Proposed Plan Change
338 Rodney Street, Wellsford

Integrated Transportation Assessment Report

29 May 2023

4 Leek Street, Newmarket
PO Box 128259, Remuera 1541, Auckland
Ph. 09 869 2825
www.commute.kiwi

Project:	338 Rodney Street, Wellsford
Report title:	Integrated Transportation Assessment Report
Document reference:	J001980 338 Rodney Street, Wellsford ITA final v6 230529
Date:	29 May 2023

Report Status	Prepared By	Reviewed By	Approved By
Final report	Rachel Gasson	Mike Nixon	Leo Hills

Table of Contents

1 INTRODUCTION

Commute Transportation Consultants (Commute) has been engaged to prepare an Integrated Transport Assessment (ITA) Report for a proposed plan change (PPC) for the land at 338 Rodney Street, 11 Wi Apo Place and 26 Batten Street, Wellsford (referred to as the 'site').

Approximately half of the site is currently zoned as Future Urban Zone in the Auckland Unitary Plan Operative in Part 15 November 2016 (Unitary Plan). The southern portion is zoned Rural – Countryside Living Zone in the Unitary Plan and the northern portion is zoned Rural - Rural Production zone.

The proposal seeks a Private Plan Change to rezone the land for residential development plus a small area of supporting retail. For the Future Urban Zone portion, this is ahead of the anticipated timeframe outlined in the Auckland Council Future Urban Land Supply Strategy which is scheduled for decade one second half, 2023-2027. More specifically, the proposal involves the rezoning of the total plan change area to approximately:

- 39.64 ha Residential – Single House (SH) zone;
- 5.87 ha Residential – Mixed Housing Suburban (MHS) zone;
- 17.04 ha Residential – Large Lot zone;
- 0.89 ha Business – Neighbourhood Centre (NC) zone; and
- 11.56 ha Rural – Countryside Living (RCL) zone.
- Total land area subject to the plan change - 75 ha

The rezoned land is anticipated to be developed to provide some 650-800 dwelling units and 2,500 m^2 retail. Vehicle access to the development is proposed to be via a new intersection on Rodney Street, with a secondary access proposed on Monowai Street.

In parallel to this plan change and structure plan, a fast track application is being made to the Minister with the intent of developing 87 dwellings under the COVID-19 Recovery Fast-track Consenting Act 2020 (19 dwellings off Monowai Street and 68 dwellings off the new Rodney Street intersection). The traffic effects of these dwellings has been assessed as an initial stage, referred to as "Fast Track".

The full Structure Plan area (the Plan Change Area plus a number of additional lots) is to provide some 1,000 residential dwellings and is referred to as Stage 2. The plan change area occupies majority of the structure plan area and therefore majority of the density will be located within the proposed plan change. It is anticipated that the new intersection on Rodney Street will also be the primary access for the full structure plan area.

Key transportation considerations of the PPC are:

- Compatibility with neighbouring land uses;
- The accessibility of the site to various modes of transport; and
- The ability of the surrounding road network to safely and efficiently accommodate traffic generated by potential development.

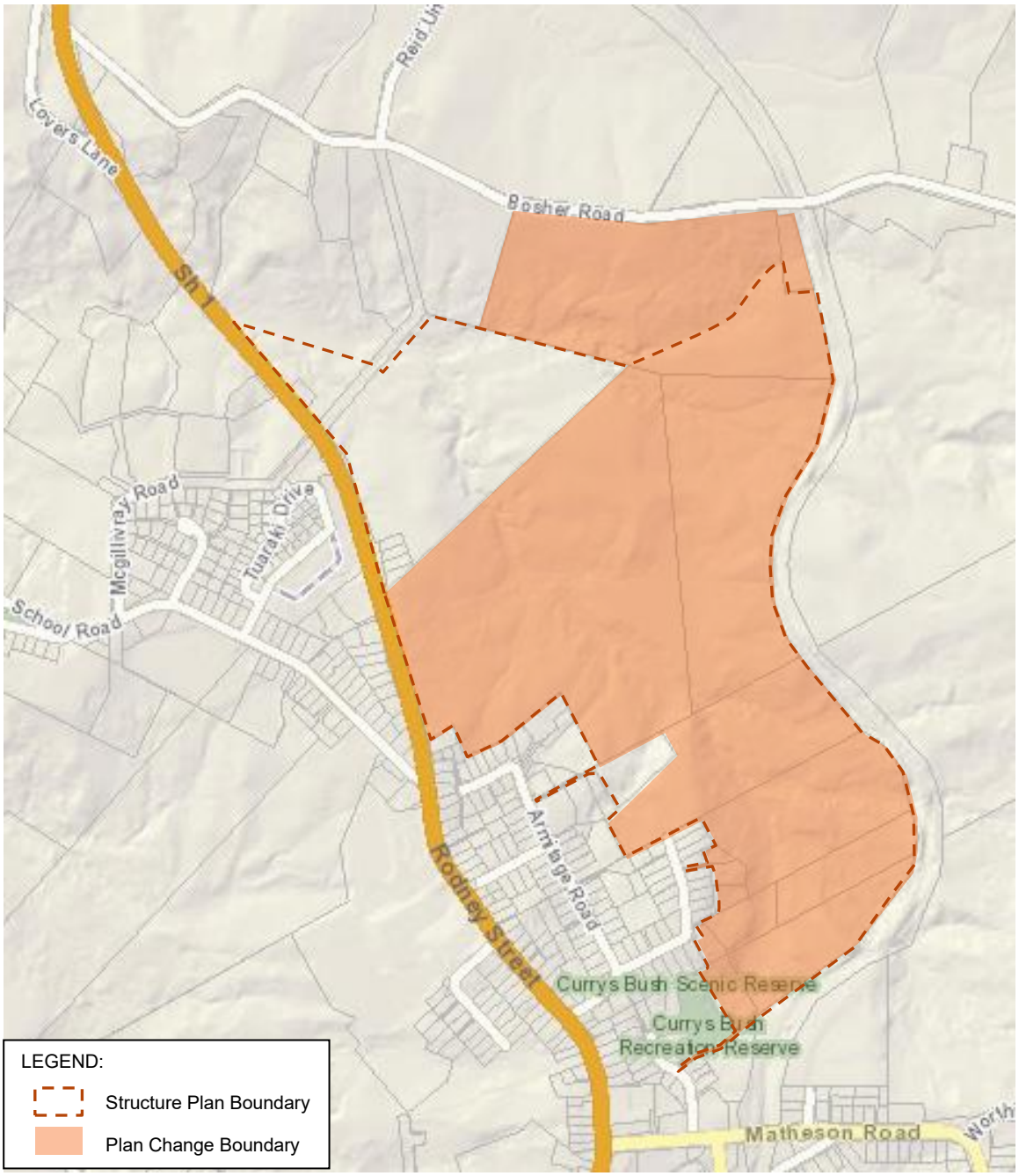
These and other transportation issues will be addressed in this report. By way of summary, the Wellsford North Street PPC is considered to be broadly in accordance with the Future Urban Land Supply Strategy for the area. It is noted that the PPC is consistent with the proposed Structure Plan which is being prepared in parallel.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION

Figure 2-1 shows the location of the Structure Plan area and Plan Change area in relation to the surrounding environment.

Figure 2-1: Site Location



The plan change area is made up of the following properties, listed in Table 2-1.

Table 2-1: Plan Change Property Data

Property Address	Legal Description	Size
Wellsford Welding Club owned sites		
338 Rodney St, Wellsford	Pt Allot SE118 Psh Of Oruawharo	24.8 ha
Pt Allot 117 SO 22925, SH1	Pt Allot 117 Psh Of Oruawharo SO 22925	11.9 ha
Pt Lot 4 DP 9919, Monowai St	Pt Lot 4 DP 9919	6.7 ha
Pt Lot 2 DP 26722, Monowai St	Pt Lot 2 DP 26722	5.8 ha
Pt Sec 25 DP 9682, Monowai St	Pt Sec 25 Blk XVI Otamatea Survey District DP 9682	2.1 ha
Southern Sites		
18 Monowai St, Wellsford	Lot 2 DP 152849	0.28 ha
20 Monowai St, Wellsford	Lot 1 DP 152849	0.15 ha
2 Monowai St, Wellsford	Lot 18 DP 47752	0.25 ha
26 Batten St, Wellsford	Lot 2 DP 179213	0.92 ha
22 Batten St, Wellsford	Lot 1 DP 179213	0.26 ha
15 Wi Apo Pl, Wellsford	Lot 22 DP 85114	0.81 ha
11 Wi Apo Pl, Wellsford	Lot 23 DP 85114	3.41 ha
Northern Sites		
96 Bosher Rd, Wellsford	Lot 1 DP 69586	15.1 ha
136 Bosher Rd, Wellsford	Pt Allot 117A Psh Of Oruawharo SO 7143	0.57 ha
Total Site Area		
-	-	72.1 ha

The surrounding area includes a mix of rural farmland, a small local centre, and residential. Rodney Street is part of the State Highway network (SH1), and is located to the west of the site, while the Northland Rail Line is located on the eastern side of the site. Figure 2-2 shows a recent aerial photograph of the site and surrounding environment.

Figure 2-2: Recent Aerial Photograph of Site and Surrounding Environment

The site is proposed to have a total of two connections (intersections) to the existing road network, with one located on Monowai Street and the other located on Rodney Street.

2.2 EXISTING ROAD ENVIRONMENT

2.2.1 RODNEY STREET

Rodney Street, also identified as SH1, is classified as an Arterial Road in the Unitary Plan, and a National Road in the Waka Kotahi One Network Road Classification Map. In

the vicinity of the site, Rodney Street has an approximate carriageway width of 11 metres, accommodating one traffic lane in each direction.

The site is located on the fringe of Wellsford Town Centre, which is also reflected in the road environment. Just south of where the site fronts Rodney Street the posted speed limit changes from 50 km/hr through the Town Centre, to 70 km/hr for the State Highway. The western side of the road has been developed with residential dwellings, and has a formal kerb and channel, berm and footpath. The eastern side is generally undeveloped through the plan change area and has a 1.5 m shoulder lane.

Photograph 1 shows Rodney Street fronting 338 Rodney Street, legal site Pt Allot SE118 Psh Of Oruawharo.

Photograph 1: Rodney Street Typical Layout

2.2.2 MONOWAI STREET

Monowai Street is not classified as an arterial road in the Unitary Plan. It is currently 200 m long, connecting Batten Street in the south and terminating with a cul de sac in the north, and has a speed limit of 50 km/h.

Monowai Street has an approximate carriageway width of 7 metres, accommodating one traffic lane in each direction. On street parking is permitted on both sides of the road, and there is a footpath on the eastern side of the road.

Photograph 2 shows the typical layout of Monowai Street.

Photograph 2: Monowai Street Typical Layout

2.2.3 BATTEN STREET

Batten Street is not classified as an arterial road in the Unitary Plan. It connects Monowai Street with Rodney Street, and has a posted speed limit of 50 km/hr. Batten Street has an approximate carriageway width of 7 metres, accommodating one lane of traffic in each direction, and permits kerbside parking on both sides of the road. There is a footpath along the southern side of Batten Street, as shown in Photograph 3.

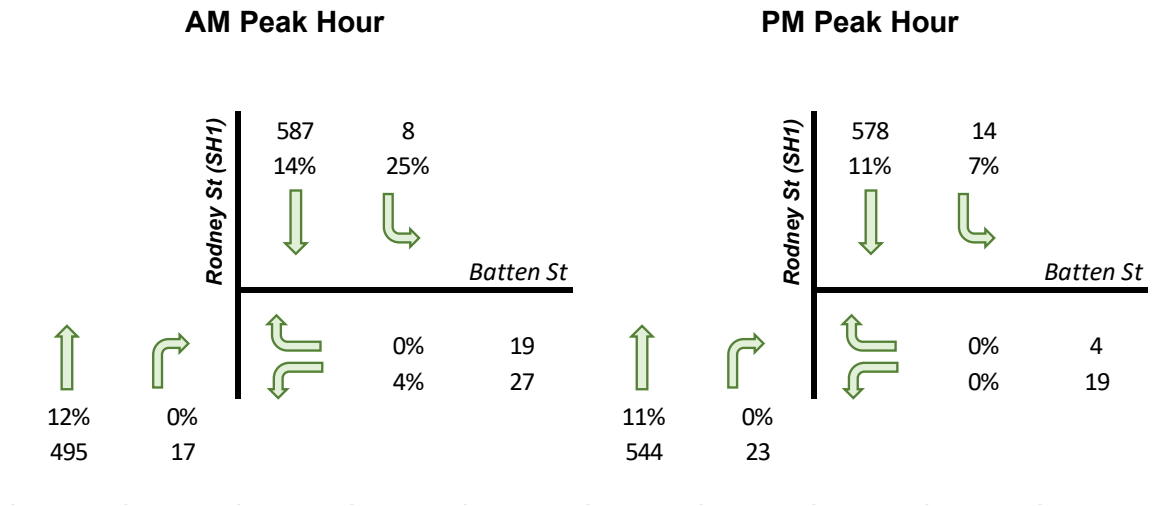
Photograph 3: Batten Street Typical Layout

2.3 CURRENT TRAFFIC VOLUMES

Traffic surveys were undertaken at the intersection of Batten Street and Rodney Street on Wednesday June 2 2021. The weekday peak hours were found to be 8:00-9:00 AM and 2:45-3:45 PM. These peak hours are of the State Highway and are thought to reflect the school travel peak. It is noted that these same volumes have been used for the future analysis which is considered conservative, particularly for the afternoon peak hour with the development peak hour likely to be later than the school peak hour in the afternoon.

Figure 2-3 shows the turning movement counts for the morning and afternoon peak hour respectively.

Figure 2-3: Turning Movement Vehicle Volumes at Batten Street / Rodney Street Intersection



Note: Percentage values represent HCVs

The traffic counts provided in Figure 2-3 show the two-way vehicle volumes on Rodney Street are in the order of 11,000 – 12,000 vehicles during the morning and afternoon peak hour. The two-way vehicle volumes on Batten Street are low, with the survey recording less than 100 vehicles during the morning and afternoon peak hour respectively.

A review of the Waka Kotahi State Highway vehicle tube counts was also undertaken, which shows the 7-day average daily traffic (ADT) volume on Rodney Street to be 11,836 including 8.6% heavy commercial vehicles. The peak hour is typically approximately 10% of the ADT and therefore the tube counts and traffic counts validate the other respective data set. It is noted that the heavy vehicle volume is high, which is likely to be a result of the corridors strategic function being part of the State Highway network.

It is noted that the traffic surveys undertaken by Commute occurred when COVID-19 restrictions were in place, however workplaces were allowed to operate. To understand how the counts relate to historic data, the Average Annual Daily Traffic (AADT) Volumes on SH1 were extracted from the Waka Kotahi count database, summarised in Table 2.

Table 2: AADT Volumes for the past 5 years

Year	Average Annual Daily Traffic	Source
2016	13,300	Waka Kotahi Counts
2017	14,300	
2018	14,400	
2019	14,900	
2020	11,800	
2021	11,150	
2022	13,800	

The data shows there has been a drop in traffic on SH1 since the COVID-19 lockdowns and restrictions, shown by the lower counts in 2020 and 2021. To better understand the 2021 data, the vehicle volumes when Auckland was at Alert Levels 3 and 4 (travel largely prohibited) was removed from the annual average count (two lockdowns in March plus the extended lockdown from August to December).

The data set without the COVID-19 lockdowns shown the AADT to increase to 14,600, which is more aligned with the pre-covid data. Furthermore, the ADT for the week of the survey was 14,512 which is well aligned with the covid adjusted AADT. As such, it is considered that the data collected in June captures an appropriate base case, that is a base case where vehicle volumes are not atypical due to COVID-19.

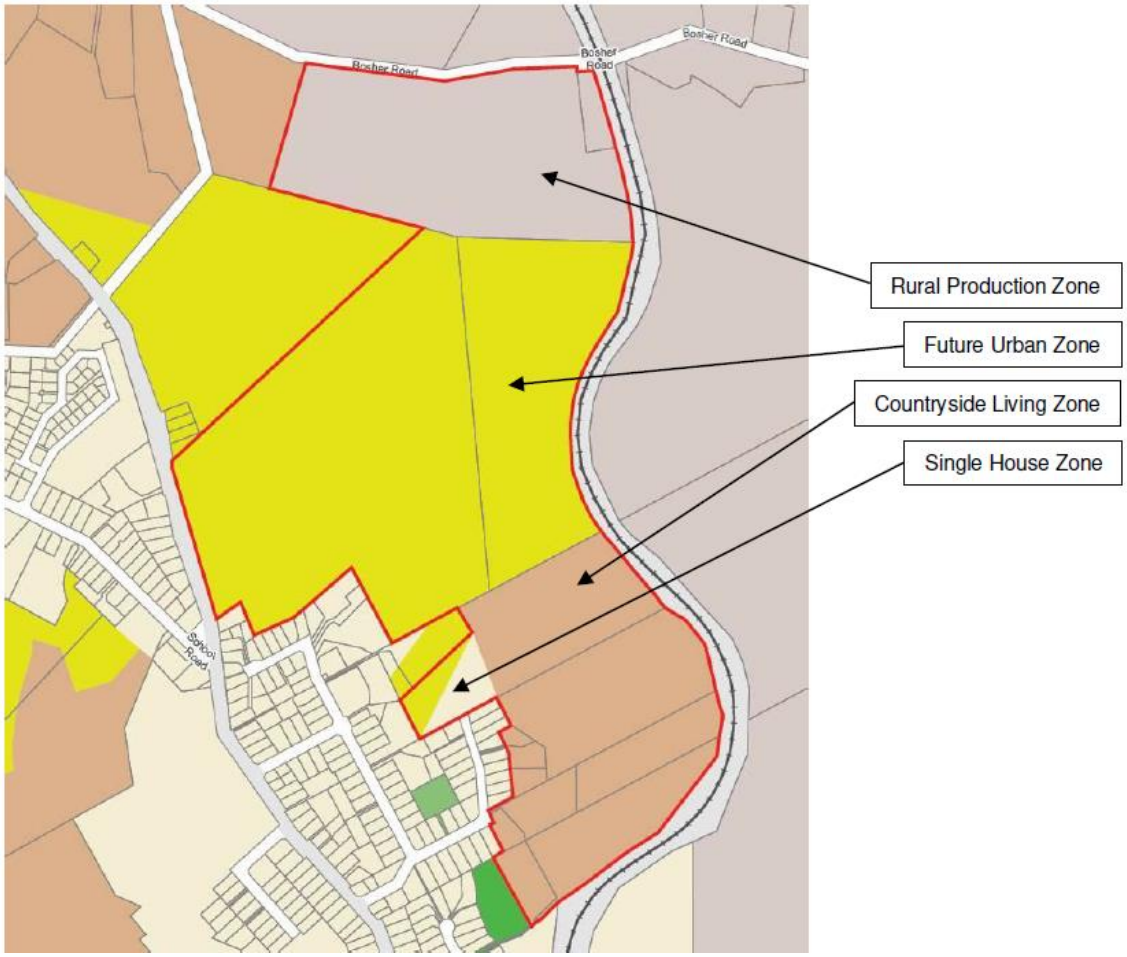
No traffic data is available for Monowai Street, however given this road feeds Batten Road it is assumed that this road carries less traffic than Batten Road (less than 100 vph and less than 1,000 vpd).

2.4 CURRENT ZONING

The existing Unitary Plan Zoning for the site is shown in Figure 2-4. The yellow zoning represents ‘Future Urban Zone’, while the brown zoning represents ‘Rural – Countryside Living Zone’ and the beige represents ‘Residential - Single House Zone’.

There is estimated to be approximately 37.2 Ha of ‘Future Urban Zone’, 25 Ha of ‘Rural – Countryside Living Zone’, 4.0 Ha of Rural – Rural Production Zone, and 0.9 Ha of ‘Residential - Single House Zone’ within the subject site.

Figure 2-4: Site Existing Zoning



2.5 SITE ACCESSIBILITY

2.5.1 PRIVATE VEHICLES

The site is well located with regards to road connectivity to the wider Auckland Region. The structure plan area and plan change area are located in Wellsford, approximately 1.5 kilometres north of the town centre. It has frontage to Rodney Street which is part of the state highway network and therefore connects directly into the strategic road network.

SH1 provides the primary connection between Wellsford and Auckland. This corridor also connects to Albany Metropolitan Centre and Warkworth Town Centre, which are anticipated to be attractions for residents of the plan change site.

Travel times between the site and these key attractions are inconsistent, with typical off-peak and peak period travel times shown in Table 2-3. These travel times assume drivers choose to travel through the Johnstones Hill Tunnels, which are the toll road route.

Table 2-3: Travel Times Between the Site and Key Attractions

Origin/Destination	Distance	Off-peak Travel Time	During-peak Travel Time
Site (Wellsford) – Warkworth	20 km	20 - 30 minutes	25 - 35 minutes
Site (Wellsford) – Albany	60 km	45 - 60 minutes	1 - 1.5 hours
Site (Wellsford) – Auckland City	80 km	1 - 1.25 hours	1.5 - 2 hours

It is also of note that Waka Kotahi are in the process of constructing a new State Highway between Puhoi and Wellsford, a Road of National Significance. Stage 1 of this project includes extending the four lane Northern Motorway from Johnstone's Hill tunnels to just North of Warkworth, improving safety and reliability while also promoting economic growth. This stage is currently under construction and is scheduled to be open to motorists by the middle of 2022.

Stage 2 of the project is from Warkworth to Wellsford, for which Waka Kotahi are working towards securing land designation and resource consents for. This second part of the project is currently within the investigation stage, with the new corridor planned to tie into State Highway 1 north of Wellsford, bypassing Wellsford. As such, this project will redirect vehicle traffic away from Rodney Street in the vicinity of the site, which will improve travel times between Warkworth, Wellsford and Te Hana, reduce heavy traffic past the plan change area, reduce regular congestion through Wellsford main street, and improve resilience.

2.5.2 PUBLIC TRANSPORT

One public bus service is provided in Wellsford, Service 998, which connects Wellsford Town Centre to Warkworth Town Centre. This service takes approximately 25 minutes and operates hourly seven days a week.

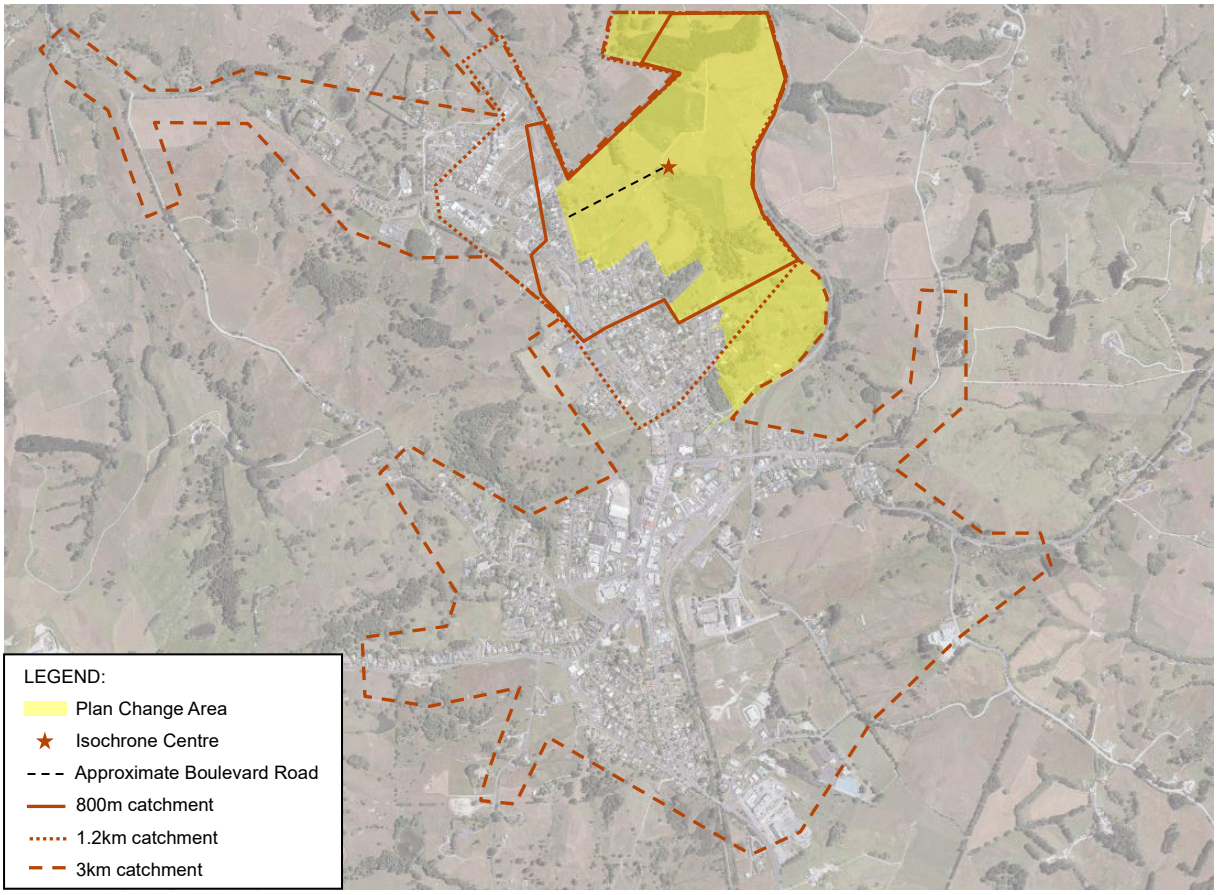
The bus leaves from Station Road, with the bus stop located approximately 1 km from the Monowai Street access to the site and 1.3 km from the centre of 338 Rodney Street.

2.5.3 WALKING

Using a practical walking distance of 1.5 kilometres and the 15th percentile walking speed of a typical fit, healthy adult of 1.2 m/s, gives a journey time of approximately 20 minutes. This is generally in line with New Zealand data in the Pedestrian Planning and Design Guide, which states that for walking trips, half are more than 10 minutes and 18% are more than 20 minutes.

The primary catchment area for pedestrians has therefore been based on a 1.5-kilometre walking distance from the site as shown in Figure 2-5 below.

Figure 2-5: Walking Catchment



As shown above, the Wellsford Centre is within walking distance of the site, particularly from the southern end of the site. This provides access to retail, the Community Centre, Wellsford Library, and other community facilities. In addition to the town centre, the Station Road bus stops, Centennial Park, Wellsford School and Rodney College are within walking distance of the site.

An underpass is provided under Rodney Street at the end of Tobruk Road providing a safe pedestrian and cyclist route. This underpass connects into Rodney College, and therefore provides a safe crossing for college students. Notwithstanding this, the underpass is also well located for students of Wellsford School and the general public with the nearest crossing located approximately 1 km to the south. Overall, the site is considered to be well connected to future neighbouring activities.

Currently, the pedestrian facilities nearby are varied, however there is generally a footpath on one side of the road where there is a connection to commercial and community facilities. In some locations there are footpaths on both sides of the road, such as Rodney Street through the town centre, and in some locations there are no footpaths, such as Rodney Street north of the subject site.

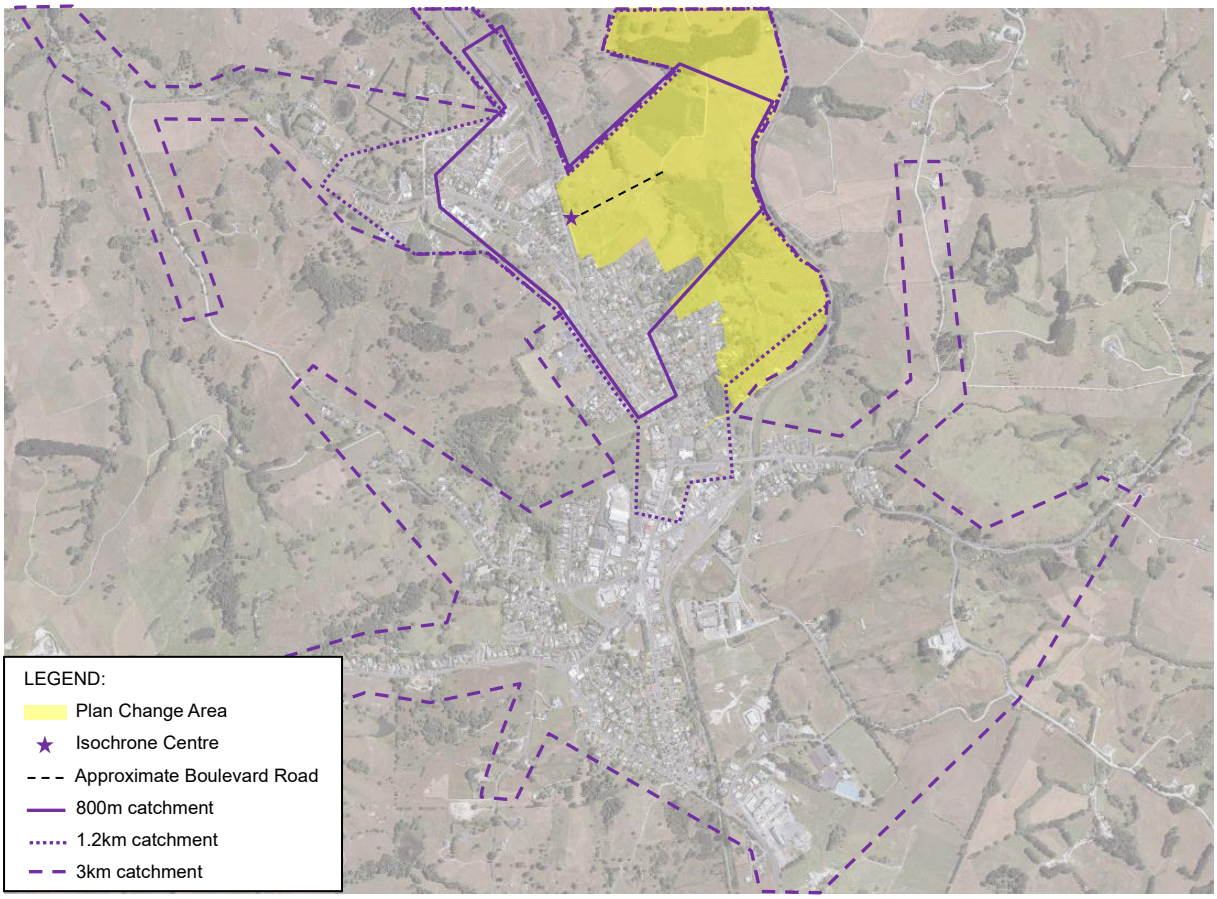
2.5.4 CYCLING

The Auckland Regional Cycle Network does not classify any of the roads within Wellsford as cycle routes. Given the sites location in a semi-rural area, bounded by the State Highway and the railway line, there are limited cycling routes available. This said,

the speed limit through the town centre is 50 km/hr and therefore cycling could be used as a mode of transport between the site and local attractions within the town centre area. Furthermore, as mentioned above, there is an underpass connection beneath Rodney Street which connects Tobruk Road to Rodney College providing a safe crossing facility for cyclists.

Based on NZTA's Research Report 426, the average cycling trip length is approximately 3 kilometres. Figure 2-6 shows an indicative cycling catchment for the site.

Figure 2-6: Cycling Catchment Area



As shown above, a lot of the catchment area is rural farmland. The town centre and local industrial zone are both located within the and therefore are within reasonable cycling distance of the site.

As a result, the site is considered to offer cycling connectivity to a wider range of residential, employment, education, recreational and commercial activities. It is however noted that there are no existing dedicated cycling facilities in the vicinity of the site.

2.6 ROAD SAFETY

2.6.1 INITIAL ASSESSMENT

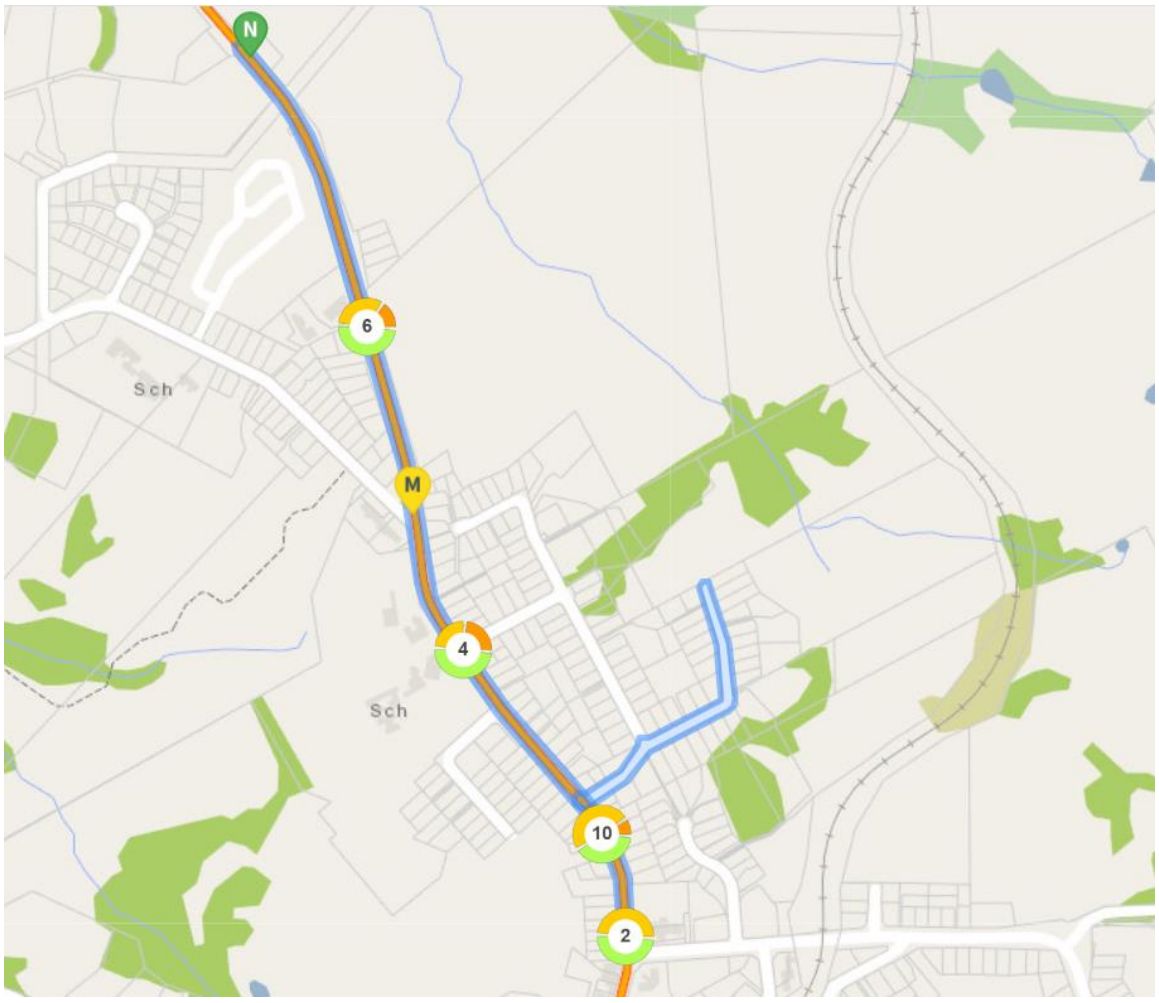
An assessment of the surrounding area's safety record has been carried out using Waka Kotahi's CAS database for crashes occurring within the designated study area between

2016 and 2020, as well as any crashes entered in the database for 2021. The study area comprises the following:

- Rodney Street from 59 McGillivray Road 84 Golding Road to Matheson Road;
- Batten Street between Rodney Street and Monowai Street; and
- Monowai Street along its length.

A total of 24 crashes were recorded within the search criteria as shown in Figure 2-7. The green represents non-injury crashes, the light orange represents minor injury crashes and the dark orange represents serious crashes.

Figure 2-7: Crash Location and Severity Map



All of the recorded crashes occurred on the State Highway network, with no crashes shown midblock on Monowai Street or Batten Street.

Figure 2-8 shows the crash classifications in a collision diagram. For ease of reading, the non-injury crashes are shown on the left side of Rodney Street, while the minor-injury and serious crashes are shown on the right side.

Figure 2-8: Collision Diagram

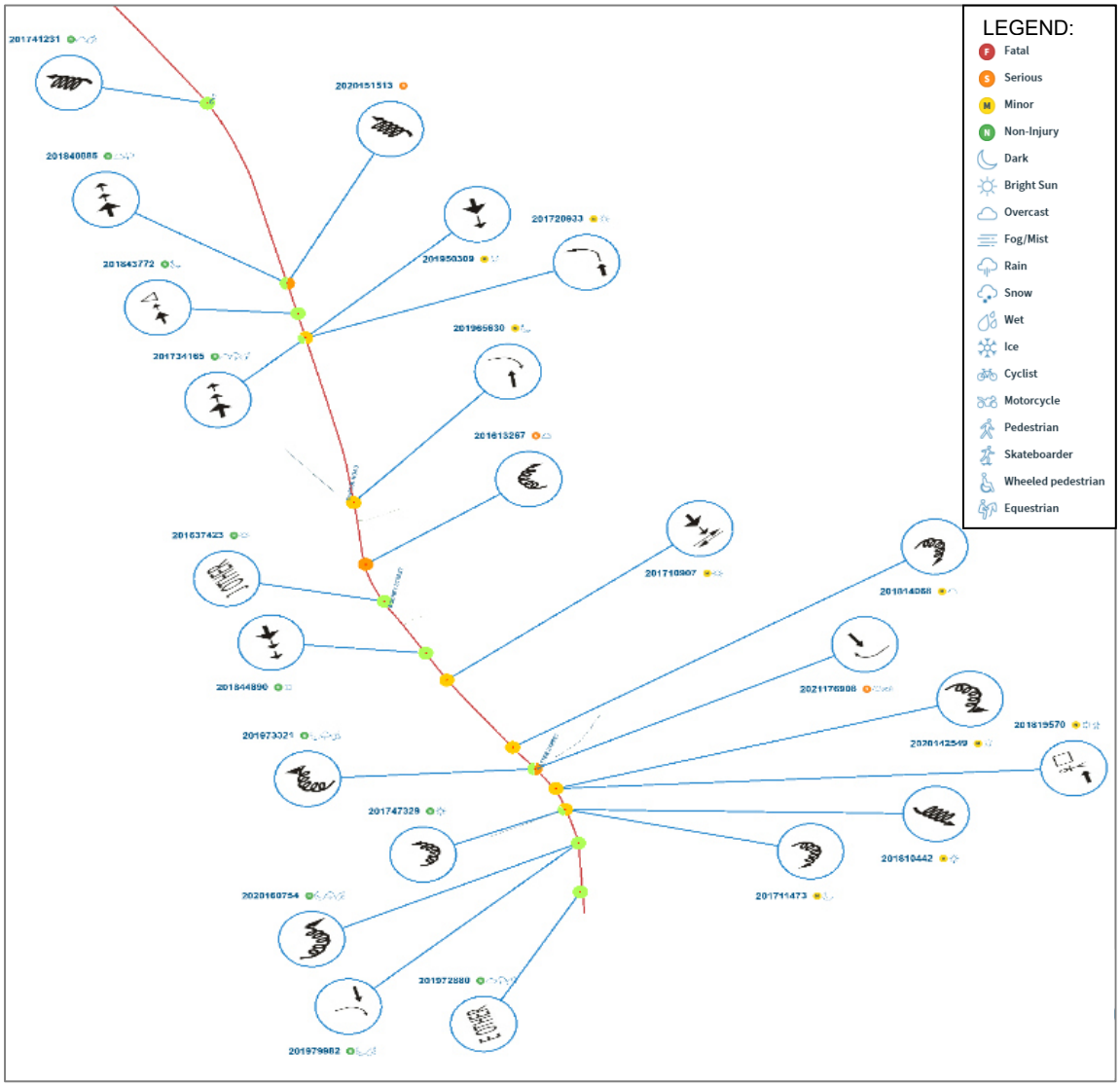


Table 2-4 summarises the reported crashes based on severity.

Table 2-4: Historic Crash Summary

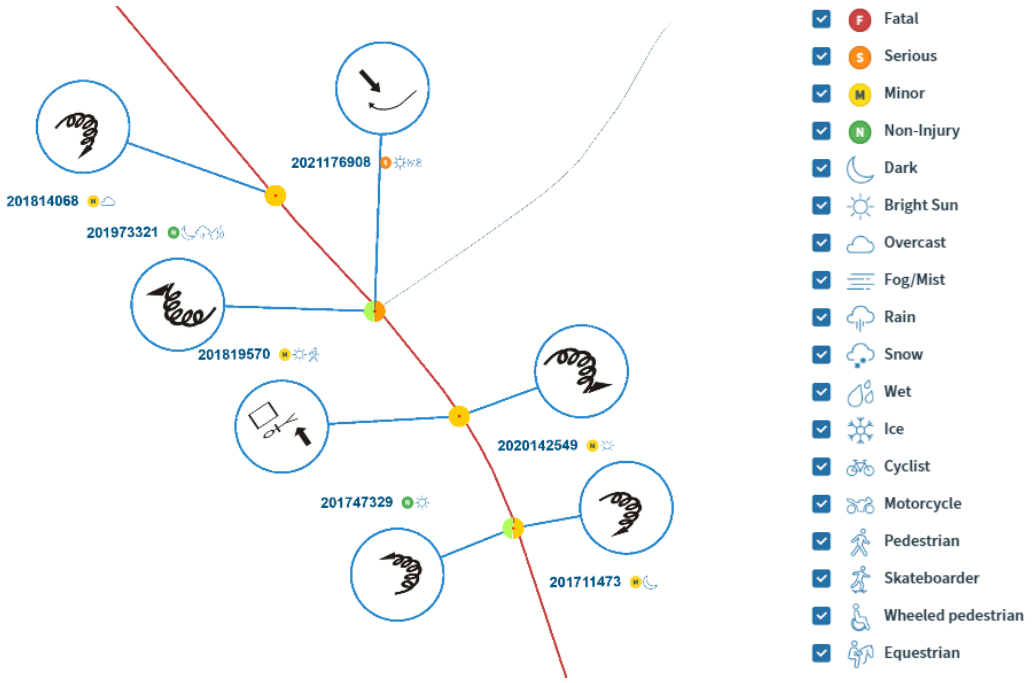
Severity	No. of crashes	Crash Details
Serious	3	• 2 loss of control crashes • 1 right turn crash at the intersection of Rodney Street and Batten Street • Alcohol was suspected/tested positive at all three crashes
Minor	10	• 4 loss of control crashes • 2 rear end crashes and 2 turning crashes • 1 pedestrian crash and 1 head on • 1 turn crash occurred at the intersection of Rodney Street and Batten Street and the other was at a driveway • Fatigue was a common factor across the crashes
Non-Injury	11	• 5 loss of control crashes • 4 rear end crashes • 1 merging crash and 1 turning crash, both at driveways • Fatigue and following too close were common factors across the crashes

A considerable number of loss of control crashes were reported, which is not uncommon on the State Highway network. Given that alcohol and fatigue were commonly reported as factors of the crashes, and that the crashes scattered through the study area, these crashes are typically challenging to address through design measures only.

2.6.2 SUBSEQUENT ASSESSMENT

In response to a query received from Council, an updated CAS search has been undertaken, with the search area including 100 m radius around the intersection of Batten Street and Rodney Street for 2017-2021, as well as any crashes entered for 2022. A total of 7 crashes occurred within the search criteria as shown in Figure 2-9. These included 1 serious crash, 4 minor injury crashes, and 2 non-injury crashes.

Figure 2-9: Collision Diagram



The serious crash involved a rubbish truck, a passenger vehicle, and a motorcycle. The rubbish truck was travelling southbound on Rodney Street and indicating to turn left into Batten Street. The motorcycle reacted to the rubbish truck turning and went to overtake the truck just north of the intersection. Simultaneously, a car was waiting to turn right out of Batten Street and undertook the turn as they understood the rubbish truck was turning left. This crash is considered an anomaly and occurred as the result of the motorcycle overtaking on double yellow lines.

Majority of the crashes (5/7) were loss of control crashes on Rodney Street. Many drivers were reported to have fallen asleep at the well, as stated in the ITA.

The one last crash was a minor injury crash and involved a vehicle sideswiping a car as the driver of the parked car was about to enter the car. Similar to the serious injury crash, this crash is considered to be an anomaly.

Crash Prediction Assessment

A crash estimation assessment has been undertaken using Waka Kotahi's Crash Estimation Compendium. This guideline has a prediction model for the right-turn out of the minor street, and the right turn into the minor street, with the key parameters between the exiting and future scenarios summarised in Table 5.

Table 5: Waka Kotahi Crash Prediction Parameters for the Rodney Steet / Batten Street intersection

Variable	Existing	Future
Right-turning flow from minor road in veh/day	125	400
Right-turning flow from major road in veh/day	200	900
Through vehicle flow along major road to left of minor road in veh/day (NB)	5,500	10,000
Through vehicle flow along major road to right of minor road in veh/day (SB)	6,000	10,000
Crash rate per year (RT from minor road)	0.03	0.03
Crash rate per year (RT from major road)	0.07	0.15

As shown in Table 5, the predicted crash rate per year for the right turn out does not change between the existing and future scenarios. The right turn in has a higher volume and a higher predicted crash rate under the existing condition. This predicted crash rate doubles between the existing and future scenarios, increasing from one injury crash every 14-15 years to one injury crash every 6-7 years.

3 PLANNING POLICY

3.1 GENERAL

The following section provides a review of established policy and plans in relation to the proposed development. The review focuses on the transportation components of the following documents:

- Auckland Plan 2050;
- Auckland's Climate Plan;
- Auckland Regional Land Transport Plan;
- Auckland Transport Alignment Project 2021-2031
- Auckland Regional Public Transport Plan 2018-2028;
- Auckland Unitary Plan Operative in Part Version (referred to as the 'Unitary Plan' in this report);
- Auckland Design Manual 2014;
- Auckland Transport Design Manual;
- Future Urban Land Supply Strategy; and
- Wellsford Greenways Plan.

3.2 AUCKLAND PLAN 2050

The Auckland Plan 2050 sets the direction for how Auckland will grow and develop over the next 30 years. It responds to the key challenges we face today – high population

growth, sharing prosperity among all Aucklanders, and reducing environmental damage. The key transport related outcome is detailed below:

"Aucklanders will be able to get where they want to go more easily, safely and sustainably".

The Auckland Plan 2050 details seven focus areas in order to achieve this outcome:

- Make better use of existing transport networks;
- Target new transport investment to the most significant challenges;
- Maximise the benefits from transport technology;
- Make walking, cycling and public transport preferred choices for many more Aucklanders;
- Better integrate land-use and transport;
- Move to a safe transport network, free from death and serious injury; and
- Develop a sustainable and resilient transport system.

It is considered that the proposed development to provide additional housing in close proximity to Wellsford town centre aligns well with these focus areas as it makes best use of existing corridors and infrastructure. The project will also result in upgrades to these corridors which will improve safety and provide for alternative modes.

3.3 AUCKLAND'S CLIMATE PLAN

Published in December 2020, the Auckland's Climate Plan outlines the City's strategic plans and goals to work towards a region that is resilient and well connected to the environment. One of the primary targets of the plan is to halve the regions emissions by 2030 and to achieve net zero emissions by 2050.

The plan highlights that transportation is the single biggest contributor to emissions in Auckland, accounting for nearly 44% of all emissions in the region. To reduce transportation related emissions, the plan outlines the following targets:

- Reduce private vehicle kilometres by 12% through avoided motorised travel such as remote working;
- Increase in public transport usage from 7.8% in 2020 to 24.5% in 2030, and 35% in 2050;
- Increase in cycling as a mode of travel from 0.9% in 2020 to 7% in 2030, and 9% in 2050;
- Increase in walking as a mode of travel from 4.1% in 2020 to 6% in 2030;

The subject PPC land forms an extension of Wellsford; a rural town north of Auckland. The Plan Change area is currently zoned Future Urban and therefore has already been identified by Council as being appropriate for urbanisation through its Future Urban zoning.

Therefore, in respect of how the proposed zone and precinct provisions will facilitate urban development that achieves reduced vehicle use:

- The Plan Change proposes a comprehensive and integrated development over a large land holding that is contiguous with existing urban development. This scale of development will enable social amenities such as open spaces, ecological corridors and a village centre to be established. This creates opportunities for residents to live and work closer to home, thereby reducing the need for travel to

nearby centres for both residents of the existing settlement and future residents within the Plan Change area;

- Wellsford is currently a small rural town which limits the ability to provide public transport facilities. The Plan Change will increase the size of the town which increases the likely feasibility to provide public transport; and
- The Plan Change will result in a street network that provides for walking and cycling infrastructure, as well as improving connectivity to the existing settlement.

In summary, the proposed structure plan and plan change will provide housing within walking and cycling distance of Wellsford Town Centre, and therefore is considered aligned with Auckland's Climate Plan as it provides resilient land use where residents have travel choice options available.

3.4 AUCKLAND REGIONAL LAND TRANSPORT PLAN (RLTP) 2021 – 2031

The Auckland Regional Land Transport Plan (RLTP) forms part of the National Land Transport Programme and represents the combined intentions of Waka Kotahi (formerly the NZ Transport Agency), Auckland Transport (AT), and KiwiRail to respond to growth and other challenges facing Auckland in the next 10 years.

Wellsford is located at the northern extent of the Auckland region, and as such many of the projects identified in the RLTP are located south of Wellsford. Notwithstanding this, local to Wellsford is the Dome Valley Safety Improvements project which is currently under construction. This project involves upgrading SH1 between Warkworth and Wellsford, improving the safety of the corridor for this key connection.

The proposed development is considered to be compatible with the surrounding transport environment and offers alternatives to the private vehicle by providing residential development close to Wellsford Town Centre.

3.5 AUCKLAND TRANSPORT ALIGNMENT PROJECT (ATAP) 2021 – 2031

On 12 March 2021 the Minister of Transport, released the ATAP 2021-2031 programme that invests around $31.4 billion into critical transport infrastructure and services around Auckland. It focuses on encouraging the shift from private cars to public transport, walking and cycling and addressing Auckland's longer-term challenges of climate change and housing development.

The proposed structure plan and plan change will help address Auckland's housing challenges once the area has been developed, by providing additional housing supply. Furthermore, the plan change area is located within walking distance of a couple of schools as well as Wellsford Town Centre. As such, the proposed plan change allows for additional residential development within walking distance of community amenities, and therefore providing the opportunity for walking to be used as a mode of transport.

3.6 AUCKLAND REGIONAL PUBLIC TRANSPORT PLAN (RPTP)

The Auckland Regional Public Transport Plan 2018 – 2028 (RPTP) seeks to deliver an improved public transport network in Auckland by increasing public transport frequency along key transport corridors.

The vision of the RPTP is to "*provide Auckland with seamless end-to-end customer journeys that are safe, accessible and reliable*". To achieve this vision, the RPTP features four focus areas:

1. Expanding and enhancing rapid and frequent networks;
2. Improving customer access to public transport;
3. Improving Māori responsiveness; and
4. Harnessing emerging technologies.

Locating additional density near Wellsford Town Centre improves the feasibility of both existing and potential future public transport services. Currently there is a bus service provided between Wellsford Town Centre and Warkworth Town Centre, which could be improved if demand for public transport was to increase as a result of the additional density.

3.7 AUCKLAND UNITARY PLAN

The Auckland Unitary Plan Operative in part has the following objectives with regard to the region's transport infrastructure under Chapter E27 (Transport):

- Land use and all modes of transport are integrated in a manner that enables:
    a. the benefits of an integrated transport network to be realised; and
    b. the adverse effects of traffic generation on the transport network to be managed.
- An integrated public transport network, including public transport, walking, cycling, private vehicles and freight, is provided for.
- Parking and loading support urban growth and the quality compact urban form.
- The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone.
- Pedestrian safety and amenity along public footpaths is prioritised.
- Road/rail crossings operate safely with neighbouring land use and development.

Any residential development making use of existing and proposed transport mode alternatives on the site is therefore considered to align well with the transport objectives of the Unitary Plan. The proposed zoning also aligns well with neighbouring zones.

3.8 AUCKLAND DESIGN MANUAL

The Auckland Design Manual 2014 sits alongside the Unitary Plan and provides practical advice, best practice processes and detailed design guidance to enable informed choices, to help build houses and develop streets and neighbourhoods that not only look good but are built to last, sustainable and give the best return on investment. Section '3. Movement networks', a subsection of the 'Subdivision and Neighbourhood Design' chapter, specifically gives the following transport-based design outcomes:

- **Connections and connectivity** - Subdivisions that provide movement choice and connectivity, while balancing costs, safety, and privacy;
- **Walkable neighbourhoods** – Prioritisation of pedestrian convenience and access to destinations in the design of subdivisions;
- **Legible hierarchies** - A clear and consistent road hierarchy to create accessible, legible and safe subdivisions and helps people understand how to get to, and when they are on, main routes;

- **Managing speed and modes** - Subdivision design ensures the safety of pedestrians and cyclists by managing vehicle travel speed, and provides equally for the four major modes (walking, cycling, passenger transport, vehicles) in a way that will appeal to the users of each;
- **Vehicle emissions and road layout** - Movement networks are designed to minimise the costs and environmental impacts of unnecessary travel;

The proposed development follows these design guidelines, and the site promotes connectivity with the existing employment, retail, community, and recreational activities in the local and wider area. Traffic calming is proposed to be investigated to promote pedestrian movement and slow traffic within the site.

3.9 AUCKLAND TRANSPORT DESIGN MANUAL (TDM)

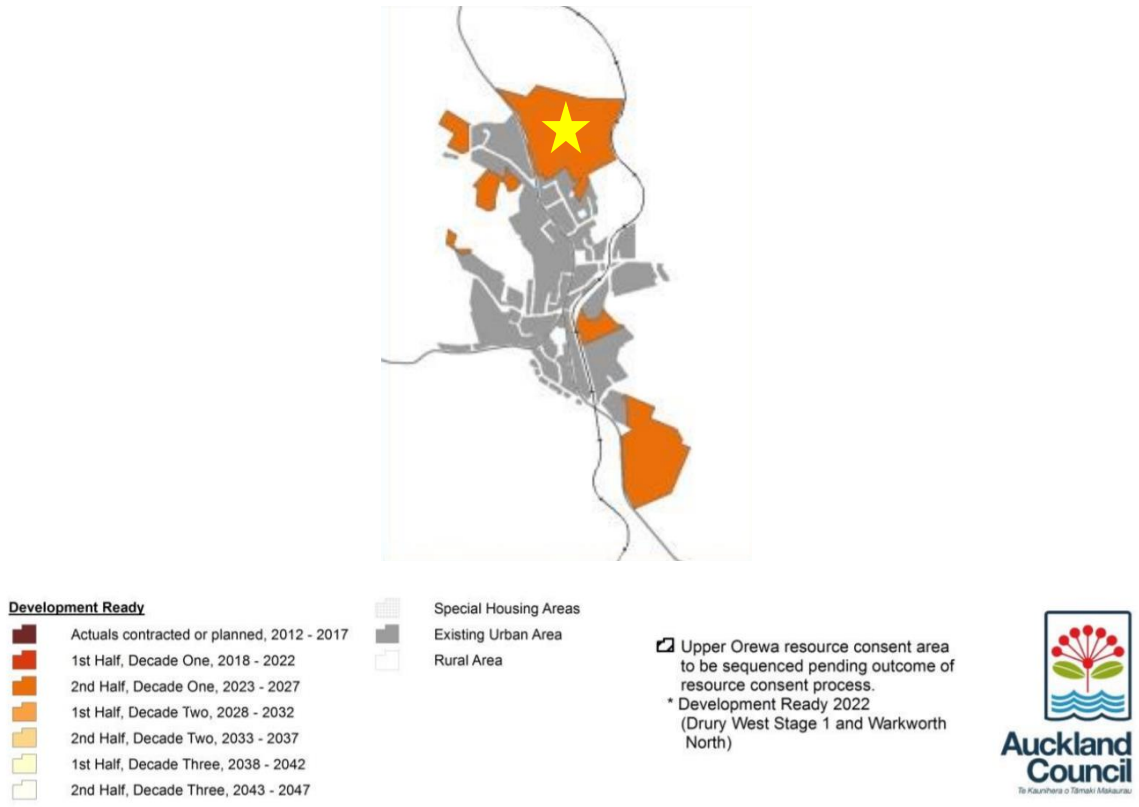
Should the proposed development be approved, any road improvements will follow approved standards namely the Auckland Transport Design Manual (TDM), Austroads and NZS4404. This document supersedes Auckland Transports Code of Practice (ATCoP) and provides the current best practice design requirements for road, intersection, and access designs.

3.10 FUTURE URBAN LAND SUPPLY STRATEGY (FULSS)

The Future Urban Land Supply Strategy (FULSS) identifies a programme to sequence the use of Future Urban Zone land for urbanisation over the next 30 years relative to bulk infrastructure development.

Figure 3-1 shows the site in relation to the FULSS showing that the site is intended to be development ready in the second half of decade 1 (2023-2027) which is in line with the expected development timeframes.

Figure 3-1: FULSS



3.11 REGIONAL POLICY STATEMENT

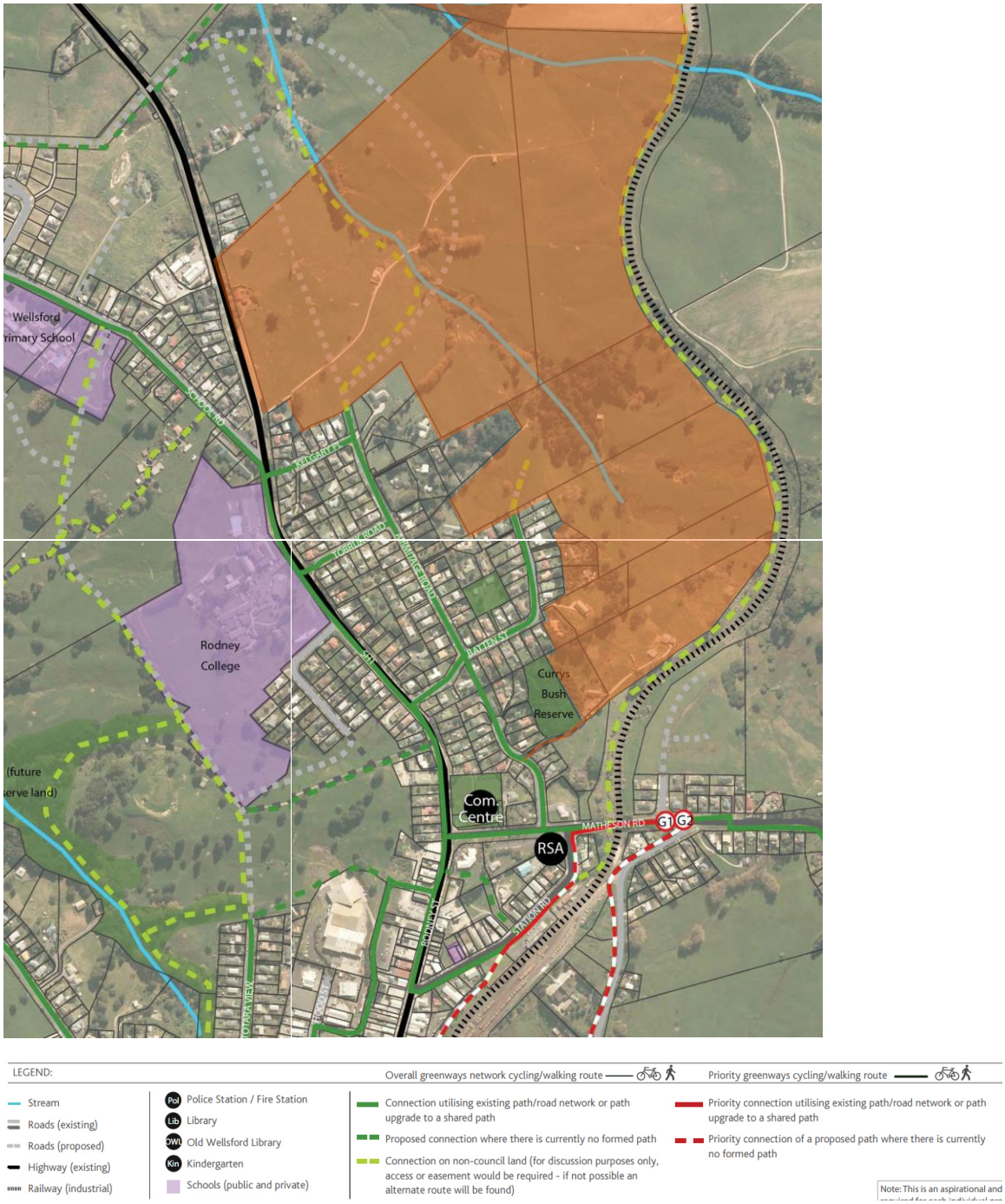
The Regional Policy Statement is a statement about managing the use, development and protection of the natural and physical resources of the Auckland region in accordance with the Resource Management Act (RMA). It was prepared in July 2016 and has subsequently been superseded by the Auckland Unitary Plan (Section 3.7 above).

3.12 WELLSFORD GREENWAYS PLAN

In July 2015 the Rodney Local Board adopted the Wellsford Greenways Plan, a visionary and guiding document intended for use by the local board, council departments, council-controlled organisations, community groups, and private developers. The Wellsford Greenways Plan outlines an aspirational and 'high level' network cycle plan for the Wellsford area.

Figure 3-2 shows the Wellsford Greenway Plan which indicates a north-south greenway connection through the middle of the plan change area, as well as along the eastern boundary adjacent to the railway line.

Figure 3-2: Wellsford Greenway Plan



4 PROPOSED DEVELOPMENT

The proposal intends to rezone the site from Future Urban Zone and Rural – Countryside Living to a mix of residential and neighbourhood centre zones, while retaining some rural-countryside living zone. The approximate total area of the new zones is detailed below:

- 39.64 ha Residential – Single House (SH) zone;
- 5.87 ha Residential – Mixed Housing Suburban (MHS) zone;
- 17.04 ha Residential – Large Lot zone;
- 0.89 ha Business – Neighbourhood Centre (NC) zone; and
- 11.56 ha Rural – Countryside Living (RCL) zone.
- Total land area subject to the plan change - 75 ha

The rezoned land is anticipated to be developed to provide 1,000 dwelling units and 2,500 m^2 retail. The dwellings are to be developed over a number of stages as summarised below.

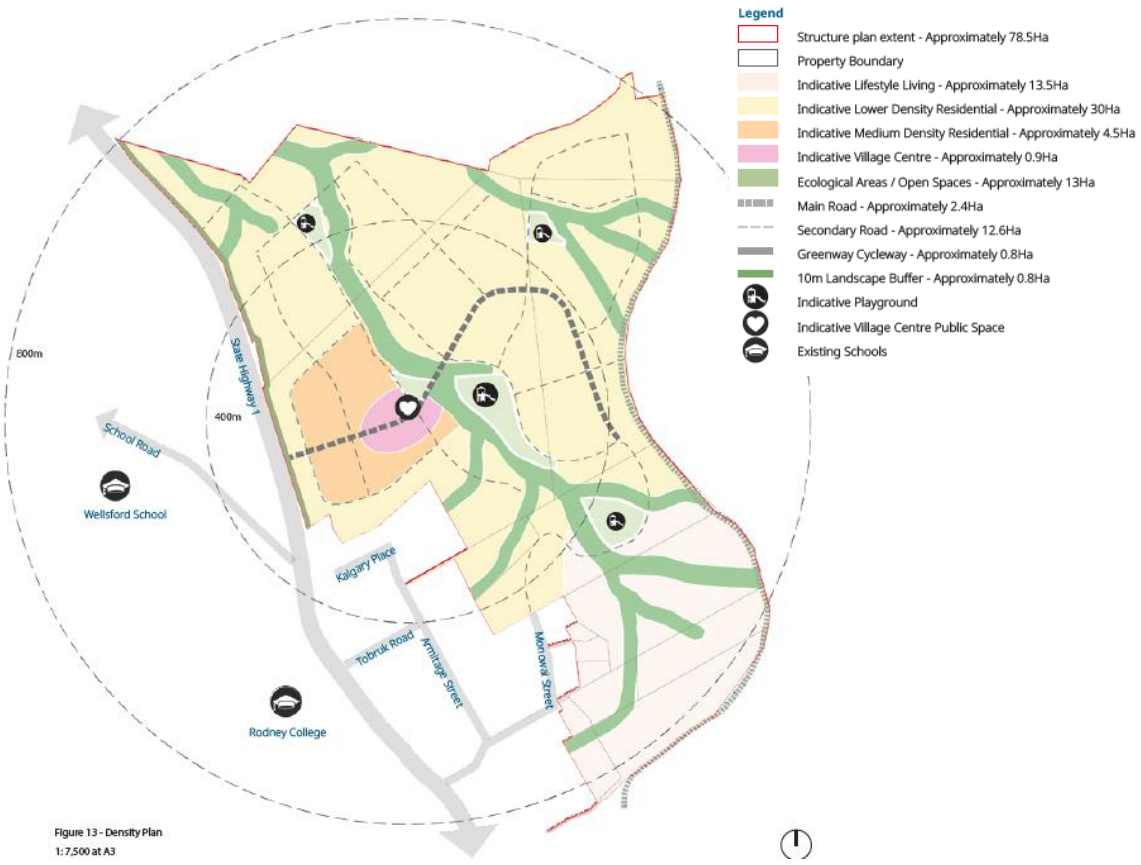
- Stage 1 - Fast Track includes 87 dwellings (19 off Monowai Street plus 68 off the new intersection)
- Intermediary - Plan Change area includes 650-800 dwellings (inclusive of the fast track dwellings)
- Stage 2 / Full Build-out - Structure Plan area includes 1,000 dwellings (inclusive of the plan change dwellings)

These yields are proposed based on a number of high-level masterplan sketch scenarios that have been produced, and which established that the anticipated number of dwellings is realistic. Further details on the yield estimate is set out at Section 3.2.8 of the Neighbourhood Design Statement.

Vehicle access to the development is proposed to be via a new intersection on Rodney Street, with a secondary access proposed on Monowai Street. The new access is proposed to be a priority-controlled give-way intersection including a 15 m right turn bay on Rodney Street, with the Precinct rules requiring future analysis of this intersection as development occurs. Furthermore, the location of this access has been selected to optimise the sightlines available taking into consideration the vertical geometry along Rodney Street in this location. **Appendix A** shows a concept plan for intersection as a priority controlled intersection, as well as an indicative layout for a roundabout should this be required in the future.

Both the proposed new intersection and the Monowai Street intersection will be fed by a network of proposed roads, including one collector road. Figure 4-1 shows the layout of the potential development within the PPC area.

Figure 4-1: Potential Development within Plan Change Area



The collector road will start at the new intersection with Rodney Street, and extend up to the Residential – Large Lot Zone. A localised treatment, such as a roundabout, will be provided at the terminus of the collector road segment of the corridor to signal to drivers that the corridor form and function has changed. This is intended to assist with the transition of both the corridor and the land use, with the road proposed to continue through to Monowai Street and the neighbouring residential dwellings.

Furthermore, the bulk density of the PC is near the new intersection, with the intent that the majority of the PC trips will enter and exit via this access. The proposal also identifies an option for a wide path along Rodney Street which would be the most direct route to Wellsford Town Centre for the majority of residents. As such, only a small number of vehicles, cyclists, and pedestrians are anticipated to travel to Monowai Street via the Main Road extension, and therefore no upgrades are proposed to these corridors.

5 FUTURE TRAFFIC

5.1 VEHICLE TRIP GENERATION

5.1.1 GUIDELINES

The Auckland Macro Strategic Model (MSM) was reviewed and found the Wellsford zone to expand over a large area, and to forecast very little growth. As such the forecast trip generations have been undertaken based on first principles.

The RTA Guide[1] is commonly used by traffic engineering practitioners in Australasia to assess the traffic generating potential of various land uses. In New Zealand, the RTA Guide is frequently used for assessing residential and commercial retail developments and therefore has been used to calculate the plan change development traffic.

5.1.2 EXISTING

The site is currently occupied by several rural residential developments and farmland. Based on anecdotal evidence the private lots are understood to generate a relatively low volume of trips both during peak hours and throughout a typical day. It is also noted that the existing land use is supported by multiple accesses to the road network given the land use and density. The volume of existing trips are likely to be low and scattered over the network, and therefore these vehicle trips have conservatively been retained on the network instead of removing them.

5.1.3 FUTURE

The proposed residential dwellings have been assessed and given their size and location are considered to be similar to the 'dwelling house' land use category. The trip rate selected assumes little in the way of public transport as is anticipated to be the case for the proposed structure plan, particularly in the short to medium term. The retail is unknown at this early stage, and therefore has been assessed as specialty retail.

Table 5-1 summarises the trip generation forecast for the plan change area.

[1] The Roads and Traffic Authority of New South Wales – Guide to Traffic Generating Developments (RTA), Version 2.2, October 2002

Table 5-1: Future Trip Generation

Stage	Land Use Activity	Quantity	RTA Trip Rate		Trip Generation	
			Peak Hour	Daily	Peak Hour	Daily
Fast Track	Residential	19 units	0.85 / unit	9 / unit	16	144
Fast Track		68 units			58	522
Stage 2		913 units			776	8217
Stage 2	Retail	2,500m^2	4.6 / 100m^2	46 / 100m^2	115	1,150
TOTAL	**-**	**-**	**-**	**-**	**965**	**10,150**

The analysis assesses the trip generation anticipated for the following development stages:

- The Monowai Street fast track application for 19 units
- The fast track application for 68 units (accessed off new intersection with SH1)
- Stage 2 being the remaining residential and retail development identified in the Structure Plan, and therefore the additional trip generation to bring the area to full build out.

The structure plan area as a whole is anticipated to generate approximately 965 trips during the weekday peak hours, and 10,150 over the course of a day.

5.2 PROPOSED INTERSECTION TREATMENT

The proposed intersection was determined with safety and operations as the primary factors, recognising that the road environment and most specifically speed effects the level of safety. In this regard, it is of note that Waka Kothi are undertaking speed reviews throughout the country, with one project area being Northland and Auckland. The most recent media release identifies that the public consultation period ran from 17 May to 14 June, and that a summary of feedback and any decisions on permanent speed limit changes will be provided in early 2023. This feedback is currently not available.

The Safe System Assessment Framework (SSAF) assessment is commonly used within the industry to assess how safe/unsafe an intersection is. As such, a SSAF assessment has been undertaken for the proposed intersection both as a stop control T intersection (including a right turn bay) and a roundabout, detailed in Table 1 below. The procedure followed is outlined in Austroads Guide to Traffic Management Part 13 – Road Environment Safety.

The SSAF ensures that Safe System elements are considered and measures how well a given project (e.g. an intersection, road length, area and treatment type etc.) aligns with Safe System principles. It reviews the road user exposure, the crash likelihood, and crash severity. A low value means the road element is considered to be safe while a high value (4 maximum) means the road element is considered unsafe. For example:

- A zero for exposure means there is no exposure to a certain crash type (eg head-on on a uni-direction corridor where there is no opposing flow) while a 4 means the exposure is high and relates to high volumes of respective road users.
- A zero for likelihood means there is minimal chance of a certain crash (eg head-on on a uni-directional corridor would take a car driving the wrong way which is extreme behaviour) while a 4 means the likeliness is high given the infrastructure in place (e.g. speed, vertical and horizontal geometry, right turns across several opposing lanes, etc.).
- A zero for severity means that the changes of a fatal or serious injury is minimal should a crash occur. A 4 for severity means the crash is highly likely to result in a fatality or serious injury.

Table 2: Rodney Street / New Road Intersection SSAF

	Run off road	Head on	Intersection	Other	Ped.	Cyclist	Motorcyclist
GIVE-WAY							
Exposure	4	4	4	4	3	3	4
Likelihood	1	1	2	1	1	1	1
Severity	1	3	3	2	3	3	3
Product	**4/64**	**12/64**	**24/64**	**8/64**	**9/64**	**9/64**	**12/64**
ROUNDABOUT							
Exposure	4	4	4	4	3	3	4
Likelihood	1	1	1	1	1	1	1
Severity	1	2	2	2	3	3	3
Product	**4/64**	**8/64**	**8/64**	**8/64**	**9/64**	**9/64**	**12/64**

The give-way intersection layout was assessed to have a SSAF score of 78/448 while a roundabout layout was assessed to have a score of 58/448. A higher score is considered to be further away from vision zero, while a low score is considered closer (and therefore preferred). It is noted that changes in score indicate only a likely change in risk, not the exact magnitude of that change.

Commute recognise that there are merits to providing a roundabout for safety reasons, however given the future environment traffic volume anticipated a give-way intersection is considered acceptable especially in the short to medium term.

In the longer term there are a number of transportation variables (the construction of the motorway bypass, the provision of public transport, the level of employment within Wellsford Centre) and therefore it is recommended that the intersection is reassessed as part of subsequent resource consents. This will be a condition for the PPC and is included in the Precinct rules.

5.3 VEHICLE TRIP DISTRIBUTION

Table 5-3 and Table 5-4 show the vehicle trip distribution assumptions for inbound/outbound and directional splits respectively.

Table 5-3: Inbound/ Outbound Site Trip Distribution

Land Use Activity	Distributions				Trips			
	AM IN	AM OUT	PM IN	PM OUT	AM IN	AM OUT	PM IN	PM OUT
Residential	30%	70%	70%	30%	255	595	595	255
Retail	85%	15%	50%	50%	98	17	58	58
TOTAL	**100%**	**100%**	**100%**	**100%**	**353**	**612**	**653**	**313**

Table 5-4: Directional Site Trip Distribution

Direction	Rodney Street Access	Monowai / Batten Street Access
North	10%	30%
South	90%	70%
TOTAL	100%	100%

The distribution at Batten Street was undertaken based on the existing turn movements as well as engineering judgement. Given Batten Street is located south of Rodney College and Wellsford School it is anticipated that these were the attractions for the trips that originated/departed from the north.

The new intersection onto Rodney Street is north of these attractions and there are no existing distributions to guide the future distributions here. As such engineering judgement was applied to determine trip distributions for the new intersection, with local attractions taken into consideration.

With regards to the distribution between the two accesses, the bulk density for the Plan Change area is located on the western side of the site. As such, majority of trips are anticipated to access and egress the site via the new intersection. The new Main Road will be a “welcoming corridor”, while the alternate route will be winding the back roads, taking the Monowai extension route which in our opinion is less attractive.

In the initial stage, that is the two fast track applications, the two intersections connecting the Plan Change area to SH1 will each serve one development respectively. All of the 19 lot Monowai Street development will access the wider road network via Batten Street

and all of the 68 lot development will access the road network via the new intersection. At this point in time there will be no road connection within the Plan Change Area that connects these two developments.

At full build out the internal road network will be complete, and therefore the distribution of trips on SH1 takes this into consideration. Furthermore, the plan change design has located majority of the site's density in the northern portion of the site which is anticipated to result in a larger volume of the plan change trips access the road network via the new intersection. As such, 80% of the trips are assumed to access the site via the Rodney Street access with the remaining 20% of trip assumed to access the site via the Monowai Street / Batten Street access. Table 5-5 shows the corresponding future trip distributions for the two stages.

Table 5-5: Future Site Trip Distribution

Movement	FAST TRACK (87 dwellings)				FULL BUILD OUT (1,000 dwellings)			
	New Road Int.		Batten St Int.		New Road Int.		Batten St Int.	
	AM	PM	AM	PM	AM	PM	AM	PM
Rodney St (North)								
Left into New Rd / Batten St	2	4	1	3	28	52	21	39
New Rd / Batten St								
Left into Rodney St (South)	37	15	8	4	441	225	86	44
Right into Rodney St (North)	4	2	3	1	49	25	37	19
Rodney St (South)								
Right into New Rd/ Batten St	15	37	4	8	254	470	49	91
TOTAL	**58**	**58**	**16**	**16**	**772**	**772**	**193**	**193**

In addition to the site traffic, background growth has been added to the through movements on SH1. An estimated growth rate of 2% has been applied linearly over a 10 year period, and therefore forecasting the volumes in 2031.

Furthermore, the analysis does not assume that the Puhoi to Warkworth motorway is in place, and instead added the above growth to SH1. If this connection is built, the operation of the intersections will improve significantly due to decreased through volumes on Rodney Street, resulting in increased gap opportunities.

5.4 VEHICLE TRAFFIC EFFECTS

Traffic modelling has been undertaken to understand the future operation of the two intersections. This modelling has been undertaken for 2031, and conservatively includes the background growth mentioned above. This approach is considered

conservative given that Waka Kotahi is in the process of securing land for the Warkworth to Wellsford section of the Puhoi to Wellsford project. This project is anticipated to reduce vehicle volumes on Rodney Street by providing a new State Highway which bypasses Wellsford. Furthermore, the two development stages are assessed for this future time period, being:

1. The fast track application
2. Full build out of the structure plan area

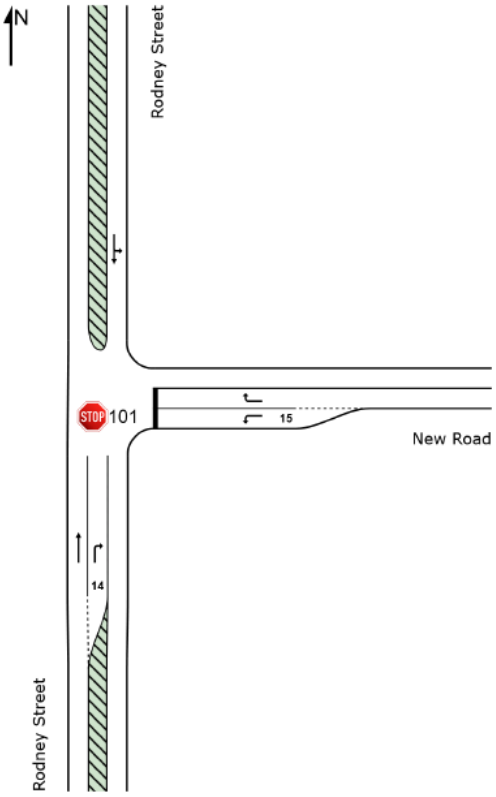
The traffic modelling has been undertaken using SIDRA Intersection Version 9. A posted speed limit of 50 km/hr was assumed for both intersections, noting that the existing posted speed where the new road will intersect Rodney Street is 70 km/hr. Given the number of residential dwellings proposed, the development will urbanise the area and therefore a reduced vehicle speed is recommended.

The default SIDRA gap acceptance values were edited to match Austroads critical acceptance gaps and follow-up headways. The Austroads gap acceptance parameters (Table 3.5 of Guide to Road Design Part 4A: Unsignalised and Signalised Intersections) have been adopted which are:

- Left turn and right turn out of minor road – critical gap acceptance of 5 seconds, follow-up headway of 3 seconds.
- Right turn from major road – critical gap acceptable of 4 seconds, follow-up headway of 2 seconds.

The intersection layout assumes a short 15 m left turn lane is provided on the minor road approaches as shown in Figure 5-1.

Figure 5-1: Proposed Layout of the New Intersection with Rodney Street



The SIDRA models show that both intersections generally operate within acceptable performance thresholds in the future horizon years for both stages. Table 5-6 and Table 5-7 the morning and afternoon peak hour operations for the new Rodney Street intersection. There is no "do nothing" results, as in this scenario there is no intersection and therefore no results to report.

Table 5-6: Proposed New Rodney Street Intersection Operation during the AM Peak Period

Approach	Mvmt.	Do Nothing			Fast Track			Full Build Out		
		DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)
Rodney St South	TH	-	-	-	0.35	A	0	0.35	A	0
	RT	-	-	-	0.02	A	1	0.27	A	10
New Rd East	LT	-	-	-	0.08	B	**2**	**0.92**	**E**	**86**
	RT	-	-	-	0.01	C	0	0.22	C	5
Rodney St North	LT	-	-	-	0.42	A	0	0.43	A	0
	TH	-	-	-	0.42	A	0	0.43	A	0

Table 5-7: Proposed New Rodney Street Intersection Operation during the PM Peak Period

Approach	Mvmt.	Do Nothing			Fast Track			Full Build Out		
		DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)
Rodney St South	TH	-	-	-	0.38	A	0	0.58	A	23
	RT	-	-	-	0.04	A	1	0.50	B	25
New Rd East	LT	-	-	-	0.03	B	1	0.45	C	15
	RT	-	-	-	0.01	C	0	0.16	D	3
Rodney St North	LT	-	-	-	0.40	A	0	0.43	A	0
	TH	-	-	-	0.40	A	0	0.43	A	0

Table 5-8 and Table 5-9 summarise the morning and afternoon peak hour operations for the Batten Street Intersection for 2031 with only background growth (do nothing), the fast track development, and the full build out.

Peak hour observations were undertaken on Tuesday 22 August, 2022, between 7:00 and 8:00 AM. The volume of vehicles turning out of Batten Street was low, with only one vehicle ever queuing and delays typically no more than 10 seconds. This is reflected in the transport model.

Table 5-8: Batten Street Intersection Operation during the AM Peak Period

Approach	Mvmt.	Do Nothing			Fast Track			Full Build Out		
		DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)
Rodney St South	TH	0.35	A	0	0.36	A	0	0.45	A	0
	RT	0.02	A	1	0.02	A	1	0.14	B	4
Batten St East	LT	0.12	B	3	0.16	B	4	0.55	D	15
	RT	0.12	C	3	0.16	C	4	0.59	**F**	13
Rodney St North	LT	0.42	A	0	0.44	A	0	0.61	A	0
	TH	0.42	A	0	0.44	A	0	0.61	A	0

Table 5-9: Batten Street Intersection Operation during the PM Peak Period

Approach	Mvmt.	Do Nothing			Fast Track			Full Build Out		
		DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)	DoS %	LOS	Queue (m)
Rodney St South	TH	0.38	A	0	0.40	A	0	0.57	A	0
	RT	0.02	A	1	0.03	A	1	0.17	A	5
Batten St East	LT	0.05	B	1	0.07	B	2	0.18	C	4
	RT	0.05	C	1	0.07	C	2	0.26	E	5
Rodney St North	LT	0.41	A	0	0.42	A	0	0.52	A	0
	TH	0.41	A	0	0.42	A	0	0.52	A	0

Generally the intersection operate acceptably with a few notable results as follows:

- The left turn from the new road during the morning peak hour, in the full build out scenario, has a degree of saturation (DoS) of 0.92 which suggests this movement is approaching capacity. This movement is also anticipated to operate at Level of Service (LOS) E and have a 95th percentile queue of 86 m.
- The right turn from Batten Street during the morning peak hour, in the full build out scenario, is anticipated to operate at LOS F.

The two turn movements above are considered to be acceptable for the following reasons:

- There is additional capacity available for the same movement at the other intersection, that is there is additional right turn capacity at the new road intersection and additional left turn capacity at the Batten Street intersection.

Drivers are likely to redistribute on the network to optimise their own journey and subsequently the network operation.

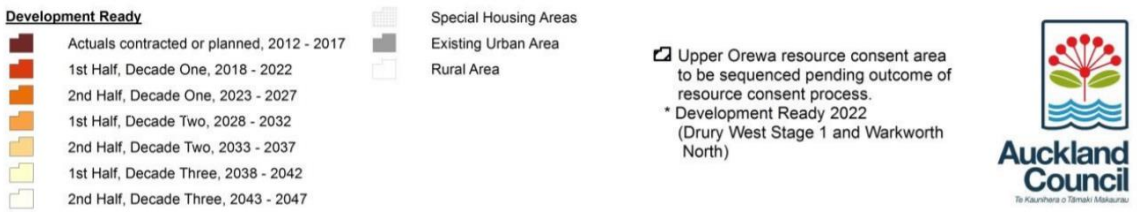
- The trip generation rates are considered conservative given that a large number of the retail trips during the peak hours will be internal trips.
- The trip generation rates are considered conservative given that peak hour spreading is common in satellite towns such as Wellsford. Residents that are travelling notable distances such as to Auckland or Whangarei are likely to leave earlier in the morning than those that work locally such as Wellsford or Warkworth. Similar is expected again in the afternoon peak.
- The operation results above are anticipated to occur only during the peak hour, with the intersection anticipated to perform more efficiently outside these periods.
- In the longer term the proposed Warkworth to Wellsford connection is anticipated which will redirect a large portion of trips such that they bypass Wellsford, resulting in a significant decrease in traffic;
- A precinct rule requires review of the new intersection with Rodney Street / SH1 once the total dwelling count within the PPC exceeds 750. At this stage, it is forecast that the Batten Street right turn will operate at LOS D during the morning peak hour which is considered acceptable.

The full SIDRA modelling analysis reports are included in **Appendix B**. Note, the assessment for the 750 dwelling trigger is based on the operation of the Batten Street intersection in the morning peak hour due to this intersection being most constrained, and more specifically during this period. Only this scenario is included in Appendix B, referred to at “75%”.

5.5 TIMING OF GROWTH

The FULSS identifies the Wellsford area as being development ready in the second half of Decade 1 (2023-2027). The term ‘development ready’ is further defined as land rezoned and bulk infrastructure provided.

Figure 5-2: Timing assumptions from the Future Urban Land supply strategy 2017



The development timing is broadly in line with the assumed growth in the zone. This does not take into account development of the remaining land surrounding the subject site which could occur on a similar timeline should the market conditions support it.

5.6 MODE SHARE AND TRIP RATES

As mentioned in Section 3.3, the Auckland Climate Plan aims to achieve the following mode split targets.

Table 10: Auckland Climate Plan Mode Split Targets

Mode Split	Horizon Year	
	2030	2050
Public Transport	24.5%	35%
Cycling	7%	9%
Walking	6%	6%

Given the plan change location, it is unlikely that the public transport target can be met as there are currently minimal public transport services provided in Wellsford. At the time of writing, there are no new bus services planned for Wellsford. However, given the location of the plan change area with respect to Wellsford Town Centre, Rodney College, and Wellsford School, the number of walking and cycling targets are considered reasonable.

In order to achieve the above walking and cycling mode split targets, the following is considered important:

- High quality active mode links are provided to Wellsford Town Centre and other attractions such as the local schools;
- Design of high-quality urban streets to promote active mode travel; and
- Building forms and street design which reduce vehicle ownership.

A number of new infrastructure facilities are proposed as part of the PPC to encourage sustainable modes of travel. The primary infrastructure piece here is a new path along the site frontage from the new intersection on Rodney Street through to Tobruk Road. This will be provided as part of the PPC.

To the south of Kelgary Place there are footpaths on both side of SH1 and therefore this path will connect the proposal area to the existing network including the Wellsford Town Centre, Bus stops on Station Road, Rodney College, Wellsford School, and Centennial Park. Beyond SH1, the existing pedestrian network between the subject site and the key attractions includes a footpath on both sides of the road, however in some locations

it is on one side of the road. As Wellsford is developed the quality of these paths is likely to be upgraded by nearby developments.

The proposed path on SH1 will accommodate both pedestrian and cycling movements to the Plan Change area. In our opinion there are no "gaps" in the existing pedestrian network that would warrant new infrastructure to be provided as part of this plan change, particularly given a new facility between the site and Tobruk Road is proposed.

The roads within the plan change area will generally have pedestrian footpaths on both sides, and at minimum a footpath on one side of the corridor. Where the Precinct meets Monowai Street, it is anticipated that the existing pedestrian network will be utilised.

Cycling movements are unlikely to be significant through the area given the existing form and function of Rodney Street (SH1). To encourage a change in behaviour and to future proof the area, an off-street cycling facility will be provided between the new intersection on Rodney Street and Tobruk Road.

As part of the Structure Plan, a cycling facility is proposed alongside the railway line, in accordance with the Greenway Plan. It is recommended that when this is constructed, consideration is given to the ability for cyclists to cross Matheson Road.

It is also recommended that the bus service between Wellsford and Warkworth is extended into the plan change area to make public transport accessible to residents of the plan change area. The proposed Main Road has 3.5m wide lanes which can accommodate a bus. The lanes may narrow to 3.0m however this can also accommodate a bus, noting localised widening may be required and provided on corners. An internal roundabout could be provided where the Main Road changes from a collector road into a local to provide a safe and efficient turning point for public transport.

In our experience, the feasibility of public transport to service a new development area typically occurs around 400-500 dwellings. The feasibility of providing public transport when this occurs will be a decision for Auckland Transport to make.

5.7 CURRENT DEFICIENCIES

As part of the development of the plan change area, an urban street network will be provided with appropriate connections to proposed collector and arterial roads surrounding the site. The surrounding transport network has some existing deficiencies which can be described as follows:

- Lack of mode choice – currently the area has poor access to public transport and a lack of safe and attractive walking and cycling access. In order to achieve mode share within the development, provision of travel choice should be provided as the area develops. This could include the extension of the existing bus service between Wellsford and Warkworth, extending the service through to the site.
- Active mode connections to key destinations – Pedestrian and cycle demand from the site is likely to be focused on key destination in the surrounding area including the local schools and Wellsford town centre
- The roads surrounding the site are in general of a rural standard.

5.8 ROADING UPGRADES REQUIRED

The ITA identifies the following upgrades which are considered to influence the operation of the surrounding transport network for the PPC:

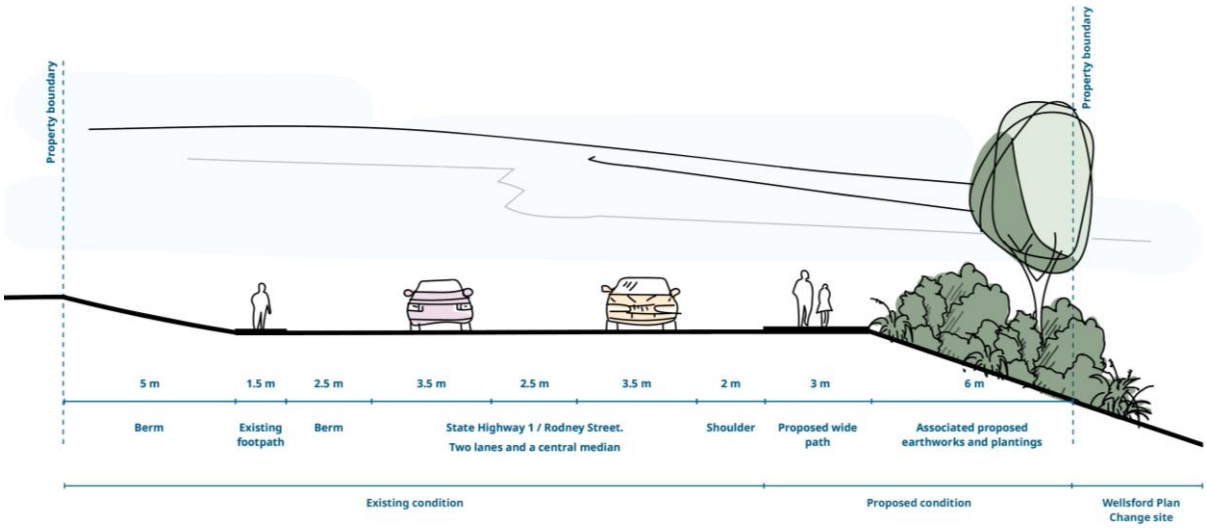
Direct effect

- Collector Road network within the site should be provided.
- Intersection of Collector Road and Rodney Street.

Other projects

- New pedestrian and bicycle connection to the Rodney Street underpass. It is noted that the indicative Greenway Plan shows this to be on Armitage Road and Tobruk Road, however this path crosses property that is with the Wellsford North Precinct. Other options have been explored in order to provide a facility that is available when the first dwelling becomes occupied. In this regard a wide path along the eastern side of Rodney Street is proposed, with a potential cross section shown in Figure 5-3.

Figure 5-3: Cross Section of Potential Wide Path on Rodney Street



6 INTERNAL LAYOUT

6.1 GENERAL

The site is proposed to gain vehicle access via a primary access on Rodney Street, and a secondary access on Monowai Street. A new Main Road will signify the entrance to the neighbourhood and will encourage residents and visitors to access the area via the Rodney Street access. The Main Road will reduce in hierarchy along the corridor, with the street transitioning prior to connecting into Monowai Street.

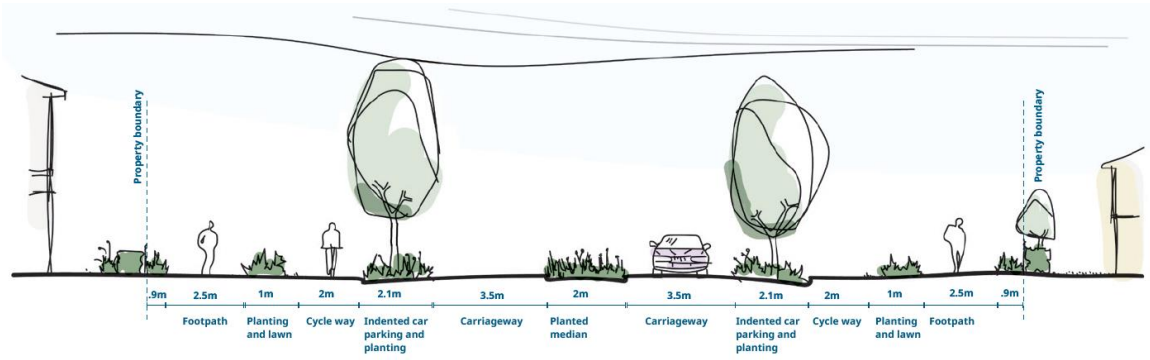
Figure 6-1 shows the proposed road layout.

Figure 6-1: SP ITA Roads

6.2 MAIN ROAD

The Main Road cross section is proposed to be 26m as shown in Figure 6-2.

Figure 6-2: Main Road cross section (26m)



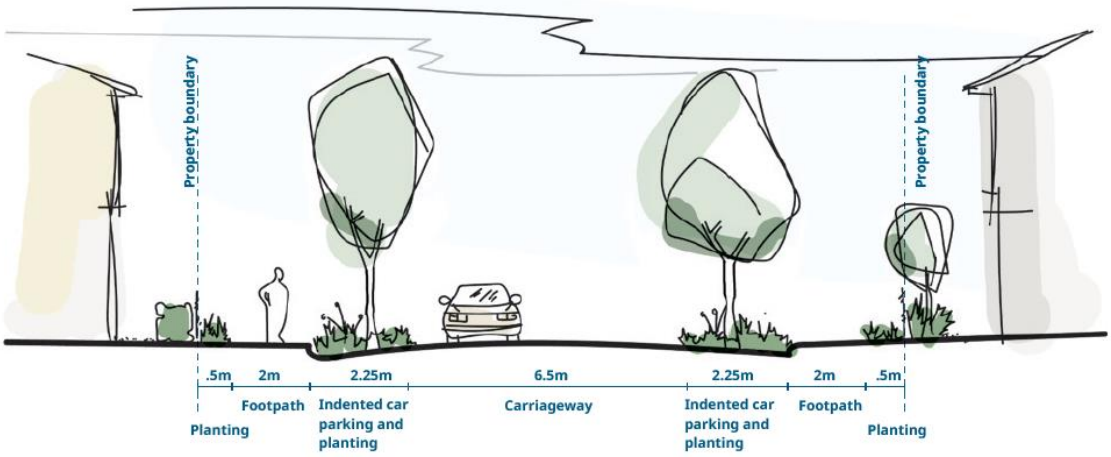
In general, the Main Road should include:

- Traffic lane in each direction (width dependant on use)
- Separated cycle lanes (one either direction)
- Minimal vehicle crossings to minimise conflict between vehicles and active modes (pedestrians and cyclists)
- Footpath either side (1.8m minimum)

6.3 SECONDARY ROAD

A typical secondary road (local road) cross section is shown in Figure 6-3.

Figure 6-3: Secondary Road cross-section (16m)



The internal local roads are proposed to have a cross-section of 16 m. The new roads are not narrower than 14 m, per Auckland Transport's TDM requirements, with the exception of park edge streets where the footpath is permitted to be located within the park boundary. Furthermore, all new roads are proposed to have maximum gradients less (shallower) than the permitted maximum gradient of 1:8. While the design of the internal road will be finalised as part of later resource consent stages, a workable internal road solution can be provided.

6.4 ACCESS TO INDIVIDUAL SITES

Vehicle access for the retail space is expected to be via individual garages, basements, or at-grade parking areas, all of which would provide multiple parking spaces. Where possible, the number of vehicle access points would be minimised. Vehicle accesses would meet Unitary Plan requirements including:

- Minimum 10 m separation from intersections;
- Minimum 6 m separation between vehicle accesses serving the same site and ideally adjacent sites;
- 6.0 m maximum crossing widths;
- 1:20 gradient, 4 m long platforms on the approach to public roads;
- Not be located on any arterial road; and
- Maximum 1:8 gradients where service vehicles are expected.

Vehicle accesses for single detached residential dwellings would follow similar requirements, however with narrower vehicle crossings to cater for the reduced parking provisions. In narrowing the vehicle crossing width the separation between crossings

also changes, with the ability to provided driveways adjacent to one another provided the total crossing width does not exceed 6.0 m. A 2.0 m separation between single detached residential dwelling driveways is considered acceptable as per the Unitary Plan requirement.

Vehicle Access Restrictions apply to the Main Collector Road, as specified in “Appendix 1: Road Function and Design Elements Table” of the “Wellsford North Precinct”. This is controlled in the Precinct through Standard "IX.6.1A Road Design” which requires construction of roads to comply with the aforementioned road function and design elements table.

Overall, the vehicle accesses can be accommodated.

6.5 ACTIVE MODES

6.5.1 LOCAL SITE

Figure 6-1 provides a plan of the key pedestrian and cycle links through the plan change area. The proposed arrangement provides for a permeable network of walking and cycling and provides connections to key walking and cycling corridors external to the site including the Rodney Street underpass.

The section of Rodney Street to the north of the new intersection will not be upgraded as part of the proposal. This land is zoned Future Urban and is not included within this Plan Change application. Given there is no existing attractions within walking/cycling distance to the north of the intersection, this path will likely be redundant until such time that the land to the north is developed.

Should the land to the north be developed it is anticipated that this land will be accessed through the new intersection onto Rodney Street/SH1, and therefore it may not be necessary for a path to the north of the precinct. Given the uncertainty over the potential need for this path, it could be provided in the future should it be deemed to provide a beneficial connection.

6.5.2 WIDER AREA

Within the wider area, pedestrian and cycle desire lines are likely to focus on several key attractors including:

- Wellsford town centre
- Wellsford School and Rodney College

The Auckland Transport TDM Urban Street and Road Design Guide provides guidance as to the likely acceptable travel times to various activities as show in Figure 6-4.

Figure 6-4: Acceptable travel times

The site is located approximately 15 minute walk from the heart of Wellsford Centre, with a number of facilities provided within a 10 minute walking distance including:

- Wellsford Medical Centre
- Wellsford Community Centre
- Rodney College and Wellsford School

It is also noted that a new neighbourhood centre is proposed within the plan change area, providing a couple of additional retail facilities within walking distance.

7 PARKING

7.1 AUCKLAND UNITARY PLAN REQUIREMENTS

The Unitary Plan outlines the relevant rules against which potential development should be assessed. Table 6-1 summarises the Unitary Plan parking requirements for the residential zones as per table E27.6.2.4 of the AUP.

Table 7-1: Unitary Plan Minimum and Maximum Parking Requirements

Activity		Unitary Plan Parking Requirement
Residential – Mixed Housing Suburban Zone	Dwellings - two or more bedrooms	No minimum No maximum
Residential – Single Housing Zone	Dwellings - two or more bedrooms	No minimum No maximum
Neighbourhood Centre	Retail – all other retail (including food and beverage)	No minimum No maximum

Within the Neighborhood Centre zone, a range of parking rates apply to various activities. Parking minimums are specified for each activity while no parking maximums

apply. The Unitary Plan parking provisions and notable absence of parking maximums is considered adequate to govern parking provisions within the site.

7.2 ON-STREET PARKING

On-street parking on the internal road network can be determined at future resource consent stages however it is generally considered that a minimum of 1 space per 5 dwellings is an appropriate design standard within the residential zoning areas.

The details of on-street parking provisions and individual development parking provisions will be worked through in the resource consent stages.

7.3 BICYCLE PARKING

Table 6-2 outlines the Unitary Plan bicycle parking requirements for the various proposed zones within the site, based on Table E27.6.2.5 of the AUP.

Table 7-2: Unitary Plan Bicycle Parking Requirements

Activity	Short-Stay	Long-Stay
Residential (Developments of 20 or more dwellings)	1 per 20 dwellings	1 per dwelling without a dedicated garage
Retail (Food and beverage)	Up to 350m^2 GFA – Nil required	1 per 300m^2 GFA
	Greater than 350m^2 – 1 per 350m^2 GFA	
Retail (All other retail)	Up to 500m^2 GFA – Nil required	1 per 300m^2 GFA of office
	500m^2 - 5,000m^2 GFA – 1 per 500m^2 GFA	
	Greater than 5,000m^2 GFA – 1 per 750m^2 GFA	

Residential dwellings are expected to be eventually provided as a mix of low density (stand alone) housing as well as medium density housing. It is anticipated that majority of the dwellings will have private internal garaging and therefore there would be no need for dedicated bicycle parking facilities.

The total bicycle parking provisions can be determined at subsequent resource consent stages; however the site is considered to be capable of accommodating the required number of bicycle parking spaces.

7.4 ACCESSIBLE PARKING

The Unitary Plan requires that accessible parking be provided as per the requirements of the Building Code and NZS 4121[2]. The Building Act states that accessible parking is not required for residential dwellings but will be required for retail activities. This can and will be investigated at subsequent resource consent stages once development schemes are further investigated.

[2] NZS4121:2001, Design for Access and Mobility: Buildings and Associated Facilities

8 SERVICING

Individual loading and servicing requirements will be determined at resource consent stage for each development.

The internal road network will be designed to accommodate a 10.3 m rear steering waste truck as advised by Auckland Council's Waste Management team. The site access intersections should feature compound kerbs to enable trucks to enter and exit the development without obstructing opposing light vehicles. Within the site, it is expected that trucks will be able to access each development for the purposes of servicing, deliveries, relocation services and waste collection.

9 CONSTRUCTION TRAFFIC

The development site is currently unoccupied for the most part. To facilitate construction, access could be established on Rodney Street to accommodate truck movements to and from the site. The volume of earth works is unknown at this stage however can be undertaken over an extended period to minimise traffic effects if necessary.

As is typical with a development of this scale, it is recommended that as part of any later resource consent, a Construction Traffic Management Plan (CTMP) should be required as a condition. It is considered that this Construction Traffic Management Plan should include:

- Construction dates and hours of operation including any specific non-working hours for traffic congestion/noise etc, aligned with normally accepted construction hours in the Auckland Region;
- Truck route diagrams between the site and external road network.
- Temporary traffic management signage/details for both pedestrians and vehicles, to manage the interaction of these road users with heavy construction traffic; and
- Details of site access/egress over the entire construction period and any limitations on truck movements. All egress points should be positioned to achieve appropriate sight distances.

Based on experience of constructing similar projects and bearing in mind capacity within the existing road network, with the appropriate Construction Traffic Management Plan in place and the above measures implemented, it is considered that construction activities can be managed to ensure any generated traffic effects are appropriately mitigated.

10 CONSULTATION

Initial correspondence has been undertaken with Waka Kotahi via email regarding the proposed new intersection onto Rodney Street (SH1). Waka Kotahi are open to the provision of a new intersection on Rodney Street as proposed, however a formal application is required prior to Waka Kotahi being able to support the proposed access.

A copy of the correspondence is included in **Appendix C**.

11 IMPLEMENTATION PLAN

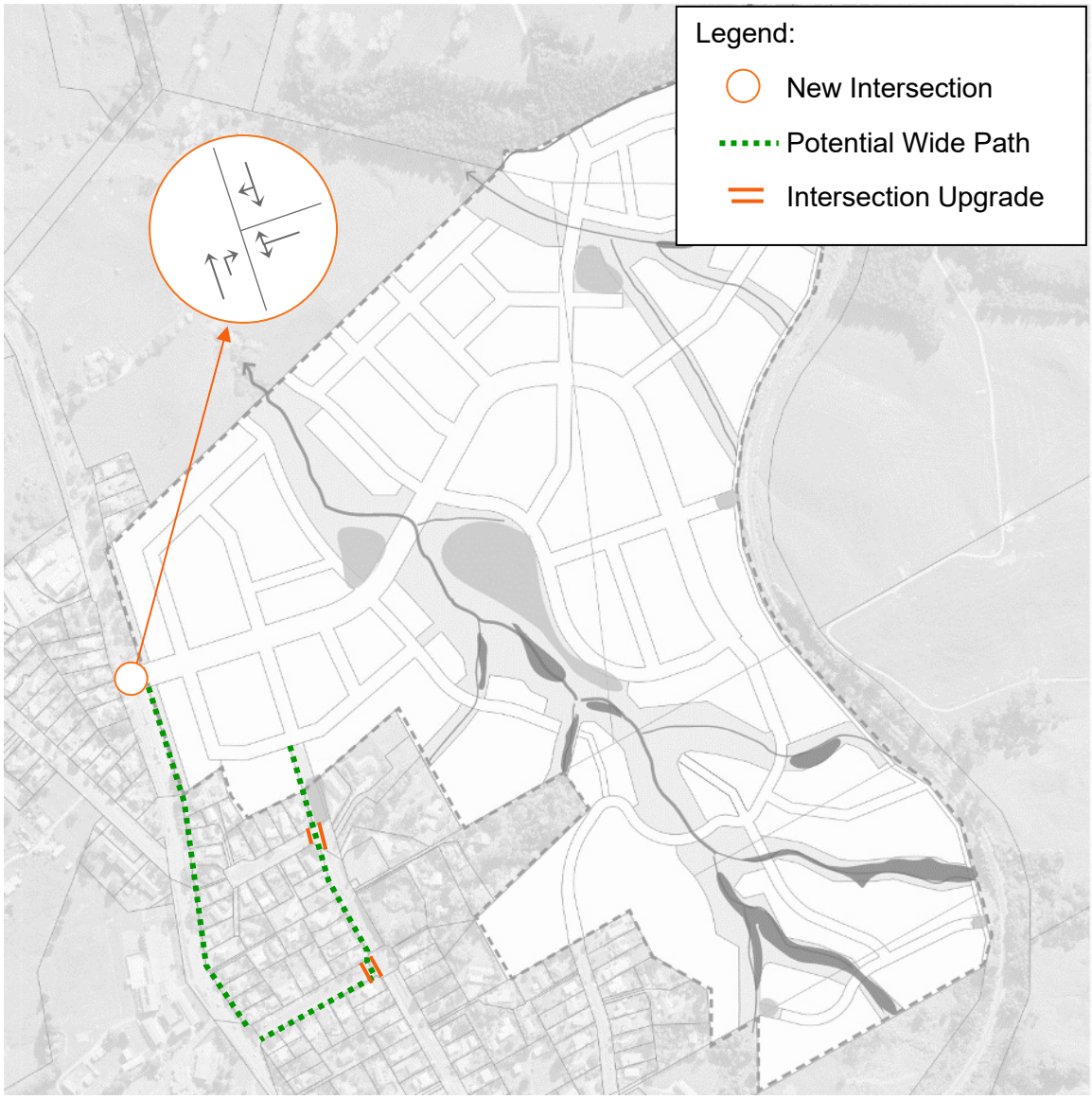
As stated above in this report, there are a number of roading and infrastructure projects programmed for the area. Several projects are directly relevant to this site and these are therefore included in the Implementation Plan summarised in Table 11-1.

Table 11-1: Implementation Plan

Project	Responsibility	Upgrade	Trigger / timing
Dome Valley Safety Improvements	Waka Kotahi	State Highway	Under Construction
Puhoi to Wellsford	Waka Kotahi	State Highway	Puhoi to Warkworth is under construction, Warkworth to Wellsford is under investigation
New intersection of Rodney Street with Main Road	Developer	New intersection including a short right turn bay on Rodney Street	Needed at initial dwelling / industrial unit occupied
Pedestrian / cycling link to Rodney Street underpass	Developer	Pedestrian and cycling connection to Rodney Street underpass. This will include providing a kerb and channel on the eastern side of Rodney Street from the new intersection to 314 Rodney Street.	Needed at initial dwelling / industrial unit occupied
New Main Road through the site	Developer	As the site develops the internal Main Road identified in the Structure Plan should be provided.	Any site with frontage to new Main Road. Development will be staged along this corridor, ensuring each subsequent development has connectivity to prior stages.

Figure 11-1 shows this implementation plan.

Figure 11-1: Local Network Implementation Plan



12 CONCLUSIONS

Based on the assessments undertaken in this report, it is concluded:

- The site, with the mitigation / improvement measures identified, has good accessibility to various transport modes: walking, cycling, bus and private vehicle.
- The effects of the proposed increase in vehicles are expected to be minimal assuming the recommended upgrades occur with the proposed roads, public transport and intersections capable of accommodating this additional traffic.
- Sufficient parking can be provided within the plan change area; and
- The proposed development is consistent with, and encourages, key regional and district transport policies.

It is anticipated that any future residential development would provide the transport network upgrades described in Section 11 of this assessment. The traffic effects of the development potential that could be achieved under the proposed zoning, with the implementation of the measures identified in Section 11, are considered acceptable and there is no reason, from a transport perspective, to preclude approval of the proposed Plan Change.

APPENDIX A: NEW INTERSECTION CONCEPT DESIGNS

Drawn by: LH J001980	**Project:** 338 RODNEY STREET PROPOSED PLAN CHANGE	**Date:** SEPTEMBER 2022	**Figure:** 1
Client: 338 RODNEY STREET	**Drawing Title:** INTERSECTION CONCEPT DESIGN - ROUNDABOUT	**Scale @ A3:** 1:500	
		Revision: A	

commute TRANSPORTATION CONSULTANTS

Drawn by: LH J001980	**Project:** 338 RODNEY STREET PROPOSED PLAN CHANGE	**Date:** 3 April 2023	**Figure:** 2
Client: 338 RODNEY STREET	**Drawing Title:** INTERSECTION CONCEPT DESIGN - PRIORITY	**Scale @ A3:** 1:500	commute TRANSPORTATION CONSULTANTS
		Revision: A	

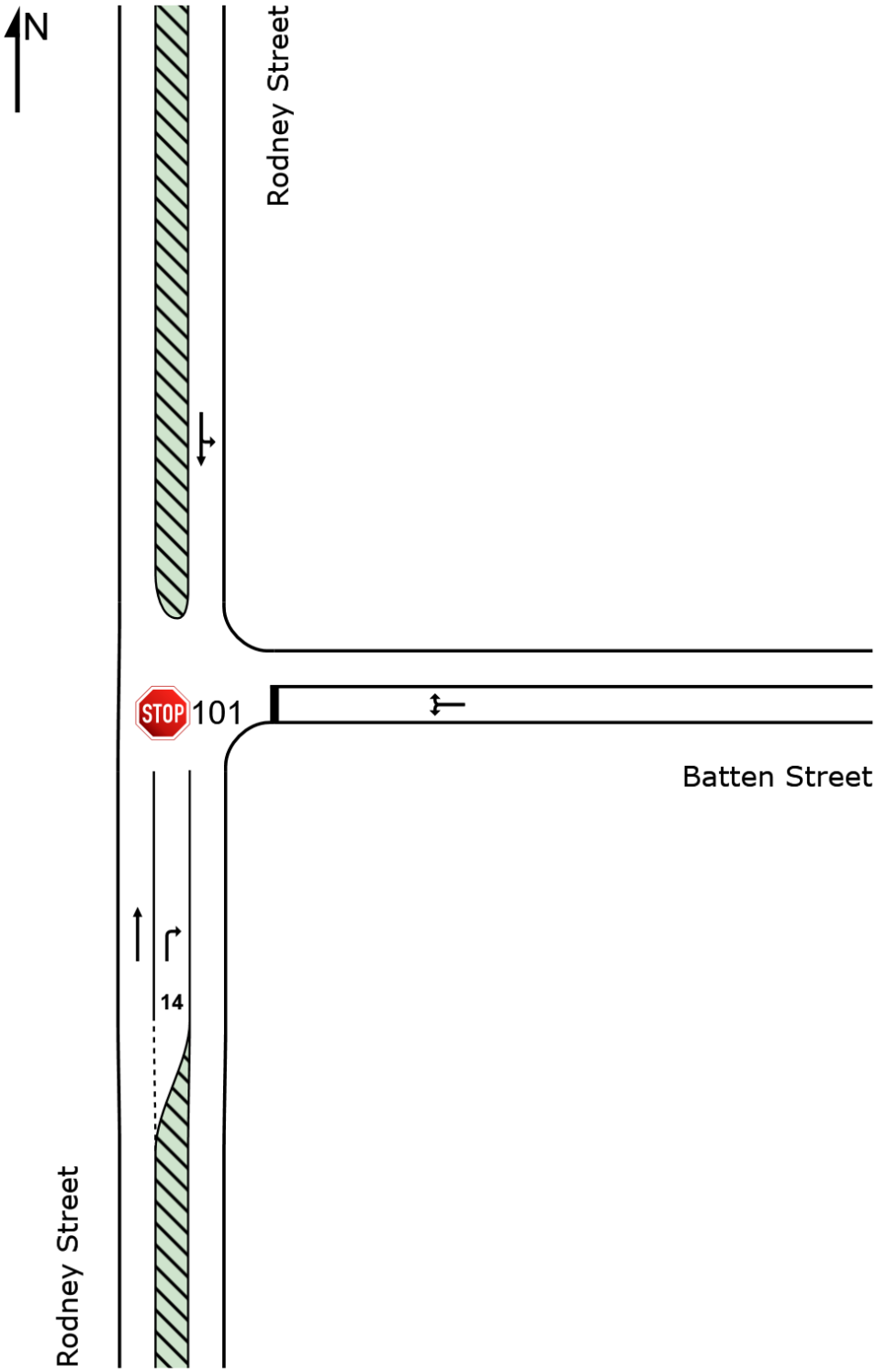
APPENDIX B: SIDRA MODELLING

SITE LAYOUT

Site: 101 [EX AM Batten St + bkg growth (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

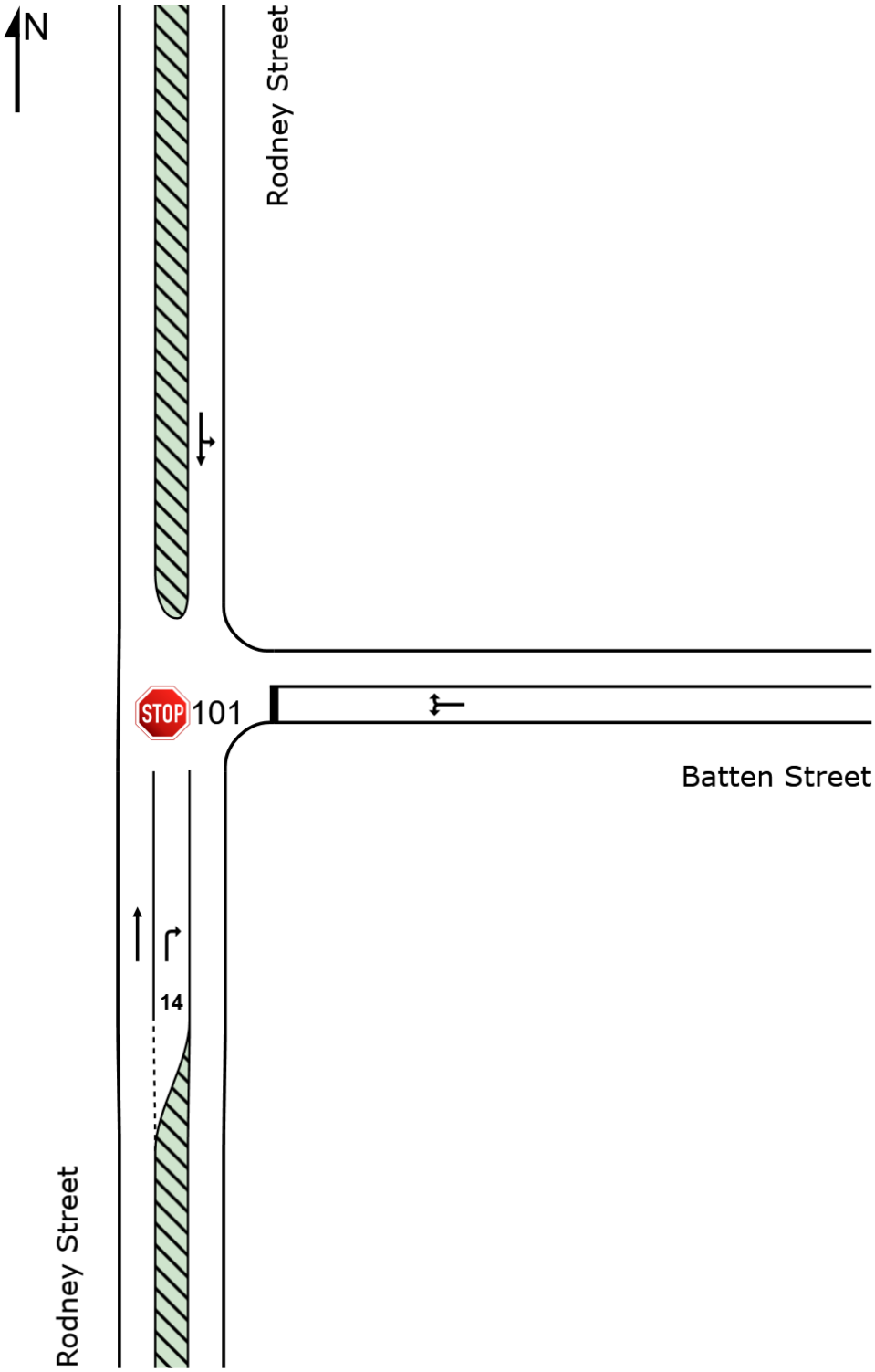


SITE LAYOUT

Site: 101 [FUT AM Batten St + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

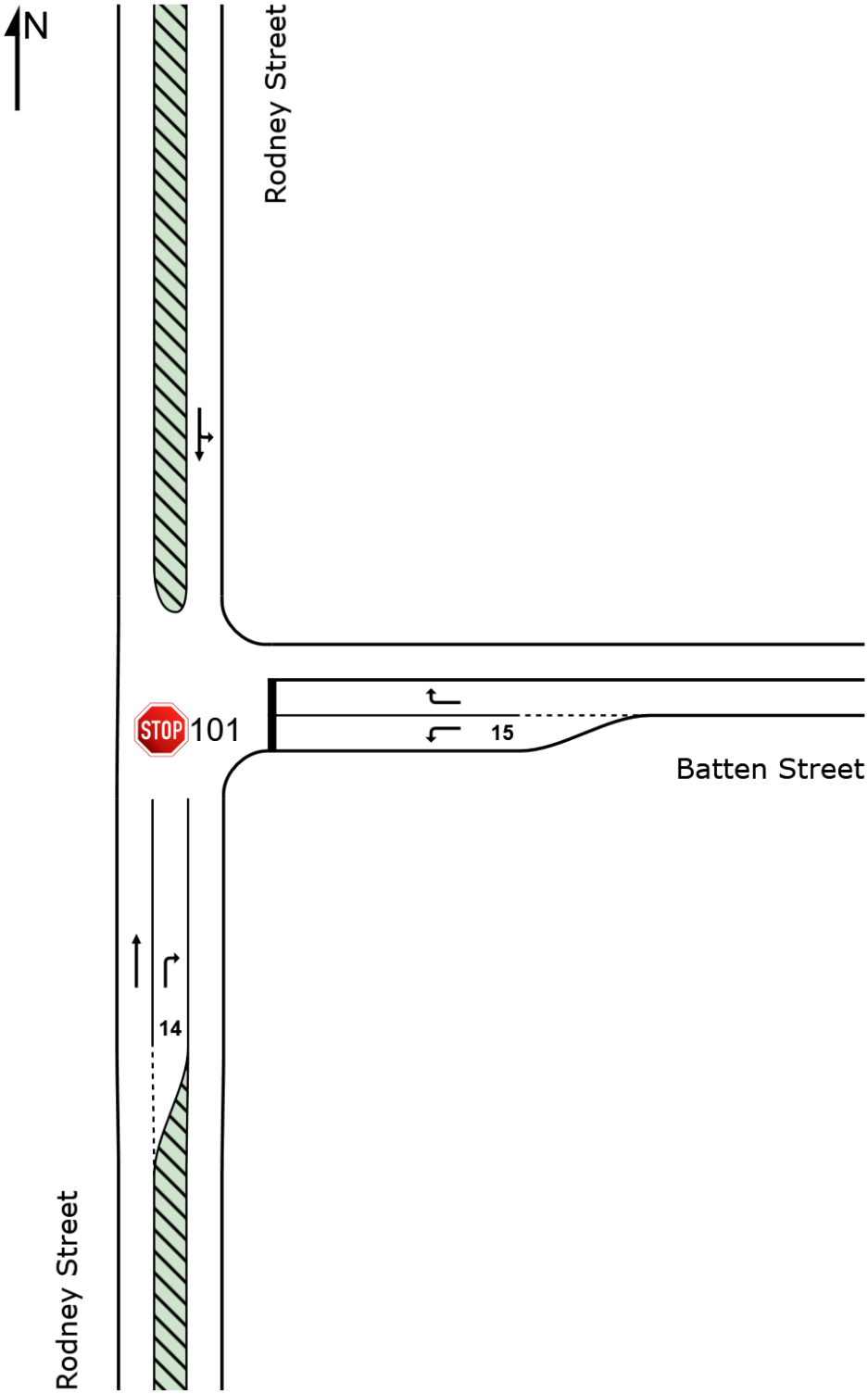


SITE LAYOUT

Site: 101 [FUT AM Batten St + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

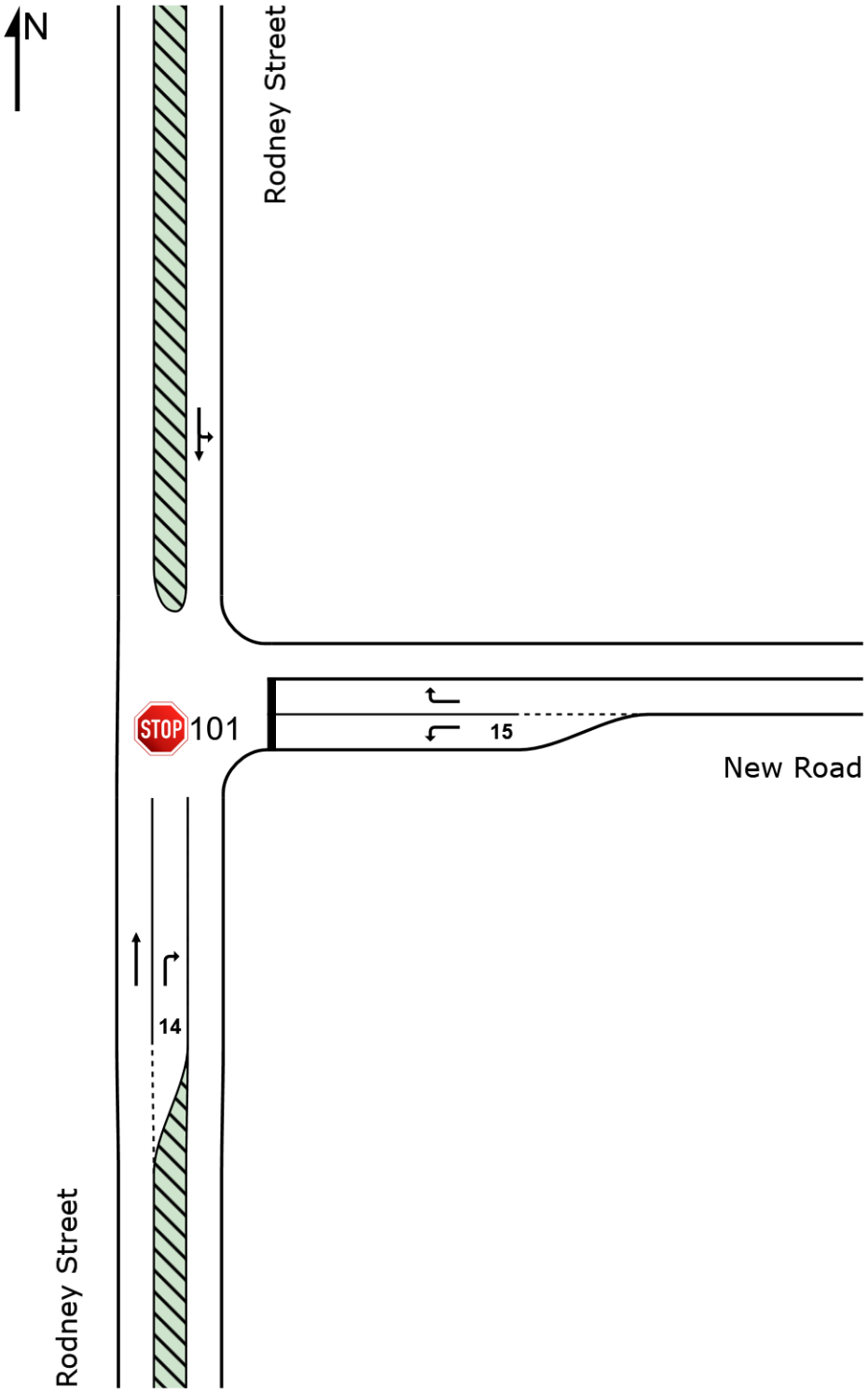


SITE LAYOUT

Site: 101 [FUT PM New Rd + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

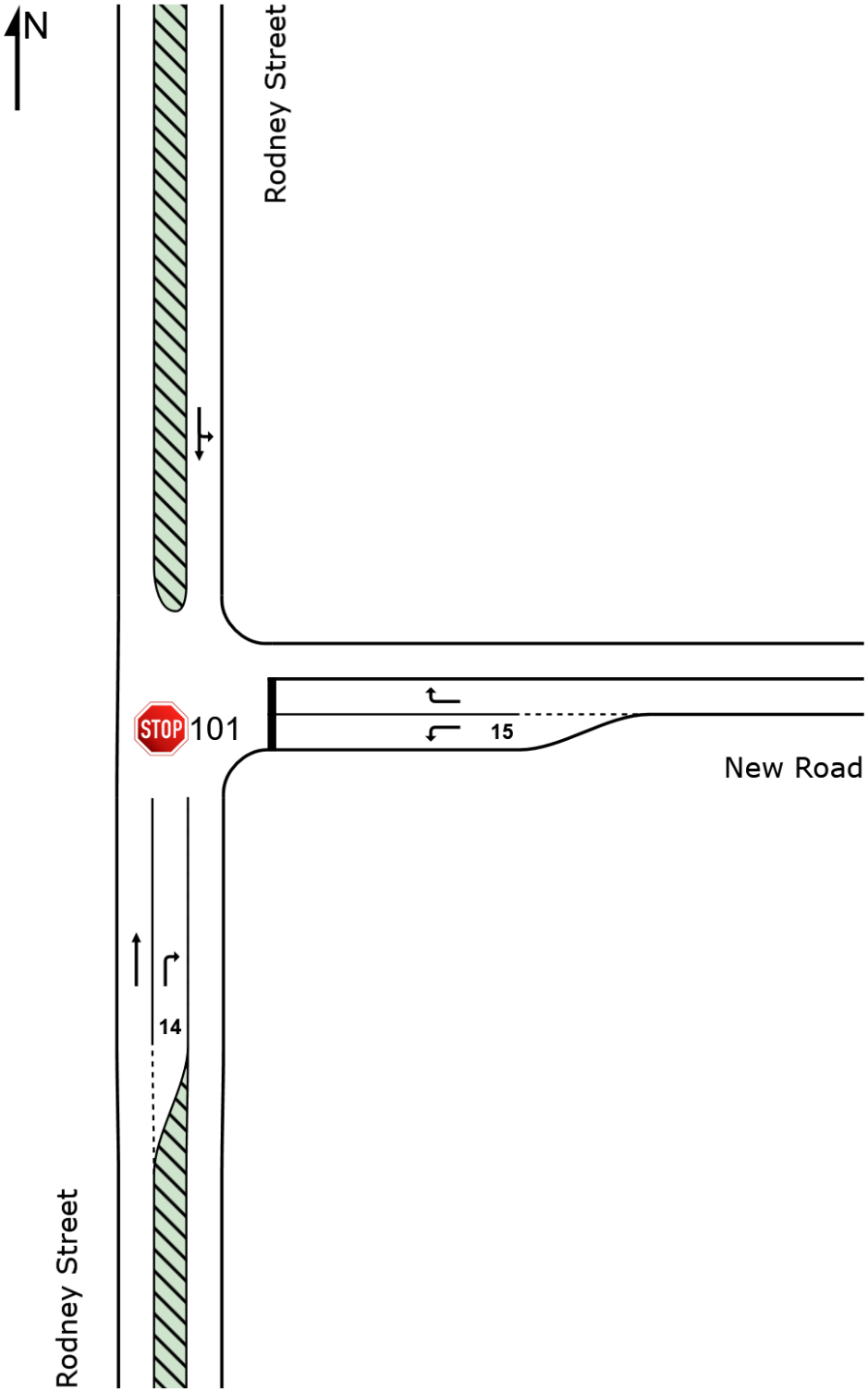


SITE LAYOUT

Site: 101 [FUT AM New Rd + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



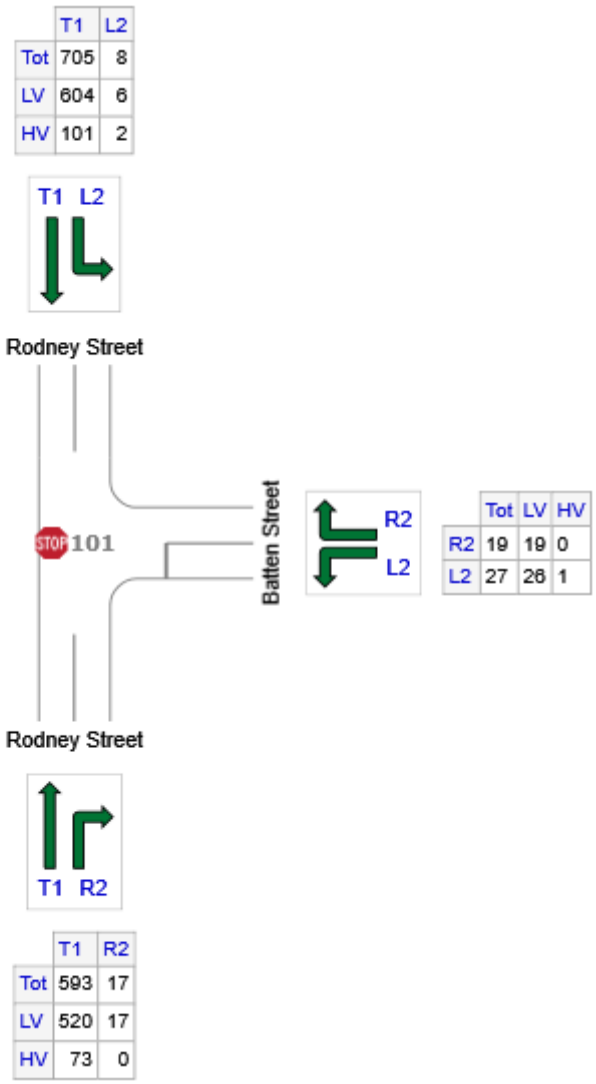
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [EX AM Batten St + bkg growth (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	610	537	73
E: Batten Street	46	45	1
N: Rodney Street	713	610	103
Total	1369	1192	177

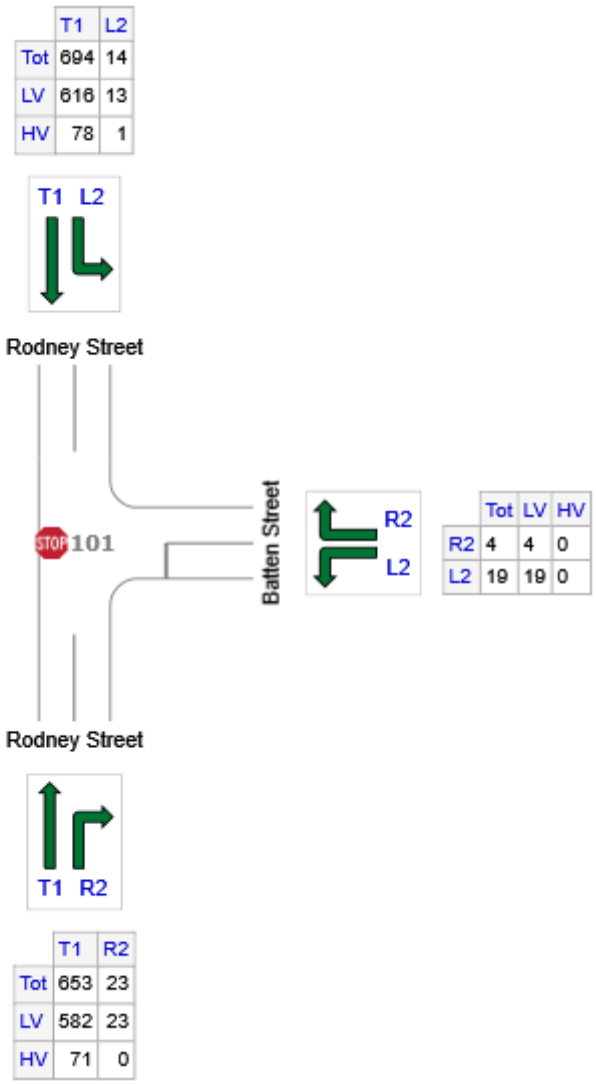
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [EX PM Batten St + bkg growth (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	676	605	71
E: Batten Street	23	23	0
N: Rodney Street	708	629	79
Total	1407	1257	150

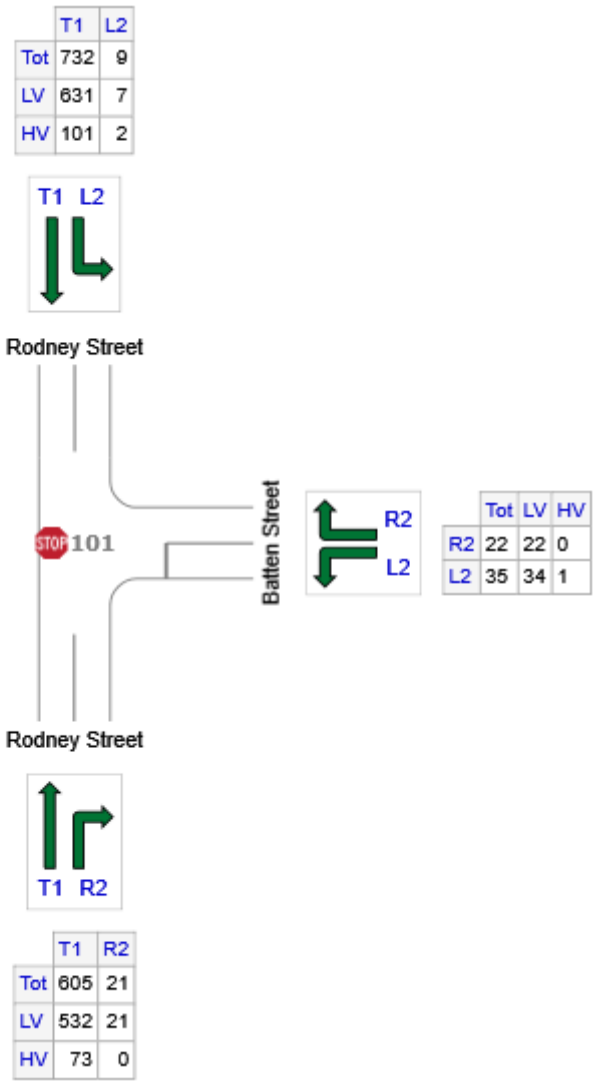
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT AM Batten St + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	626	553	73
E: Batten Street	57	56	1
N: Rodney Street	741	638	103
Total	1424	1247	177

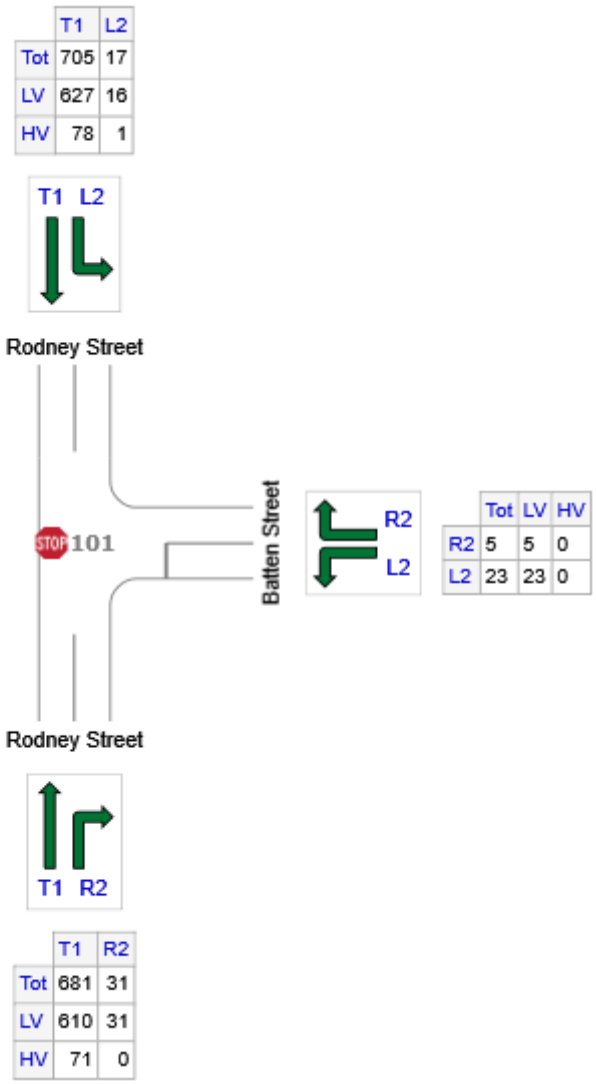
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT PM Batten St + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	712	641	71
E: Batten Street	28	28	0
N: Rodney Street	722	643	79
Total	1462	1312	150

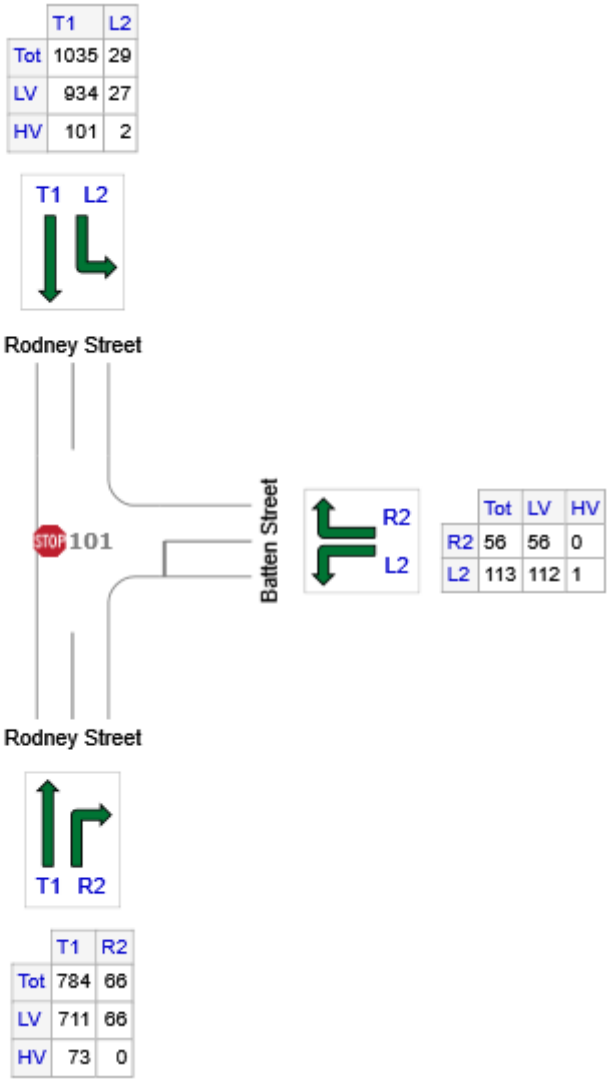
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT AM Batten St + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	850	777	73
E: Batten Street	169	168	1
N: Rodney Street	1064	961	103
Total	2083	1906	177

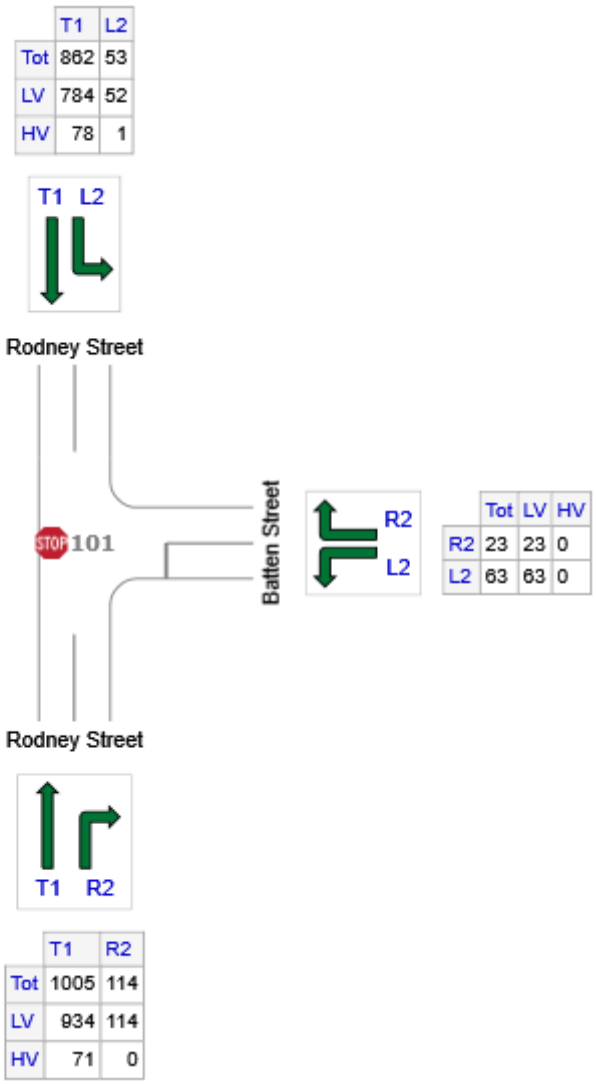
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT PM Batten St + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	1119	1048	71
E: Batten Street	86	86	0
N: Rodney Street	915	836	79
Total	2120	1970	150

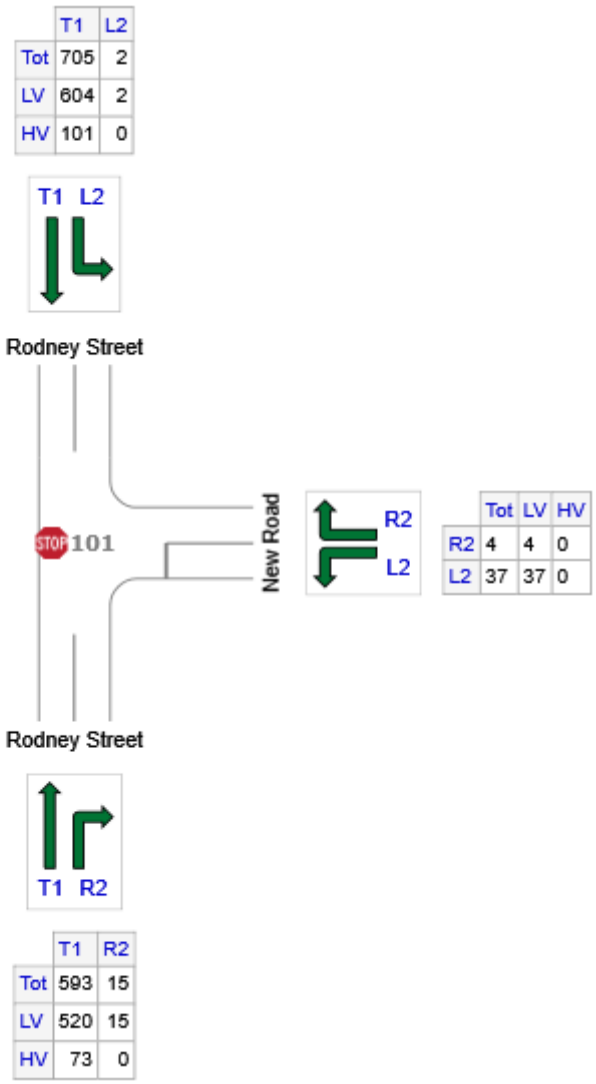
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT AM New Rd + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	608	535	73
E: New Road	41	41	0
N: Rodney Street	707	606	101
Total	1356	1182	174

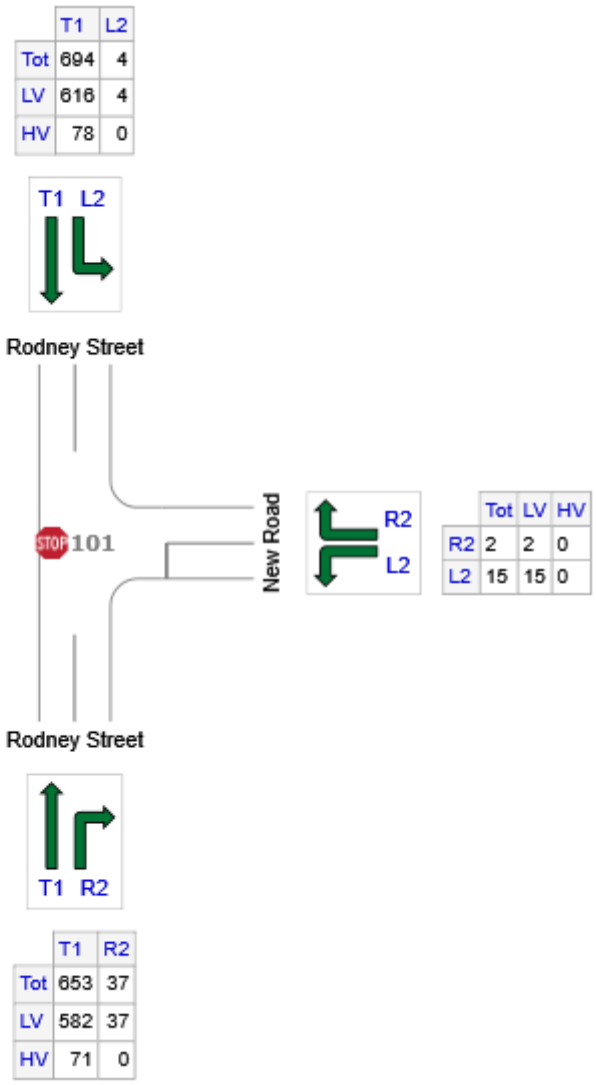
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT PM New Rd + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	690	619	71
E: New Road	17	17	0
N: Rodney Street	698	620	78
Total	1405	1256	149

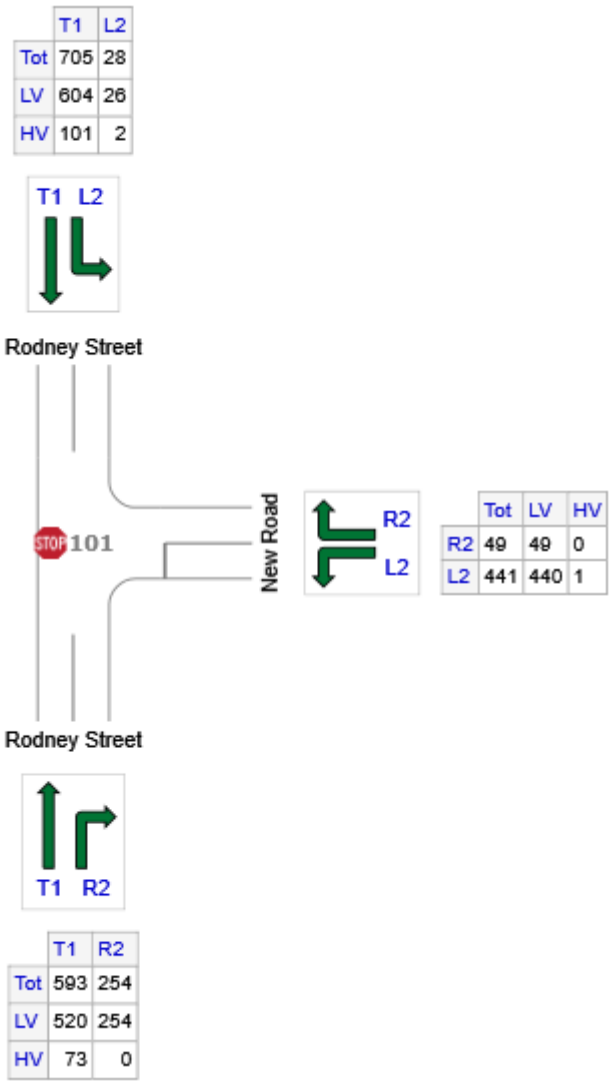
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT AM New Rd + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	847	774	73
E: New Road	490	489	1
N: Rodney Street	733	630	103
Total	2070	1893	177

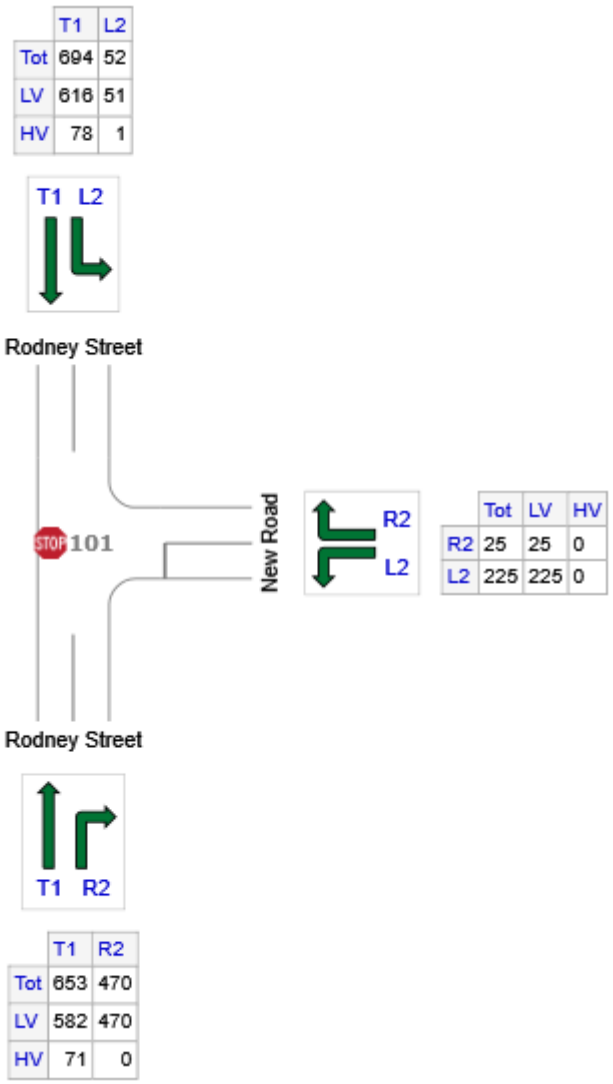
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [FUT PM New Rd + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Volume Display Method: Total and Veh



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Rodney Street	1123	1052	71
E: New Road	250	250	0
N: Rodney Street	746	667	79
Total	2119	1969	150

MOVEMENT SUMMARY

Site: 101 [EX AM Batten St + bkg growth (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	593	73	624	12.3	0.348	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	17	0	18	0.0	0.018	7.4	LOS A	0.1	0.5	0.63	0.69	0.63	44.6
Approach		610	73	642	12.0	0.348	0.3	NA	0.1	0.5	0.02	0.02	0.02	49.6
East: Batten Street														
4	L2	27	1	28	3.7	0.122	13.7	LOS B	0.4	2.8	0.74	1.00	0.74	41.7
6	R2	19	0	20	0.0	0.122	17.6	LOS C	0.4	2.8	0.74	1.00	0.74	41.4
Approach		46	1	48	2.2	0.122	15.3	LOS C	0.4	2.8	0.74	1.00	0.74	41.5
North: Rodney Street														
7	L2	8	2	8	25.0	0.421	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	48.8
8	T1	705	101	742	14.3	0.421	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		713	103	751	14.4	0.421	0.2	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		1369	177	1441	12.9	0.421	0.8	NA	0.4	2.8	0.03	0.05	0.03	49.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [EX PM Batten St + bkg growth (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	653	71	687	10.9	0.381	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	23	0	24	0.0	0.023	7.4	LOS A	0.1	0.7	0.62	0.69	0.62	44.6
Approach		676	71	712	10.5	0.381	0.4	NA	0.1	0.7	0.02	0.02	0.02	49.6
East: Batten Street														
4	L2	19	0	20	0.0	0.052	12.7	LOS B	0.2	1.2	0.68	0.98	0.68	42.5
6	R2	4	0	4	0.0	0.052	17.9	LOS C	0.2	1.2	0.68	0.98	0.68	42.1
Approach		23	0	24	0.0	0.052	13.6	LOS B	0.2	1.2	0.68	0.98	0.68	42.4
North: Rodney Street														
7	L2	14	1	15	7.1	0.410	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.1
8	T1	694	78	731	11.2	0.410	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		708	79	745	11.2	0.410	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		1407	150	1481	10.7	0.410	0.6	NA	0.2	1.2	0.02	0.03	0.02	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT AM Batten St + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	605	73	637	12.1	0.355	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	21	0	22	0.0	0.023	7.7	LOS A	0.1	0.7	0.64	0.71	0.64	44.4
Approach		626	73	659	11.7	0.355	0.4	NA	0.1	0.7	0.02	0.02	0.02	49.6
East: Batten Street														
4	L2	35	1	37	2.9	0.158	14.2	LOS B	0.5	3.7	0.76	1.00	0.76	41.4
6	R2	22	0	23	0.0	0.158	18.7	LOS C	0.5	3.7	0.76	1.00	0.76	41.1
Approach		57	1	60	1.8	0.158	16.0	LOS C	0.5	3.7	0.76	1.00	0.76	41.3
North: Rodney Street														
7	L2	9	2	9	22.2	0.436	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	48.9
8	T1	732	101	771	13.8	0.436	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		741	103	780	13.9	0.436	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		1424	177	1499	12.4	0.436	0.9	NA	0.5	3.7	0.04	0.05	0.04	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT PM Batten St + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	681	71	717	10.4	0.395	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	31	0	33	0.0	0.032	7.5	LOS A	0.1	1.0	0.63	0.71	0.63	44.5
Approach		712	71	749	10.0	0.395	0.5	NA	0.1	1.0	0.03	0.03	0.03	49.5
East: Batten Street														
4	L2	23	0	24	0.0	0.065	13.0	LOS B	0.2	1.5	0.69	1.00	0.69	42.3
6	R2	5	0	5	0.0	0.065	18.9	LOS C	0.2	1.5	0.69	1.00	0.69	41.9
Approach		28	0	29	0.0	0.065	14.0	LOS B	0.2	1.5	0.69	1.00	0.69	42.2
North: Rodney Street														
7	L2	17	1	18	5.9	0.418	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.1
8	T1	705	78	742	11.1	0.418	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		722	79	760	10.9	0.418	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		1462	150	1539	10.3	0.418	0.6	NA	0.2	1.5	0.03	0.04	0.03	49.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT AM Batten St + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	784	73	825	9.3	0.453	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
3	R2	66	0	69	0.0	0.136	12.1	LOS B	0.5	3.6	0.81	0.91	0.81	42.4
Approach		850	73	895	8.6	0.453	1.1	NA	0.5	3.6	0.06	0.07	0.06	49.1
East: Batten Street														
4	L2	113	1	119	0.9	0.547	31.8	LOS D	2.2	15.2	0.93	1.12	1.34	35.3
6	R2	56	0	59	0.0	0.591	61.7	LOS F	1.9	13.3	0.97	1.08	1.30	27.1
Approach		169	1	178	0.6	0.591	41.7	LOS E	2.2	15.2	0.94	1.11	1.32	32.1
North: Rodney Street														
7	L2	29	2	31	6.9	0.611	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	48.8
8	T1	1035	101	1089	9.8	0.611	0.4	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
Approach		1064	103	1120	9.7	0.611	0.5	NA	0.0	0.0	0.00	0.01	0.00	49.4
All Vehicles		2083	177	2193	8.5	0.611	4.1	NA	2.2	15.2	0.10	0.13	0.13	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT PM Batten St + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	1005	71	1058	7.1	0.573	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	49.5
3	R2	114	0	120	0.0	0.165	9.7	LOS A	0.7	4.8	0.73	0.88	0.73	43.6
Approach		1119	71	1178	6.3	0.573	1.3	NA	0.7	4.8	0.07	0.09	0.07	48.9
East: Batten Street														
4	L2	63	0	66	0.0	0.180	16.6	LOS C	0.6	4.2	0.78	1.00	0.79	41.1
6	R2	23	0	24	0.0	0.264	49.0	LOS E	0.7	5.2	0.96	1.02	1.03	29.9
Approach		86	0	91	0.0	0.264	25.3	LOS D	0.7	5.2	0.83	1.01	0.86	37.4
North: Rodney Street														
7	L2	53	1	56	1.9	0.523	4.8	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
8	T1	862	78	907	9.0	0.523	0.3	LOS A	0.0	0.0	0.00	0.03	0.00	49.4
Approach		915	79	963	8.6	0.523	0.5	NA	0.0	0.0	0.00	0.03	0.00	49.4
All Vehicles		2120	150	2232	7.1	0.573	1.9	NA	0.7	5.2	0.07	0.10	0.07	48.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT AM New Rd + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	593	73	624	12.3	0.348	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	15	0	16	0.0	0.015	7.4	LOS A	0.1	0.5	0.62	0.67	0.62	44.8
Approach		608	73	640	12.0	0.348	0.3	NA	0.1	0.5	0.02	0.02	0.02	49.7
East: New Road														
4	L2	37	0	39	0.0	0.077	13.2	LOS B	0.3	1.8	0.67	1.00	0.67	42.7
6	R2	4	0	4	0.0	0.013	16.7	LOS C	0.0	0.3	0.80	0.98	0.80	40.7
Approach		41	0	43	0.0	0.077	13.6	LOS B	0.3	1.8	0.68	1.00	0.68	42.5
North: Rodney Street														
7	L2	2	0	2	0.0	0.417	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
8	T1	705	101	742	14.3	0.417	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach		707	101	744	14.3	0.417	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.7
All Vehicles		1356	174	1427	12.8	0.417	0.7	NA	0.3	1.8	0.03	0.04	0.03	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT AM Batten St 75% (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	725	73	763	10.1	0.420	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
3	R2	57	0	60	0.0	0.091	10.1	LOS B	0.4	2.5	0.74	0.88	0.74	43.4
Approach		782	73	823	9.3	0.420	0.9	NA	0.4	2.5	0.05	0.06	0.05	49.2
East: Batten Street														
4	L2	92	1	97	1.1	0.323	21.2	LOS C	1.2	8.4	0.85	1.05	1.02	39.2
6	R2	47	0	49	0.0	0.328	34.4	LOS D	1.0	7.1	0.93	1.04	1.07	34.0
Approach		139	1	146	0.7	0.328	25.6	LOS D	1.2	8.4	0.88	1.05	1.03	37.3
North: Rodney Street														
7	L2	25	2	26	8.0	0.550	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	48.9
8	T1	925	101	974	10.9	0.550	0.3	LOS A	0.0	0.0	0.00	0.01	0.00	49.5
Approach		950	103	1000	10.8	0.550	0.4	NA	0.0	0.0	0.00	0.01	0.00	49.5
All Vehicles		1871	177	1969	9.5	0.550	2.5	NA	1.2	8.4	0.09	0.11	0.10	48.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT PM New Rd + bkg growth + fast track (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	653	71	687	10.9	0.380	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	37	0	39	0.0	0.037	7.3	LOS A	0.2	1.1	0.62	0.70	0.62	44.9
Approach		690	71	726	10.3	0.380	0.5	NA	0.2	1.1	0.03	0.04	0.03	49.5
East: New Road														
4	L2	15	0	16	0.0	0.030	12.7	LOS B	0.1	0.7	0.64	0.95	0.64	42.9
6	R2	2	0	2	0.0	0.007	17.3	LOS C	0.0	0.1	0.81	0.93	0.81	40.4
Approach		17	0	18	0.0	0.030	13.2	LOS B	0.1	0.7	0.66	0.95	0.66	42.6
North: Rodney Street														
7	L2	4	0	4	0.0	0.404	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
8	T1	694	78	731	11.2	0.404	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach		698	78	735	11.2	0.404	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.7
All Vehicles		1405	149	1479	10.6	0.404	0.5	NA	0.2	1.1	0.02	0.03	0.02	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT AM New Rd + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	593	73	624	12.3	0.349	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
3	R2	254	0	267	0.0	0.270	8.4	LOS A	1.4	9.5	0.69	0.88	0.75	44.3
Approach		847	73	892	8.6	0.349	2.6	NA	1.4	9.5	0.21	0.26	0.22	48.0
East: New Road														
4	L2	441	1	464	0.2	0.916	35.1	LOS E	12.2	85.6	0.96	1.96	3.81	34.2
6	R2	49	0	52	0.0	0.223	23.0	LOS C	0.7	4.9	0.88	1.02	0.95	38.0
Approach		490	1	516	0.2	0.916	33.9	LOS D	12.2	85.6	0.95	1.86	3.53	34.5
North: Rodney Street														
7	L2	28	2	29	7.1	0.433	4.8	LOS A	0.0	0.0	0.00	0.02	0.00	49.0
8	T1	705	101	742	14.3	0.433	0.2	LOS A	0.0	0.0	0.00	0.02	0.00	49.6
Approach		733	103	772	14.1	0.433	0.4	NA	0.0	0.0	0.00	0.02	0.00	49.6
All Vehicles		2070	177	2179	8.6	0.916	9.2	NA	12.2	85.6	0.31	0.56	0.93	44.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FUT PM New Rd + bkg growth + full buildout (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Rodney Street														
2	T1	653	71	687	10.9	0.584	1.2	LOS A	3.0	23.2	0.57	0.00	0.68	48.3
3	R2	470	0	495	0.0	0.501	10.3	LOS B	3.6	25.2	0.75	1.04	1.16	43.3
Approach		1123	71	1182	6.3	0.584	5.0	NA	3.6	25.2	0.64	0.44	0.88	46.1
East: New Road														
4	L2	225	0	237	0.0	0.446	15.7	LOS C	2.2	15.4	0.76	1.11	1.07	41.6
6	R2	25	0	26	0.0	0.160	28.3	LOS D	0.5	3.3	0.91	1.00	0.92	36.1
Approach		250	0	263	0.0	0.446	17.0	LOS C	2.2	15.4	0.77	1.10	1.06	40.9
North: Rodney Street														
7	L2	52	1	55	1.9	0.432	4.7	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
8	T1	694	78	731	11.2	0.432	0.2	LOS A	0.0	0.0	0.00	0.04	0.00	49.5
Approach		746	79	785	10.6	0.432	0.5	NA	0.0	0.0	0.00	0.04	0.00	49.5
All Vehicles		2119	150	2231	7.1	0.584	4.8	NA	3.6	25.2	0.43	0.37	0.59	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX C: CORRESPONDENCE

Rachel Gasson

From: Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Sent: Sunday, 12 September 2021 9:07 pm
To: Rachel Gasson
Subject: RE: Wellsford Private Plan Change

Kia ora Rachel,

Sorry to just get back to you on a Sunday night, the end of another week in lockdown was really busy again!

I've spoken to our network team and our initial comment is that while we currently do not foresee any issues with the proposed intersection location, Waka Kotahi cannot comfortably approve or give approval in principal to the proposed location until an appropriate access design/treatment is submitted for assessment or comment. Furthermore, without knowing the type of zoning that is proposed, it's difficult to support the proposed location without knowing the nature of what the access treatment is servicing.

Please let me know if you have any other questions. We really appreciate the early engagement.

Kind regards,

Ashleigh Peti (she/her)

Planner - Environmental Planning (Auckland/Northland)

Poutiaki Taiao | System Design

Email: ashleigh.peti@nzta.govt.nz

Mobile: 021 538 172

Waka Kotahi NZ Transport Agency

Auckland, Level 5, AON Centre, 29 Custom Street West

Private Bag 106602, Auckland 0622, New Zealand

Facebook | Twitter | LinkedIn

From: Rachel Gasson <rachel@commute.kiwi>
Sent: Friday, 10 September 2021 1:48 PM
To: Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Subject: RE: Wellsford Private Plan Change

Hi Ashleigh,

Happy Friday!

Just following up on my earlier email. If you have any questions please let me know, otherwise we look forward to hearing Waka Kotahi's thoughts on tis.

Thank you,

Rachel Gasson
Senior Transport Consultant
Commute Transportation
M 021 984 871 **W** www.commute.kiwi
A 4 Leek Street, Newmarket 1023, Auckland
P PO Box 128259, Remuera 1541, Auckland

From: Rachel Gasson
Sent: Friday, 3 September 2021 3:09 pm
To: Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Subject: RE: Wellsford Private Plan Change

Hi Ashleigh,

No worries, it's also been busy on the consulting side so I'm not surprised to hear this. Thank God it's Friday however!

If you could advise as to whether Waka Kotahi could support an intersection at the proposed location that would be helpful. The access has a considerable impact on the site plan, and therefore it would be beneficial for the team if we could have some comfort that the access is supportable in principle.

If you have any questions please do let me know.

Thank you,

Rachel Gasson
Senior Transport Consultant
Commute Transportation
M 021 984 871 **W** www.commute.kiwi
A 4 Leek Street, Newmarket 1023, Auckland
P PO Box 128259, Remuera 1541, Auckland

From: Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Sent: Friday, 3 September 2021 2:59 pm
To: Rachel Gasson <rachel@commute.kiwi>
Subject: RE: Wellsford Private Plan Change

Kia ora Rachel,

Firstly, apologies for the delay in getting back to you – lockdown has interestingly been very busy for us here!

Based on the masterplan provided, do I take it that you are just seeking high level comments on the proposed intersection location for now, until such a time that a design is submitted to us for review?

Kind regards,

Ashleigh Peti (she/her)

Planner - Environmental Planning (Auckland/Northland)

Poutiaki Taiao | System Design

Email: ashleigh.peti@nzta.govt.nz

Mobile: 021 538 172

Waka Kotahi NZ Transport Agency

Auckland, Level 5, AON Centre, 29 Custom Street West

Private Bag 106602, Auckland 0622, New Zealand

Facebook | Twitter | LinkedIn

From: Rachel Gasson <rachel@commute.kiwi>
Sent: Friday, 27 August 2021 11:38 AM
To: Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Subject: RE: Wellsford Private Plan Change

Kia Ora Ashleigh,

I hope this email finds you well.

We are working on a plan change in Wellsford which include a proposed new access onto Rodney Road / SH1 and as such are seeking feedback on the proposed new intersection. I have attached the draft planning documents that have been shared with Council, and would appreciate if you could provide some feedback on the proposed access onto SH1. We undertook a site visit earlier in the year and found the proposed location preferable based on the road geometry and sightlines. This said, it would be appreciated if you could provide feedback as to Waka Kotahi's thoughts on this access.

Please be aware that there is no definitive zoning at this stage.

We look forward to your feedback.

Thank you,

Rachel Gasson
Senior Transport Consultant
Commute Transportation
M 021 984 871 W www.commute.kiwi
A 4 Leek Street, Newmarket 1023, Auckland
P PO Box 128259, Remuera 1541, Auckland

From: Brendan Clarke <Brendan.Clarke@nzta.govt.nz>
Sent: Tuesday, 17 August 2021 9:14 am

To: Rachel Gasson <rachel@commute.kiwi>; Ashleigh Peti <Ashleigh.Peti@nzta.govt.nz>
Cc: Leo Hills <leo@commute.kiwi>
Subject: RE: Wellsford Private Plan Change

Hi Rachel,

My colleague Ashleigh Peti will be the contact point for this proposal moving forward – please get in touch with her when ready.

Ngā mihi

Brendan Clarke

Senior Planner | System Design
Poutiaki Taiao | Environmental Planning

Email: brendan.clarke@nzta.govt.nz
Phone: 021 391 864

Waka Kotahi New Zealand Transport Agency

Auckland, Level 5, AMP Tower, 29 Customs Street West
Private Bag 106602, Auckland 1143, New Zealand

Facebook | Twitter | LinkedIn

From: Rachel Gasson <rachel@commute.kiwi>
Sent: Wednesday, 11 August 2021 3:29 PM
To: Brendan Clarke <Brendan.Clarke@nzta.govt.nz>
Cc: Leo Hills <leo@commute.kiwi>
Subject: Wellsford Private Plan Change

Hi Brendan,

My colleague Graham Norman kindly provided your details, as we are working on a Private Plan Change in Wellsford which fronts State Highway 1 (Rodney Street). I have attached the draft master plan document, however note that the key aspect we are seeking advice from Waka Kotahi on is the proposed new intersection between the site and SH1.

Two accesses are proposed to service the plan change area, including this new intersection on to SH1 and an extension to Monowai Street (which connects to Batten Street and subsequently SH1). We have undertaken a site visit and note that the sightlines available from the proposed new SH1 intersection are better than the sightlines available at the intersection of Batten Street / SH1. As such, the land use planning to date has located most of the density near this access to encourage vehicle access to be via this intersection.

Can you please let us know who from Waka Kotahi we should talk to about this?

Thank you,

Rachel Gasson
Senior Transport Consultant
Commute Transportation
M 021 984 871 **W** www.commute.kiwi
A 4 Leek Street, Newmarket 1023, Auckland
P PO Box 128259, Remuera 1541, Auckland

This message, together with any attachments, may contain information that is classified and/or subject to legal privilege. Any classification markings must be adhered to. If you are not the intended recipient, you must not peruse, disclose, disseminate, copy or use the message in any way. If you have received this message in error, please notify us immediately by return email and then destroy the original message. This communication may be accessed or retained by Waka Kotahi NZ Transport Agency for information assurance purposes.
This message, together with any attachments, may contain information that is classified and/or subject to legal privilege. Any classification markings must be adhered to. If you are not the intended recipient, you must not peruse, disclose, disseminate, copy or use the message in any way. If you have received this message in error, please notify us immediately by return email and then destroy the original message. This communication may be accessed or retained by Waka Kotahi NZ Transport Agency for information assurance purposes.