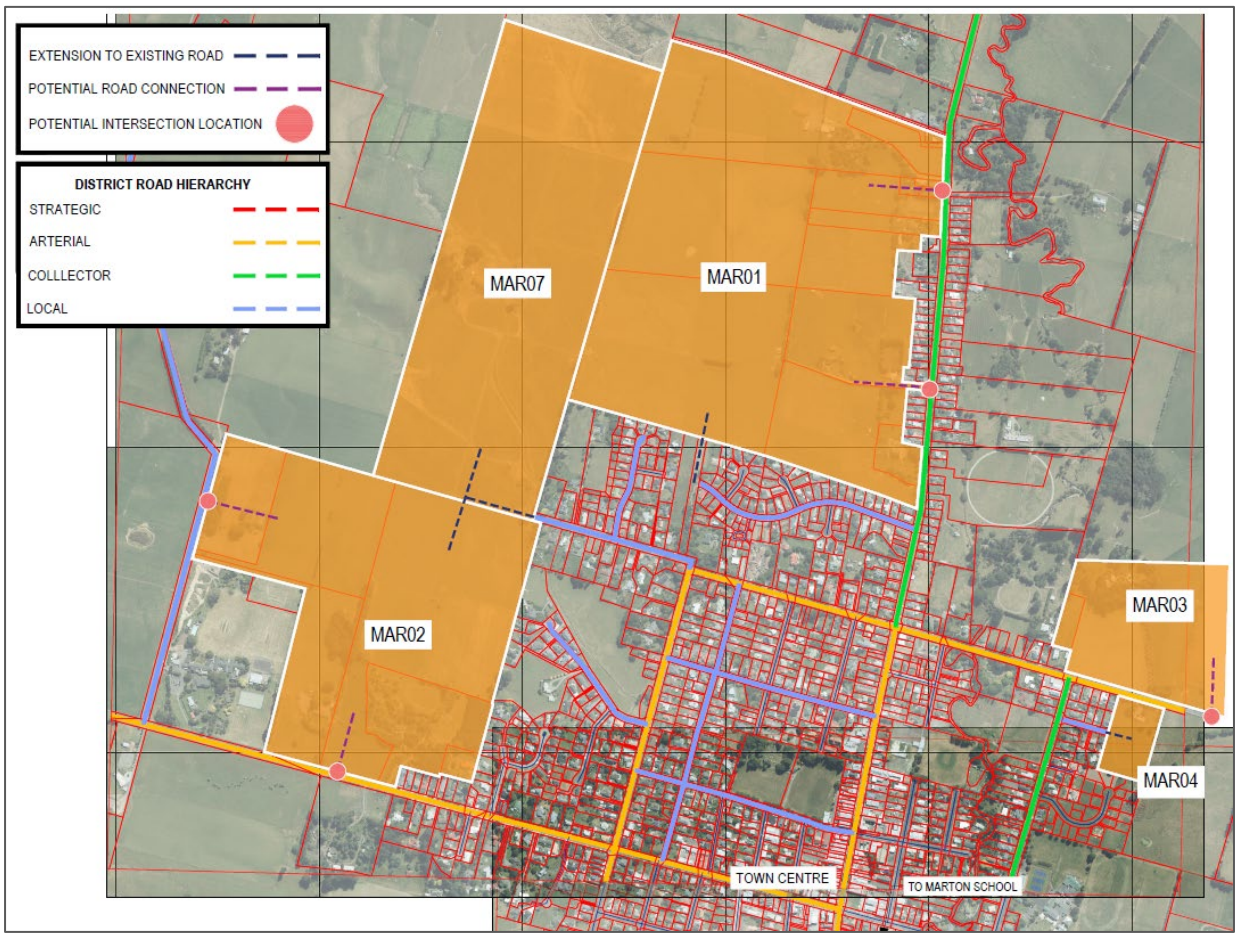


Figure 3-3: 'Marton' Roading Hierarchy and Indicative Growth Area Access Locations

As shown, the primary roading connections in the vicinity of the growth areas includes Wanganui Road / High Street, Broadway, and Calico Line (which connects with SH1 to the east). Each of these is classified as an Arterial Road under the District Plan roading hierarchy. In addition, Bond Street and Skerman Street are also classified as Arterial Roads, by virtue of forming the heavy vehicle bypass route that avoids the town centre.

The secondary roading connections that are relevant to the potential growth areas include the following:

- Tutaenui Road is a Collector Road that extends north out of Marton and has frontage to MAR 01;
- Armagh Terrace is formed as a cul-de-sac which is classified as a Local Road connecting off Tutaenui Road.;
- Milne Street is a Local Road connecting off Bond Street which is currently formed as a cul-de-sac terminating at the boundary of MAR 07; and
- Johnston Road is a Local Road connecting off Wanganui Road and sharing frontage to the western boundary of MAR 02.

Further detail on the characteristics of these roads surrounding the potential growth areas is summarised in **Table *3-2*** below, whilst corresponding photographs of the carriageway environments is included in Appendix A.

Table 3-2: Marton Study Area: Existing Roading Characteristics

Road	Daily Traffic Volume	Speed Limit	Formation	Active Mode Provision
Wanganui Road (adjacent site frontage)	2,400 (2024 Count)	50kph, changing to 80kph approximately midway along MAR 02 frontage	Semi-urban formation with sealed shoulders giving onto berms, no kerbs (photos 13&14 in Appendix A)	Footpath on one side only
Broadway (South of Bond Street)	2,700 (2024 Count)	50kph	Urban formation (photos 15&16 in Appendix A)	Footpaths on both sides
Calico Line (adjacent site frontage)	1,900 (2024 Count)	50kph for western portion, changing to 80kph approximately midway along MAR 03 and MAR 04 frontages	Semi-urban formation, kerb on south side of carriageway and grass berm (no kerb) to the north (photos 17&18 in Appendix A)	Footpath on one side only, terminates midway across MAR 03 / MAR 04 site frontages
Bond Street / Skerman Street	1,200 (2022 Count)	50kph	Urban formation (photos 19&20 in Appendix A)	Footpath on one side only
Tutaenui Road	1,850 (2021 Count)	50kph, with transition to 100kph occurring at the northeast corner of the MAR 01 frontage	Urban formation to just south of MAR 01 frontage (photos 21&22 in Appendix A)	Footpath on at least one side of the road
Armagh Terrace	390 (2021 Count)	50kph	Urban formation (photos 23&24 in Appendix A)	Footpaths on both sides, connection to Ingle Walkway
Milne Street	300 (2024 Count)	50kph	Urban formation (photos 25&26 in Appendix A)	Footpath on one side
Johnston Road	<50 (2022 estimate)	80kph	Rural formation, narrow carriageway with grass berms either side (photos 27&28 in Appendix A)	None

3.2.2 Road Safety

In an equivalent manner to the safety review undertaken for the Bulls study area, a review of the CAS database has been undertaken for the roading network around the proposed growth areas in Marton for the latest full five-year period for which records are available (2020-2024). The search area is shown below and again covers those streets and intersections within the relevant extent for which all traffic movements to / from the individual growth areas would be concentrated.

Figure 3-4: 'Marton' Crash Search Area for 2020-2024 (Source: CAS)

A total of 31 crashes have been recorded within the study area during the five-year search period (2020-2024). Of these, approximately half (16) occurred within the area of the town centre around Broadway / Wellington Road, with the balance being distributed along key routes in and out of the town centre.

Those crashes occurring in and around the town centre included:

- seven crashes involving vehicles either colliding with parked cars or vehicles manoeuvring to/from on-street parking spaces (with the majority along Broadway), with a further two crashes involving through traffic colliding with vehicles manoeuvring at driveways. All of these crashes were recorded as non-injury;
- two crashes on Wellington Road (just south of High Street) involving pedestrians being struck by vehicles, with both cases recording intentional collision / road rage and resulting in minor injury;
- one accident involving a vehicle exiting a commercial driveway on Broadway colliding with a cyclist (age 7) riding on the footpath; the accident was recorded as a non-injury;
- one accident on Wellington Road involving a northbound vehicle colliding with a second vehicle undertaking a U-turn from the opposite direction, resulting in damage only (i.e. non-injury);
- two loss of control accidents involving a southbound truck on Broadway pulling too close to the kerb and colliding with a shop verandah (non-injury), whilst an eastbound vehicle on High Street lost control due to excessive speed (alcohol suspected) and collided with an adjacent building (serious injury); and
- a truck reversing into a parking space collided with a power pole (non-injury).

Of those crashes occurring outside of the town centre, five occurred to the west of the central area around Robert Street, High Street and Morris Street. Three crashes involved vehicles failing to give-way to priority traffic at intersections, with all being recorded as non-injury. One crash involved a westbound vehicle on Morris Street deliberately ramming another vehicle. The final crash involved a northbound vehicle on Robert Street losing control and colliding with a power pole, with the crash resulting in minor injury.

Two crashes have been recorded further west on High Street at the Wanganui Road / Skerman Street intersection, with both involving vehicles travelling along Skerman Street / Pukepapa Road failing to yield, travelling through the intersection, and colliding with priority vehicles on Wanganui Road / High Street, with one resulting in minor injury and the other being damage only (i.e. non-injury). North of the intersection, a third crash was recorded involving a southbound vehicle on Skerman Street losing control and colliding with a parked car.

A total of seven crashes have been recorded on the network to the north of the town centre, as follows:

- one crash involved a northbound vehicle on Maunder Street deliberately ramming a second vehicle resulting in damage only (i.e. non-injury);
- one accident involved a vehicle attempting to U-turn on Tutaenui Road failing to spot a northbound vehicle approaching, resulting in collision; the accident was recorded as non-injury;
- one crash occurred on Totara Street where a taxi parked on a driveway rolled forward trapping an exiting passenger under the wheel, resulting in serious injury.
- two loss of control crashes have occurred on Calico Line, with the first involving a westbound vehicle (just past the Bredin Line intersection) leaving the carriageway and colliding with road signs and a fence; the crash was recorded as minor injury. The second crash involved an eastbound bus on Calico Line that left the carriageway and collided with a bridge handrail just east of Totara Street, resulting in severe injury to the driver.
- one crash involved a westbound vehicle crossing Broadway from Calico Line to Bond Street accelerating too quickly and rear-ending the car in front. The crash was recorded as non-injury; and
- a crash recorded on Tutaenui Road further north on the edge of town involved a southbound vehicle losing control on a bend and leaving the carriageway / overturning. The accident was recorded as minor injury.

The above crash record does not include any obvious crash trends that suggest there is a pattern of existing safety issues on the network. The non-injury crashes recorded in the town centre involving collisions with vehicles manoeuvring at kerbside parking spaces are characteristic of such urban environments, particularly where angle parks are provided and turnover is high.

3.2.3 Sustainable Transport

Most of those roads surrounding the growth areas include footpaths on at least one side of the street, and in turn connect with the wider pedestrian network and town centre to the south. The ‘Gorges to Sea’ cycle touring route passes through Marton and runs north out of town along Broadway / Tutaenui Road, with formal on-road cycle lanes marked along the section of Broadway between Follet Street and Calico Line. Beyond this to the north, and on other streets in the vicinity of the potential growth areas, cyclists share the carriageway with traffic.

As described in the previous section, a current commuter bus service that links Marton with Bulls and Palmerston North operates one inbound and outbound service on weekdays, calling at stops in Marton at 7:00am and returning at 6:00pm. This service therefore provides an alternative to private vehicle for residents commuting to neighbouring centres.

3.3 Mangaweka

3.3.1 Road Network

Figure 3-5 below illustrates the local roading hierarchy for Mangaweka, as defined by the Operative District Plan. The map also includes the location of key services including schools and shops, as well as indicative locations for possible roading connections to the potential growth areas.

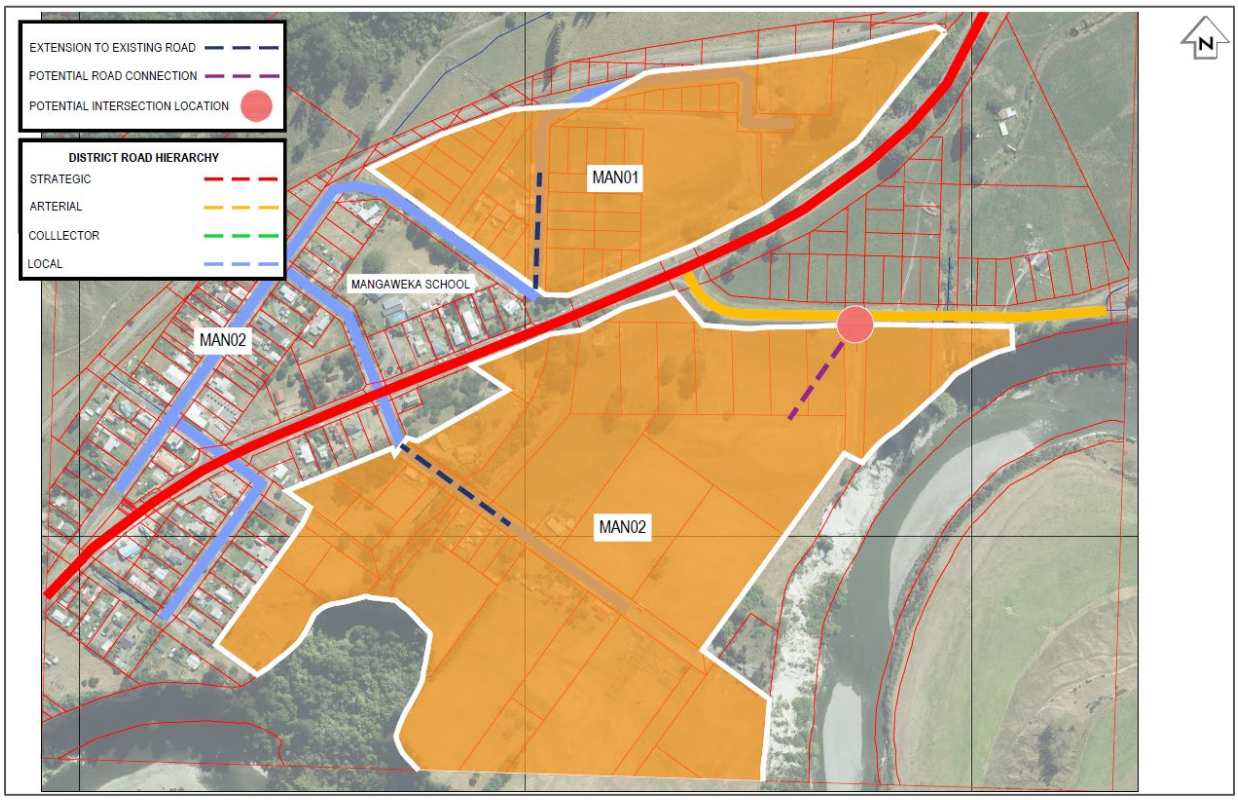


Figure 3-5: 'Mangaweka' Roading Hierarch and Growth Area Access Locations

SH1 runs generally north-south through the Mangaweka township, with a series of roads connecting off at right angles that provide access to the urban area either side of the highway. Those relevant to the potential growth areas include the following:

- Ruahine Road is classified as an Arterial Road, reflecting its importance in being the only roading connection for the land catchment to the east of Mangaweka. Ruahine Road connects with SH1 via priority give-way tee-intersection, and has frontage to MAN 02;
- Raumaewa Road is a Local Road that connects with the highway via a priority four-way intersection, providing access to MAN 02 to the east and MAN 01 via Broadway / Weka Street and Kereru Street to the north;
- Broadway / Weka Street and Kereru Street are all local roads located to the west of the highway and provide connection to MAN 01; and
- Kawakawa Street is another Local Road that intersects with SH1 via a priority four-way intersection, and includes a potential connection opportunity to MAN 02 to the east.

Table 3-3 below provides further detail on the specific roading characteristics for each of those roads identified above, whilst corresponding photographs are included in Appendix A.

Table 3-3: Mangaweka Study Area: Existing Roading Characteristics

Road	Daily Traffic Volume	Speed Limit	Formation	Active Mode Provision
SH1*	6,100 (2024 Count)	70kph through the urban area, transitioning to 100kph just south of Ruahine Road	Urban adjacent township, changing to semi-urban formation with sealed shoulders giving onto berms, no kerbs north of the existing urban area (photos 29&30 in Appendix A)	Urban formation – footpath one side of the road. Semi-urban formation – none
Ruahine Road	250 (2017 Count)	100kph	Rural formation - grass berms either side of carriageway and no kerbs (photos 31&32 in Appendix A)	None
Broadway	100 (2022 estimate)	50kph	Urban formation (photos 33&34 in Appendix A)	Footpath on both sides
Weka Street	<50 (2022 estimate)	50kph	Rural formation, carriageway giving onto berms, no kerbs (photos 35&36 in Appendix A)	None
Kereru Street	<50 (2022 estimate)	50kph	Rural formation, carriageway giving onto berms, no kerbs. Northern section chipseal (photos 37&38 in Appendix A)	None
Raumaewa Road (east of SH1)	<50 (2024 estimate)	50kph	Rural formation, carriageway giving onto berms / roadside drains, no kerbs (photos 39&40 in Appendix A)	None
Koraenui Street	<50 (2023 estimate)	50kph	Rural formation beyond SH1 intersection, with carriageway giving onto grass berms, no kerbs (photos 41&42 in Appendix A)	Footpath on one side along initial portion only

* SH1 Mangaweka (Site Ref: 01N00865)

3.3.2 Road Safety

A review of the CAS database for the most recent complete 5-year period for which records are available (2020-2024) for those roads adjacent to the two potential growth areas, shows a total of three crashes have been recorded, with all being non-injury.

The locations of these crashes are shown within the detail of **Figure 3-6** below.

Figure 3-6: 'Mangaweka' Crash Search Area for 2020-2024 (Source: CAS)

Of those recorded crashes, one occurred on Broadway and involved a southbound truck and trailer colliding with an overhead power line. The remaining two crashes occurred on SH1 just north of Raumaewa Road, with the first involving a vehicle U-turning on the highway clipping the rear of a northbound through vehicle, and the second accident involving a southbound vehicle losing control before leaving the carriageway and colliding with a road sign.

With just three crashes in the five year period assessed, and all of these non-injury, the accident record does not indicate that there are existing road safety issues on the network around Mangaweka.

3.3.3 Sustainable Transport

As described above in **Table *3-3***, footpaths are only provided on those core roads around the central Mangaweka urban area, with existing roads that connect to the potential growth areas generally formed to a rural standard without footpaths. Whilst the Manawatu cycleway begins / ends in Mangaweka following the route from the town centre via SH1 onto Ruahine Road, this is an on-road cycleway with users sharing the carriageway.

There are currently no scheduled commuter bus services that operate to Mangaweka.

4 Future Changes

This chapter provides details of any already consented development that will give rise to additional traffic generated on the network adjacent to the potential growth areas, along with an overview of any programmed road network changes in and around the potential growth areas.

4.1 Consented Development

Discussions with Council around already consented land use in the vicinity of the growth areas in each of the study areas indicates the following:

Table 4-1: Notable Consented Development

Study Area	Consented Development Details
Bulls	Consented 89 lot (potentially increasing to 100-lot) residential subdivision connecting off Flower Street / Johnson Street (no off-site mitigation works triggered by the consent)
	Consented 20-lot residential subdivision connecting off Walton Street
Marton	No significant new development consented in and around the northern part of Marton, noting some residential growth has occurred over recent years through the southern part of the township.
Mangaweka	No significant new development consented

Consideration of the consented new developments identified above in Bulls which are assessed as forming part of the 'receiving environment' for the purposes of this assessment, has been allowed for in the traffic analysis described in the following chapter.

4.2 Transport Network Improvements

A review of the Council's Long Term Plan 2024-34 (LTP) shows there are no specific programmed roading projects that affect the network around the study areas. Discussions with Council as part of this project indicates some existing network focus points as set out in **Table 4-2**, although at the time of writing these are identified as under review only and do not have any allocated funding.

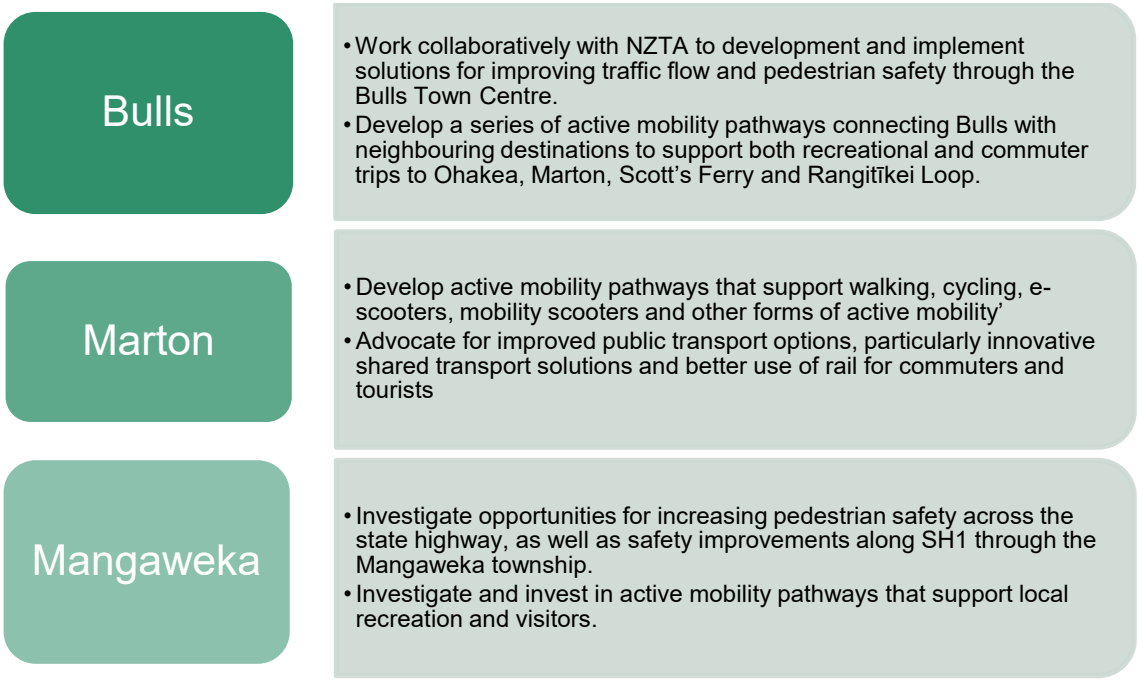
Table 4-2: Roading Changes / Improvements under Review

Study Area	Current Transport Review
Bulls	Safety improvements at the SH1 / SH3 intersection.
Marton	Expectation that the current 50kph posted speed limit would be extended east along Calico Line, past the potential growth areas of MAR 03 and MAR 04
	A new shared path is in the planning stages along Calico Line between Bredins Line and Nga Tawa Road, providing connectivity to Nga Tawa School
Mangaweka	No current improvement projects identified.

Discussion on those potential changes identified above is provided in the traffic analysis section at Chapter 6.

In addition to above, the Council's 'Community Spatial Plan / Pae Tawhiti Rangitīkei Beyond' sets out a number of future transport aspirations for the three study areas to improve safety and encourage multi-modal travel behaviours, as summarised below in **Figure 4-1**.

Figure 4-1: Spatial Plan Focus Areas



Further investigation of the transport improvements above that form part of the action plans for the respective study areas are anticipated to be progressed as part of the broader Spatial Plan implementation.

4.3 Stakeholder Liaison (NZTA)

In addition to engagement with the Council's Roading Team(Roading Manager, Darryn Black and Project Engineer, Philip Gifford) on the potential growth areas, discussions have also been held with NZTA to acquire feedback and ensure a collaborative approach can be achieved in understanding the implications of the potential growth areas on the local transport networks. A summary of the liaison to date is provided below:

- Council held an initial meeting with NZTA in November 2024, where NZTA requested that an ITA be prepared to assess the potential effects enabled by the proposed Plan Change on the transport network;
- Once the draft ITA had been prepared and provided to NZTA, an online meeting was held between NZTA, Council and Stantec in July 2025 to discuss the transport matters of the proposed Plan Change; and
- A follow-up meeting was subsequently held in August 2025 between the same parties, including representatives from NZTA's Road Safety team. In response to those discussions and feedback received from NZTA, further analysis has been included on strategic State Highway intersections as described later at Section 7.3.

Continued liaison with NZTA is expected through the subsequent phases of the plan change process.

5 Growth Area Traffic

This chapter sets out the adopted assumptions in forecasting the quantum and distribution of traffic generated by the potential new growth areas in each of the three study areas of Bulls, Marton and Mangaweka.

5.1 Traffic Generation

Surveys of households reported in the NZTA Research Report 453 "Trips and Parking Related to Land Use 2011" (RR453), indicate 85th percentile daily trips generation rates for 'Dwelling (outer suburban)' residential activities of 8.2 per dwelling, with associated peak hour movements of 0.9vph. This traffic generation rate has been used previously for major residential development consents within neighbouring regions, and accepted as representative of current travel patterns in the region.

As such, a peak hour rate of 0.9vph has been adopted to assess the likely traffic generation associated with both the potential growth areas and already consented development nearby.

The resultant daily and peak hour trips for each of the potential new growth areas are summarised in **Table 5-1**.

Table 5-1: Forecast Growth Area Trips

AREA	SITE ID	YIELD (#LOTS)	DAILY TRIPS	PEAK HOUR TRIPS
Bulls	BUL 01	342-391	2,804-3,206	308-352
	BUL 02 (BUL 02 'Option B[1])	429-490 (116)	3,518-4,018 (951)	386-441 (104)
	BUL 03	22-25	180-205	20-23
Marton	MAR 01	591	4,846	532
	MAR 02	362	2,968	326
	MAR 03	41-47	336-385	37-42
	MAR 04	19-22	156-180	17-20
	MAR 07	291	2,386	262
Mangaweka	MAN 01	42-48	344-394	38-43
	MAN 02	183-209	1,501-1,714	165-188

As shown, forecast traffic generations for the potential new growth areas vary widely, with smaller areas such as BUL 03 and MAR 04 generating around 20vph, whilst full development of the larger sites such as MAR 01 and BUL 02 could generate between 400-540vph during the peaks. Each of the sites have been assessed independently in

[1] This captures a reduced Site extent option which is discussed in more detail at Section 7.1

the analysis that follows, although a combined scenario where MAR 01, MAR 02 and MAR 07 are assessed collectively has been allowed for.

5.2 Traffic Distribution

In lieu of any strategic transport model for the district to inform the likely traffic distribution of new development trips on the network, census data for journeys to work has been used to determine new trip patterns during the critical weekday AM and PM peaks periods. Whilst the latest available census is 2018, it is assessed that key areas of employment across the district and neighbouring districts will not have changed significantly in the interim.

The proportion of inbound and outbound trips during the peak hours has been adopted from surveyed rates undertaken by Stantec for existing outer suburban land use in provincial regions. These rates indicate that in the AM peak hour, 25% of trips are inbound versus 75% outbound, whilst for the evening peak 63% are shown to be inbound versus 37% outbound.

Analysis of current trip patterns for established residential census meshblocks immediately adjacent to each of the potential growth areas has been used to inform the trip distribution during each of the peaks. For example, the proportion of new commuter trips from potential growth areas in Bulls to Palmerston North in the AM, have been based on the current percentage of trips undertaking this journey, and have assumed the most direct route choice available in completing the trip with respect to proximity to primary transport routes and key intersections.

5.3 Key Network Points

Based on the forecast growth area traffic additions above, indicative access points onto the external network (described earlier in Chapter 3), examination of the road safety record (again, summarised in Chapter 3), and discussions with Council's traffic team, a number of key network intersections warrant further capacity analysis to determine their future operation with new growth area traffic added, as set out in **Table *5-2***.

Table 5-2: Key Network Intersections

Study Area	Intersection
Bulls	Existing SH1 / SH3 priority intersection
	Connection of BUL 01 or BUL 02 with SH1
Marton	Bond Street / Broadway / Calico Line
	Milne Street / Bond Street / Skerman Street

Each of these is discussed in turn under the traffic analysis sections in Chapter 7.

6 Transport Effects Assessment

Council is proposing the introduction of a structure plan for the combined growth areas (MAR 01, Mar 02 and MAR 07) which will help ensure an appropriate external access strategy and internal movement network can be identified and implemented through subsequent consent applications, to deliver integrated and connected development. It is understood at the time of finalising this report that no other structure plans have been prepared for the remaining growth areas assessed.

At this higher level assessment stage to inform selection of potential growth areas, a review of each has been undertaken against the core transport objectives identified in the Spatial Plan, as well as against the key traffic engineering principles for establishing new external site access roads to integrate with the established network.

6.1 Site Assessment

6.1.1 Transport Planning Review

The Council's Spatial Plan includes a number of references to objectives that seek to align with national policy guidance on urban development and achieve integration of growth areas with existing residential activity and established transport network. Those relevant to this assessment include:

***Spatial Plan* - 'Connected Communities' objectives:**

- *Urban residents in Marton, Taihape, Bulls and Hunterville have access to local employment, town centres, parks and open spaces and education within 10-minutes from home;*
- *Consider accessibility when identifying future residential growth areas; and*
- *Integrate land use planning and transport infrastructure planning to ensure accessible urban environments.*

Each of the potential growth areas has been reviewed with this 'integrated development' lens including consideration of access and connection to community facilities, as detailed in the assessment tables below.

6.1.2 Traffic Engineering Review

In addition to the overarching transport objectives identified above, an assessment against the key traffic engineering principles associated with establishing new roads and intersections to serve the individual growth areas is appropriate. In this manner, the following matters have been considered:

- site access, including the number / positioning of roading links and multi-modal connections;
- the location of external intersection connections in respect to;
  - minimum intersection sight distances for traffic entering / exiting the site;
  - minimum intersection separation distances to avoid creating poor safety outcomes; and
- road safety.

To provide well-connected networks, the number of new external road connections serving a site will depend on the scale of activity provided (i.e. number of lots), the number of established frontage streets where access can be achieved, and consideration of any adjacent future development areas where provision for connectivity is

appropriate. More external connections will typically improve route choice, minimise travel distances, and allow traffic to distribute efficiently across the wider network (particularly for larger sites).

Residential subdivision sites and associated movement networks should be designed to provide convenient access for walking, cycling and micromobility, including through the use of dedicated active mode links, and ideally ensure each lot is no more than 400m walking distance[2] to a collector or arterial route. This assessment has focused on the potential external site access connections.

With respect to new site roading links, the Operative District Plan includes relevant standards around intersection sightlines and separation distances based on the speed limit on frontage roads, as summarised in **Table 6-1**.

Table 6-1: Sight Distance and Spacing Requirements (District Plan)

Frontage Road Speed Limit	Sight Distance (m)	Intersection Separation Distance (m)
50kph	80	125
70kph	130	220
100kph	250	800

The transport planning and traffic engineering assessment matters described above are summarised in turn for each of the growth areas across Bulls, Marton and Mangaweka in **Table 6-2**, **Table 6-3** and **Table 6-4** below.

[2] NZS4404:2010 'Land Development and Subdivision Infrastructure' Chapter 3, Section 3.2.5

6.1.3 Bulls

Table 6-2: Bulls Growth Areas Assessment

Assessment Matter	BUL 01	BUL 02	BUL 03
Access Opportunities and Constraints	• Development scale of up to 391[3] lots would benefit from at least 2 external connection points with one of at least collector road standard • Legal access via SH1, SH3 (Strategic routes) and Wilson Street (Collector Road) • SH access will require approval from NZTA	• Development scale of up to 490 lots would benefit from at least 2 external connection points of at least collector road standard • Legal access to SH1 (Strategic) and Watson Street (Local Road) • SH access will require approval from NZTA	• Development scale of up to 25 lots could be served by a single external connection point of local road standard • Legal access to Flower Street (Local Road) only
Connection to Local Amenities	• Approx. 1.2km from centre of Site to town centre. Would require new footpaths on SH1 to connect Site to existing pedestrian network • <500m from centre of Site to Bulls School, noting potential shorter / direct internal site connection	• Approx.1.4km from centre of Site to town centre. Would require new footpaths on SH1 to connect Site to existing pedestrian network • Approx.1.3km from centre of Site to Bulls School, noting would require crossing of SH1 (no existing controlled crossing point)	• Approx.1.1km from centre of Site to town centre • Approx.0.7km from centre of Site to Bulls School, with existing pedestrian linkage including controlled (zebra) crossing on SH3
External Intersections (District Plan Standards)	**Access off SH1** (Strategic Road, 100kph posted limit transitioning to 50kph) • minimum sightlines of 250m are achievable • District Plan requires 800m separation for 100kph speed section and 125m for 50kph section from closest established intersection (Watson Street); 200-500m is achievable		**Access off Flower Street** (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established intersection (SH3), which is achievable
	Access off Wilson Street (Collector Road, 50kph posted limit) • Property purchase required to achieve roading link • depending on access location, sightline of 80m achievable in eastbound direction, but may not be possible westbound due to bend • District Plan requires 125m separation from nearest intersection at Daniell Street / Bull Street, around 65m is achievable • eastern end of Wilson Street is quite narrow for a Collector route, and may require kerbside parking restrictions to ensure two-way traffic flow is maintained. • For reasons above, access assumed to be via SH3 and / or SH1	**Access off Watson Street** (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established intersection (Walton Street), which is achievable	
	Access off SH3 (Strategic Road, 50kph posted limit) • Sightlines of 80m achievable • District Plan requires 125m separation from nearest intersection (George Street); approx. 100m is the maximum separation achievable		
Road Safety	• SH1 access sits within 100kph posted speed limit; unless limit is reduced then substantial intersection design (i.e. channelised tee-intersection or roundabout) would be required to achieve safe access		• Two existing crashes recorded at the bend on Flower Street. Consider curve advisory or other signage / demarcation to provide advance warning of geometry

The key points that drop out of the assessment above relative to the respective growth areas can be summarised as follows:

- both **BUL 01** and **BUL 02** are likely to require a substantial new intersection on SH1 in the form of a channelised tee-intersection or roundabout to achieve safe and appropriate access, noting this would be best located well within the current 50kph urban speed limit;
- access to **BUL 01** is challenging from Wilson Street, whilst access from SH3 is readily achievable involving either a channelised tee-intersection or roundabout;
- in the event that **BUL 02** is progressed then secondary access to Watson Street to supplement a SH1 access is recommended, with Watson Street needing to be upgraded to urban collector road standard between the Highway and any new site intersection to accommodate the additional site transport demands i.e. seal widening, kerb and channel, and active mode infrastructure (footpaths / shared path connections to existing active mode network). In the event of the smaller scale development of BUL 02 Option B being progressed, then access could be achieved solely off Watson Street, albeit with the upgrades to bring the connecting section of Watson Street between SH1 and new Site accesses to a more urban standard;
- development of **BUL 03** could be achieved with little to no transport upgrades, noting good proximity to Bulls School and associated established pedestrian links to the surrounding walking network.

[3] Upper end yield estimate based on 20% of site for roading and recreations etc, from Table 2-1

6.1.4 Marton

Table 6-3: Marton Growth Areas Assessment

Assessment Matter	MAR 01	MAR 02	MAR 03	MAR 04	MAR 07
Access Opportunities and Constraints	• up to 676 lots would benefit from at least 2 external connection points of at least collector road standard • legal access to Tutaenui Road (Collector Road), potential secondary connection to Armagh Terrace (Local Road)	• up to 414 lots would benefit from at least 2 external connection points ideally of at least collector road standard • legal access available from Wanganui Road (Arterial), Johnston Road (Local Road) and potentially via Milne Street (Local Road)	• up to 47 lots could be served by a single external connection point of local road standard • legal access via Calico Line (Arterial) only	• up to 22 lots could be served by a single external connection point • legal access via Calico Line (Arterial) and Dalrymple Place (Local Road) • recommended access achieved off lower order frontage road of Dalrymple Place	• up to 333 lots would benefit from at least 2 external connection points including one of at least collector road standard • only legal access to external network is via Milne Street (Local Road)
Connection to Local Amenities	• approx. 1.9km from centre of Site to town centre. • approx. 2.1km from centre of Site to Marton School; 2.9km to St Matthew's School; and 2.2km to Rangitikei College. • upgrading of footpaths on Tutaenui Road would improve Level of service for Site residents using active modes to access key destinations	• approx. 1.6km from centre of Site to town centre. • approx. 1.9km from centre of Site to Marton School; 2.3km to St Matthew's School; and 2.3km to Rangitikei College. • upgrading of footpaths on Wanganui Road would improve Level of service for Site residents using active modes to access key destinations above	• approx. 1.4km from centre of Site to town centre. • approx. 1.5km from centre of Site to Marton School (via Bredins Line); 2.4km to St Matthew's College; and 1km to Rangitikei College • new footpath required on Calico Line to connect with established pedestrian network to the west	• approx. 1.3km from centre of Site to town centre. • approx. 1.1km from centre of Site to Marton School (via Bredins Line); 2km to St Matthew's School; and 0.6km to Rangitikei College. • new footpath required on Calico Line to connect with established pedestrian network to the west	• approx. 2.3km from centre of Site to town centre. • approx. 2.6km from centre of Site to Marton School; 3km to St Matthew's School; and 2.6km to Rangitikei College • upgrading of footpaths on Milne Street / Bond Street would improve Level of service for Site residents using active modes to access key destinations above
External Intersections (District Plan Standards)	**Access off Tutaenui Road** (Collector Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established intersection (Armagh Terrace), which is achievable	**Access off Wanganui Road** (Arterial, access assumed to connect within 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established intersection (Shelton Place), which is achievable	**Access off Calico Line** (Arterial, access assumed to connect close to 50 / 80kph posted limit transition) • Minimum sightlines of 80m are achievable for 50kph limit and approx. 160[4]m for 80kph limit, • District Plan requires 125m separation from closest established intersection (Bredins Line) for 50kph limit, and approx. 360[5]m for 80kph limit • if new access road for MAR 03 is positioned within current 50kph speed limit the separation distance would be <80m from Bredins Line • new intersection for MAR 04 would access onto 80kph section, and in being a maximum of 220m from Bredins Line would fall short of the required District Plan minimum 360m separation distance • recommended that current 50kph limit be extended east well clear of the new MAR 03 / MAR 04 access, to improve safety of site intersection(s)		**Access off Milne Street** (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable District Plan requires 125m separation from closest established intersection (Tennent Court), which is achievable
	Access off Armagh Terrace (Collector Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established	**Access off Milne Street** (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established		**Access off Dalrymple Place** (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established	

[4] Estimated distances calculated from values given in District Plan Table TR-S8-T2

[5] Estimated distances calculated from given values in District Plan Table TR-S8-T1

Assessment Matter	MAR 01	MAR 02	MAR 03	MAR 04	MAR 07
	intersection (Tutaenui Road), which is achievable	intersection (Tennent Court), which is achievable		intersection (Bredins Line), which is achievable	
		Access off Johnston Road (Local Road, 80kph posted limit) • Minimum sightlines of 160m are achievable • District Plan requires 360m separation from closest established intersection (Wanganui Road), which is achievable			
Road Safety		• Existing safety concerns around the Milne Street / Bond Street intersection geometry, exacerbated by Bond Street carrying significant heavy vehicle volumes. Intersection layout and potential safety improvements should be considered if new development traffic introduced onto Milne Street.	• Current 50/80kph speed limit transition on Calico Line is very close to potential new accesses for MAR 03 and MAR 04. Assessed that safe intersection design can be achieved for MAR 03 near eastern site boundary to maximise separation from Bredins Line. Notwithstanding, it is recommended 50kph limit be extended east past new access intersection(s) to provide an improved safety outcome, along with associated threshold treatments for westbound traffic arriving on Calico Line to support transition to lower speed urban environment. Access to MAR 04 recommended to be off Dalrymple Place.		*See MAR 02 assessment*

Review of the Marton sites against the criteria above shows the following key outcomes:

- **MAR 01** provides the largest potential lot yield of all the sites reviewed and as such a minimum of two connections to a Collector Road (or higher) are recommended. In this regard, two separate accesses (north and south) could be established onto Tutaenui Road, including a potential urban roundabout at one intersection (which could form a gateway to Marton from the north). A secondary access may be possible via Armagh Terrace, noting depending on anticipated traffic flows from the site using this route, upgrading of the current alignment to collector road standard and / or kerbside parking restrictions may be required to appropriately accommodate vehicle demands within a two-way trafficable width;
- there are several opportunities to gain access to **MAR 02**, noting primary connection to Wanganui Road is recommended along with a secondary access via either Milne Street or Johston Street, both of which would need to be upgraded to appropriately accommodate site traffic demands. Such upgrades to Milne Street would likely be similar to Armagh Terrace, and aimed at ensuring safe two-way trafficable width could be maintained in the carriageway clear of vehicles parked at the kerbside. Improvement to the Milne Street / Bond Street intersection would also need to be reviewed, noting the analysis in the following chapter provides further details on the operational performance with growth area traffic added. For Johnston Street, required works would be significantly more involved to bring it up to an urban standard, noting this would also result in a circuitous connection to the town centre network and amenities as compared to Milne Street;
- **MAR 03** and **04** are located closest to the existing amenities, noting improvements on Calico Line are required for MAR 03 to provide active mode connectivity to the existing walking network, and an extension of the 50kph urban speed limit east past any new site access intersection to provide an improved safety outcome, noting the network changes currently under review (as described earlier at Section 4.2) would address these two points. Access for **MAR 04** is recommended off the lower order frontage road of Dalrymple Place which could be achieved without any infrastructure upgrades; and
- **MAR 07** is the most remote site and presents access challenges given the only legal connection would be via Milne Street. As with MAR 02, upgrading of Milne Street to collector road status to accommodate new development traffic, along with upgrading of the Bond Street / Milne Street intersection to an appropriate safety standard would be required.

6.1.5 Mangaweka

Table 6-4: Mangaweka Growth Areas Assessment

Assessment Matter	MAN 01	MAN 02
Access Opportunities and Constraints	• Development scale of up to 48 lots could be served by a single external connection of urban local road standard • Legal access to SH1 (Strategic) and Weka / Kereru Street (Local Roads) • SH access will require approval from NZTA	• Development scale of up to 209 lots would benefit from at least 2 external connection points with one of at least collector road standard • Legal access to SH1 (Strategic), Ruahine Road (Arterial), and Raumaewa Road (Local Road) • SH access will require approval from NZTA
Connection to Local Amenities	• approximately 0.6km from centre of Site to town centre (Broadway). • 0.6km from centre of Site to Mangaweka School, less if direct rear access to school site achieved off Weka Street • connection to amenities above would require new footpaths on Weka Street / Kereru Street	• approximately 0.6km from centre of Site to town centre. • 0.4km from centre of Site to Mangaweka School • connection to amenities above would require new footpaths / active mode connection either via Raumaewa Road, or Ruahine Road / SH1, along with a safe crossing point on SH1
External Intersections (District Plan Standards)	**Access off SH1** (Strategic Road, 70kph / 100kph posted limit) • minimum sightlines of 130m / 250m are unlikely to be achievable • District Plan requires 250m / 800m separation from closest established intersection (Ruahine Road / Raumaewa Road), which are not achievable • Access to MAR 01 from SH1 challenging given Ruahine Road intersection and presence of northbound passing lane • For reasons above, recommended that access be achieved off non-State Highway roads	
	Access off Weka Street / Kereru Street (Local Road, 50kph posted limit) • new subdivision roads connecting off Weka Street, Kereru Street and Kakariki Street may be able to achieve District Plan minimum sightlines of 80m • District Plan requires 125m separation from nearest intersection which may be achievable, but will depend on any new subdivision layout which should be developed in accordance with good practice to ensure appropriate intersection separation distances and associated sightlines	**Access off Ruahine Road** (Arterial Road, 100kph posted limit) • Minimum sightlines of 250m to the east are achievable, whilst sightlines to the west would extend to the SH1 intersection, thereby meeting the intent of the District Plan • District Plan requires 800m separation from closest established intersection (SH1) which is not achievable, noting presence of SH1 intersection and priority of traffic on the Highway will regulate operating speeds to well below the 100kph posted speed on Ruahine Road where any new MAN 02 access is established. As a result, it is assessed that a safe access design could be developed to serve MAN 02 along the Ruahine Road frontage.
		Access off Raumaewa Road (Local Road, 50kph posted limit) • Minimum sightlines of 80m are achievable • District Plan requires 125m separation from closest established intersection (SH1) which is achievable.
Road Safety	• Currently no turn lanes on SH1 at Raumaewa Road. With additional traffic generated by the 48 new lots for MAN 01 or a portion of site traffic from MAN 02 connecting to/from the Highway at this point, a review of the need for turn lanes should be undertaken to ensure safe operation of this intersection.	

A summary of the key points in assessing MAN 01 and MAN 02 are provided as follows:

- direct access for **MAN 01** and **MAN 02** off SH1 would not meet District Plan minimum standards and is therefore challenging from a safety perspective, given the higher 70 / 100kph posted speed limit on the Highway, proximity of established intersection at Ruahine Road, and the position of the current northbound passing lane beyond this;
- local road connection to **MAN 01** is achievable, with upgrading of the current Weka Road / Kereru Road to a full urban standard including footpaths to support active mode connectivity to the established urban area; and
- a suitable access design for **MAN 02** could be developed off the Ruahine Road frontage, with a secondary connection recommended via Raumaewa Road which, with a dedicated crossing point on SH1, would provide good opportunity for active mode connection to the town centre / school. The form of this crossing point on SH1 will need careful consideration given the current 70kph posted speed limit and 6,000vpd traffic volumes on the highway.

7 Intersection Capacity

7.1 Assessment Methodology

In addition to the general site assessment criteria described in the previous chapter, a number of key intersections (identified earlier at Section 5.3) warrant further analysis to understand the future performance with additional growth area traffic added to the network. In this manner, a quantitative assessment has been undertaken using the industry-recognised modelling package SIDRA to determine any associated change in performance and delay under the higher growth area traffic loadings. Whilst any additional development traffic will trigger some increased delay at wider network intersections, in particular for right turning traffic on side roads where they connect to primary routes experiencing an increase in through movements, this assessment has focused on the key network nodes including State Highway intersections at the locations below. Further commentary and qualitative assessment of the wider primary network connections is provided later at Section 7.3.

Bulls

- existing SH1 / SH3 intersection priority 4-way intersection: modelled with growth area traffic loading scenario of **BUL 02**; and
- new growth area access to **BUL 02** on SH1 using a priority channelised tee-intersection: modelled with two-thirds of site traffic accessing via this tee-intersection and the balance routing via a second intersection connection to Watson Street.

The intersection analyses above adopt the potential development site 'total yield' for BUL 02, as set out earlier in Table 2-1. Council has identified this scenario (which represents full development of the entire site) would exceed the projected medium-term growth for Bulls and that a staged approach to re-zoning the land would be appropriate. As such, a reduced scale BUL 02 'Option B' development scenario has also been modelled capturing just that part of the site occupied by the current polo grounds and the rural lifestyle block on the eastern portion of the site, as illustrated in **Figure 7-1**, providing a total yield of 116 lots.

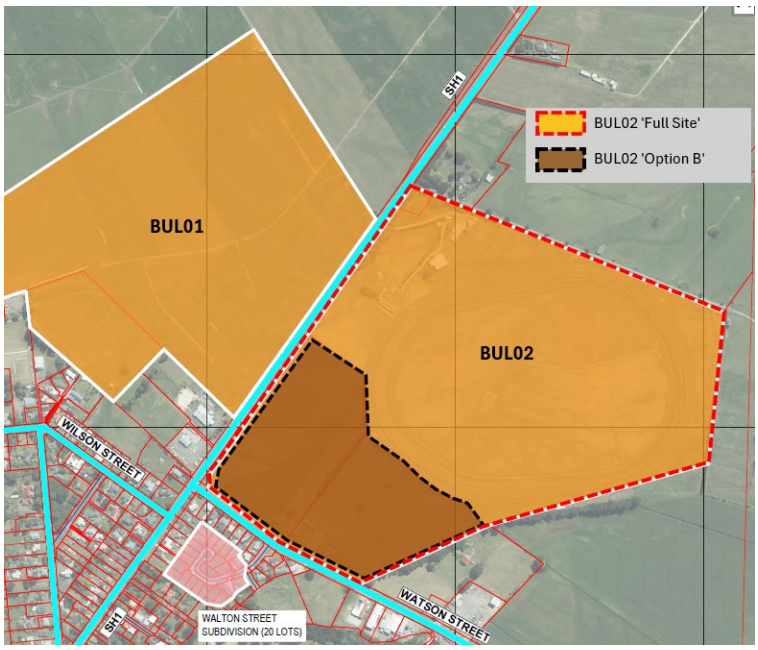


Figure 7-1: BUL 02 'Option B' Site Extent

Marton

- existing Bond Street / Broadway / Calico Line / Tutaenui Road four-way stop-control intersection: modelled using full **MAR 01** development, and then separately using a combined **MAR 01**, **MAR 02** and **MAR 07** development scenario; and
- existing Milne Street / Bond Street / Skerman Street priority tee-intersection: modelled using a combined **MAR 01**, **MAR 02** and **MAR 07** development scenario and 20% of traffic routing via Milne Street.

The assumptions adopted for the assessment can be summarised as follows:

- existing peak hour traffic volumes on the network derived from available daily counts, noting that in lieu of detailed turn count data the turning patterns have been derived from two-way approach flows and census data traffic distributions for peak period movements (described earlier in Section 5.2);
- intersections modelled with existing base flows plus 10-years background traffic growth (at 2% per annum) and growth area traffic;
- growth area traffic volumes adopted as per **Table 5-1**, and distribution patterns adopted as per Section 5.2; and
- all SIDRA parameters left as default, except for 'critical gap' and 'follow-up headway' values which have been set to the SIDRA Standard Model defaults specified in Table 5.10.6, with TWSC calibration unchecked.

The resultant Level of Service[6] (LoS) by approach and individual movement at the four intersections identified above, are reported within the tables included in **Appendix B** for the following scenarios:

- '**base**' (current estimated traffic flows);
- '**future**' (base + nearby consented subdivision + 10-years of background traffic growth); and
- '**future with growth area traffic added**'.

7.2 Modelling Results

Table 7-1 below provides an overall summary of the modelling analysis, indicating where intersections can accommodate future background growth and development traffic, and where intervention is expected to be required.

[6] Level of Service (LOS) is a six-level grading system for intersection performance (A to F), where Level A represents totally uncongested operation with minimal delays and queues, and Level F represents highly congested operation with long delays and extensive queuing

Table 7-1: Intersection Modelling Summary

Intersection	Growth Area Traffic	Modelled Scenario					
		AM Peak			PM Peak		
		Base	Future	Future + Dev	Base	Future	Future + Dev
SH1 / SH3	BUL 02 (full development)	√	√	X	√	X	X
	BUL 02 ('Option B' partial development)	√	√	√	√	X	X
SH1 / New BUL 02 access	BUL 02 (full development)	√	√	√	√	√	√
	BUL 02 ('Option B' partial development)	√	√	√	√	√	√
Bond Street / Broadway / Calico Line / Tutaenui Road	MAR 01	√	√	√	√	√	√
	MAR 01, 02, 07	√	√	√	√	√	√
Milne Street / Bond Street / Skerman Street	MAR 01, 02, 07	√	√	√	√	√	√

Further detail on the performance of the intersections is provided in turn below.

7.2.1 SH1 / SH3 Intersection

The current SH1 / SH3 priority intersection is shown by the modelling analysis to be approaching capacity, which coupled with the safety record (described earlier at Section 3.1.2) has been a catalyst for Council and NZTA reviewing the current arrangements. Under the 'future' scenario with background traffic growth, the performance of the intersection deteriorates further resulting in increased delays with the potential to lead to an increased safety risk. This indicates that, even without BUL 02 development traffic, there is a need for intervention to address a capacity and safety shortfall associated with the current arrangement.

The analysis shows that development of BUL 02 will give rise to an unacceptable outcome for this critical intersection. Noting BUL 01 provides for around 75% of lots captured under the full BUL 02 development, a similar outcome can be expected, with upgrades needed to accommodate this scale of new residential activity. By contrast, the 25 lots associated with BUL 03 would not in itself have a material impact on the performance of the SH1 / SH3 intersection.

7.2.2 SH1 / BUL 02 Site Access

From a capacity perspective a new priority tee-intersection with dedicated turn lanes on SH1 serving BUL 02 is shown to operate well in the future year with full growth area traffic added, with the critical right turn out movement operating with only modest delays during the peaks.

Whilst a tee-intersection is capable of accommodating the forecast traffic demands, consideration of the intersection location relative to the 100 / 50kph speed limit change on the Highway will be required, as well as the suitability of a roundabout in this location which could provide an improved safety outcome and also serve as a gateway to the Bulls urban area for highway traffic arriving from the north.

7.2.3 Bond Street / Broadway / Calico Line / Tutaenui Road

The modelling shows the intersection operates without any notable delays at present and continues to do so with background traffic growth added to the network. With full development of MAR 01 accessing the existing roading network via new connections to Tutaenui Road to the north, the intersection continues to operate satisfactorily, with only minor delays on the side roads.

With full development of MAR 01, 02 and 07 (comprising over 1,244 lots), the intersection shows significant delays, in particular on the Bond Street approach, indicating upgrading would be required if such a growth scenario were planned. Possible options could include a roundabout, which would likely need to allow a fully mountable design to appropriately accommodate heavy vehicle movements to/from Bond Street.

7.2.4 Milne Street / Bond Street / Skerman Street

The capacity analysis of the current tee-intersection shows it performs at LoS A on each of the approach movements even with MAR 01, 02 and 07 development traffic and forward background growth added. Notwithstanding, the current intersection geometry and high proportion of heavy vehicles using Skerman Street and Bond Street (as the heavy vehicle bypass route) means that careful consideration should be given to identifying potential safety improvements to mitigate any increase in traffic, particularly a higher right turn in movement from Bond Street associated with MAR 02 and MAR 07 development.

Noting the proximity of the adjacent property boundary to the inside of the bend, any widening to channelise turning traffic would need to be achieved on the outside and adjustment made to the 21 Street tie-in at the intersection. Even then, the available width is constrained and options for potential channelisation whilst still maintaining adequate trafficable width for associated through movements of larger trucks along Skerman / Bond Streets will need to be worked through.

7.3 Wider State Highway Intersection Review

During discussions with NZTA, a high-level review of wider State Highway intersections was requested to provide a qualitative assessment of the associated development area traffic impacts in relation to the Marton growth areas, including:

- SH1 / Calico Line
- SH1 / Makirikiri Road;
- SH1 / Wellington Road; and
- SH3 / Makirikiri Road.

Table 6-1 below provides a description of the respective intersection layouts, accident record (for the most recent complete 5-year period), along with an assessment of the relative traffic increases anticipated with the Marton North-West growth areas traffic added to the network assuming MAR 01, MAR 02 and MAR 07 are all developed. These traffic increases are based on the trip generation forecast and traffic distribution analysis described earlier at Section 5, which draws from census data and associated route choice assumptions across the wider network.

Table 6-2: Wider District State Highway Intersection Review

Intersection	Layout / Turn Lanes	Accident Record	Current Daily Traffic Volumes	Traffic Increases	
				Daily	Peak Hour
SH1 / Calico Line	Priority tee-intersection with right turn bay and short left turn slip lane on the Highway	• 1 minor injury • 3 non-injury	SH1: 5,650 Calico Line: 2,070	600	60
SH1 / Makirikiri Road	Priority tee-intersection with left turn slip lane on Highway	• 1 minor injury • 4 non-injury	SH1: 7,500 Makirikiri Rd: 2,000	600	60
SH1 / Wellington Road	Stop control tee-intersection (off-set stagger with Willis Road tee-intersection) with right turn bay and short left turn slip lane on the Highway	• 1 minor injury • 1 non-injury	SH1: 7,500 Wellington Rd: 1,400	350	35
SH3 / Makirikiri Road	Priority Tee-intersection	-	SH3: 6,750 Makirikiri Rd: 480	150	15

A review of the current crash record at these wider area connecting intersections does not indicate any existing safety issues that require mitigation, with an average of one injury crash per 5-years, and then only minor injury.

With the growth area traffic associated with the Marton North-West sites (MAR 01, MAR 02 and MAR07) added to the network, the relative traffic increases at around 10% of the total intersection volumes, are not assessed as triggering any new safety or capacity concerns at the selected intersections, which are assessed as currently performing well from a safety and capacity perspective.

7.4 Summary

The modelling analysis described above focuses on the larger yield growth areas for the two main study areas of Bulls and Marton, noting that traffic increases associated with the smaller yield sites will be low and are unlikely to trigger the need for specific network upgrades.

For those existing intersections identified above in Table 7-1 that trigger the need for improvements to established layouts to accommodate larger traffic volumes, it is anticipated that such changes will be subject to consideration through separate processes such as the LTP and collaboration with NZTA.

8 Conclusion

This report has been specifically prepared to inform the Rangitīkei District Council's Proposed Plan Change 3 (PPC3) in evaluating the related traffic and transportation needs and effects of rezoning potential growth areas across Bulls, Marton and Mangaweka. The rezoning of land within these sites from a General Rural or Rural Lifestyle zoning to one that would enable new residential activity, is needed to meet the anticipated regional population growth set out under the Council's 'Community Spatial Plan - Pae Tawhiti Rangitīkei Beyond'.

Accordingly, this ITA has considered the current and future transport environment including road network and hierarchy, road safety, multi-modal connectivity, traffic generation, and the available capacity of key intersections.

A summary of the key findings is provided below:

- some of the larger growth areas are expected to generate significant traffic volumes, particularly in Bulls and Marton. The forecast peak hour traffic generation and trip distribution has been determined to assess the impact on the existing transport network;
- the existing road networks in Bulls, Marton, and Mangaweka have been reviewed with regard to the established roading infrastructure, historic crash history, and active mode provision, highlighting areas where improvements are necessary to address existing safety concerns and accommodate increased transport demands related to new growth area activity;
- a review of indicative access arrangements has been undertaken for each site against the provisions of the Operative District Plan, to determine how appropriate roading links can be established without adversely impacting on the safe and efficient function of the transport network. Further investigation of these future roading connections and internal surface access arrangements should be advanced (potentially through development of Site-specific structure plans for larger growth areas), to ensure integrated and connected development and provide convenient access to key services and amenities;
- key network intersections in Bulls and Marton have been analysed for future performance. The assessment indicates most are capable of accommodating development from a capacity perspective, with the exception of the SH1/SH3 four-way priority-controlled intersection in Bulls for which upgrades are required to accommodate background growth even without significant new residential activity enabled by rezoning of PPC3 potential growth areas; and
- there will be a need to plan for proper integration of growth areas to facilitate and promote sustainable transport options as a 'first choice', including pedestrian and cycling infrastructure, to support active modes use and reduce reliance on private vehicle.

Drawing from the assessment herein, the rezoning and development of some sites can be achieved with little or no infrastructure improvements or upgrades, whilst others will require a level of intervention on the wider network. A summary of the scale of works needed for each growth area (in addition to establishing new site external connection intersections) is provided in **Table 8-1** below.

Table 8-1: Transport Intervention Summary by Growth Area

Growth Area(s)	Lot Yield	No works	Minor off-site improvement works	Significant off-site improvement works
BUL 01	342-391			√
BUL 02 (Full Development)	429			√
BUL 02 'Option B' (Partial Development)	116		√	
BUL 03	22-25	√		
MAR 01	591-676		√	
MAR 02	362-414			√
MAR 03	41-47		√	
MAR 04	19-22	√		
MAR 07	291-333			√
MAR 01, 02 & 07	1,244			√
MAN 01	42-48	√		
MAN 02	183-209		√	

APPENDICES

Appendix A Road Network Photographs

Photograph 1: SH3 – view south on rural section adjacent BUL 01 site frontage (on the left)

Photograph 2: SH3 – view north on urban section adjacent Flower Street

Photograph 3: SH1 – view north at town limit (50/100kph speed limit transition in distance)

Photograph 4: SH1 – view south between Wilson Street and Fagan Street

Photograph 5: Flower Street – view southeast from current road termination

Photograph 6: Flower Street – view east midway along road towards SH3

Photograph 7: Johnson Street - view east on urban section

Photograph 8: Johnson Street - view west on urban section

Photograph 9: Watson Street – view east along urban section at SH1 intersection

Photograph 10: Watson Street – view east along rural section

Photograph 11: Wilson Street – view east towards SH1

Photograph 12: Wilson Street – view west towards SH3

Photograph 13: Wanganui Road – view east adjacent MAR 01

Photograph 14: Wanganui Road – view west adjacent MAR 01 (50/80kph transition in distance)

Photograph 15: Broadway - view north

Photograph 16: Broadway – view south

Photograph 17: Calico Line – view west

Photograph 18: Calico Line – view east

Photograph 19: Bond Street – view east (from Milne Street intersection)

Photograph 20: Skerman Street – view south (from Milne Street intersection)

Photograph 21: Tutaenui Road – view north along urban section

Photograph 22: Tutaenui Road – view north along rural section (50/100kph transition in distance)

Photograph 23: Armagh Terrace – view east towards Tutaenui Road

Photograph 24: Armagh Terrace – view west towards cul-de-sac termination

Photograph 25: Milne Street – looking southeast towards the Bond Street / Skerman Street intersection

Photograph 26: Milne Street – looking west towards the cul-de-sac termination

Photograph 27: Johnston Street – looking south towards Wanganui Road intersection

Photograph 28: Johnston Street – looking north

Photograph 29: SH1 Mangaweka – view south at Raumaewa Street intersection

Photograph 30: SH1 Mangaweka – view north at Ruahine Road intersection

Photograph 31: Ruahine Road – view west to SH1 intersection

Photograph 32: Ruahine Road – view east

Photograph 33: Broadway – view north (taken west of Raumaewa Road)

Photograph 34: Broadway – view south (taken west of Raumaewa Road)

Photograph 35: Weka Street – view south towards Broadway

Photograph 36: Weka Street – view west (close to Kereru Street)

Photograph 37: Kereru Street – view north from Weka Street (southern end of Kereru Street)

Photograph 38: Kereru Street – view south towards Weka Street from unsealed section

Photograph 39: Raumaewa Road (south of SH1) – view west to highway

Photograph 40: Raumaewa Road (south of SH1) – view east towards single-lane bridge

Photograph 41: Koraenui Street – view east near the SH1 intersection

Photograph 42: Koraenui Street – view north (taken mid-way along Koraenui Street)

Appendix B SIDRA Analysis Summary

Existing SH1 / SH3 Priority Intersection

Approach	Movement	Level of Service							
		AM Peak				PM Peak			
		Base	Future	Future + Partial Dev Trips	Future + Full Dev Trips	Base	Future	Future + Partial Dev Trips	Future + Full Dev Trips
SH3 North	Left	A	A	A	A	A	A	A	A
	Through	A	A	A	A	A	A	A	A
	Right	A	A	A	A	A	A	A	A
SH1 East	Left	A	B	C	F	B	F	F	F
	Through	B	C	D	F	E	F	F	F
	Right	C	D	E	F	E	F	F	F
SH3 South	Left	A	A	A	A	A	A	A	A
	Through	A	A	A	A	A	A	A	A
	Right	A	A	A	A	A	A	A	A
High Street	Left	A	D	F	F	D	F	F	F
	Through	B	E	F	F	E	F	F	F
	Right	C	F	F	F	F	F	F	F

New SH1 Priority Tee-Intersection connection to BUL 02

Approach	Movement	Level of Service							
		AM Peak				PM Peak			
		Base	Future	Future + Partial Dev Trips	Future + Full Dev Trips	Base	Future	Future + Partial Dev Trips	Future + Full Dev Trips
SH1 North	Left	-	-	A	A	-	-	A	A
	Through	A	A	A	A	A	A	A	A
New Side Road	Left	-	-	A	A	-	-	A	A
	Right	-	-	B	B	-	-	C	C
SH1 South	Through	A	A	A	A	A	A	A	A
	Right	-	-	A	A	-	-	A	A

Bond Street / Broadway / Calico Line / Tutaenui Road

Approach	Movement	Level of Service							
		AM Peak				PM Peak			
		Base	Future	Future + Dev Trips MAR 01	Future + Dev Trips MAR 01, 02 & 07	Base	Future	Future + Dev Trips MAR 01	Future + Dev Trips MAR 01, 02 & 07
Tutaenui Road	Left	A	A	A	A	A	A	A	A
	Through	A	A	A	A	A	A	A	A
	Right	A	A	A	A	A	A	A	A
Calico Line East	Left	A	A	B	B	A	A	A	B
	Through	A	A	C	C	A	A	B	C
	Right	A	A	C	C	A	B	C	C
Broadway South	Left	A	A	A	A	A	A	A	A
	Through	A	A	A	A	A	A	A	A
	Right	A	A	A	A	A	A	A	A
Bond Street West	Left	A	A	A	C	A	A	A	B
	Through	A	A	C	D	A	A	B	C
	Right	A	A	C	E	B	B	C	C

Milne Street / Bond Street / Skerman Street

Approach	Movement	Level of Service (Delay – secs)					
		AM Peak			PM Peak		
		Base	Future	Future + Development Trips	Base	Future	Future + Development Trips
Milne Street north	Left	A	A	A	A	A	A
	Right	A	A	A	A	A	A
Bond Street east	Through	A	A	A	A	A	A
	Right	A	A	A	A	A	A
Skerman Street south	Left	A	A	A	A	A	A
	Through	A	A	A	A	A	A

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Stantec New Zealand

Level 3, 2 Hazeldean Road
Addington, Christchurch 8024
NEW ZEALAND
Mail to: PO Box 13052, Christchurch 8140
stantec.com