Transportation Impact Report

Private Plan Change Request

Maitahi and Bay View

Nelson

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1 EXECUTIVE SUMMARY

This report provides an analysis and assessment of the transportation environment and considers the impacts of a Private Plan Change Request (PPCR) for the areas known as Bay View and Maitahi by the CCKV Maitai Dev Co LP and Bayview Nelson Limited (the Applicant). The analysis has considered the existing issues with the road network and taken a gap assessment approach to identify potential effects of PPCR.

It should be noted that Nelson City Council are making a fundamental change in transport mode choice through changes in policy to have a greater focus on alternative transport modes such as walking, cycling and public transport which aligns with the Government Policy Statement for Transport (GPS). This philosophical change of how people use the road network will be reflected in the policies and planning for future developments and within the existing road network. The PPCR area set out is ideally located to enable this transport mode change and aligns well with the new direction that Nelson City Council and Government are taking.

The PPCR change area has a total land area of around 287 hectares, including the flat valley floor land and the hillsides. The PPCR area is located very close to the Nelson central area which provides an excellent opportunity to encourage walking/cycling and passenger transport as a preferred transport mode. There will also be a variety of section types which will allow a cross section of the community to live and play in the PPCR area.

It is thought the PPCR area once completed will have around 750 homes. The development of the land will be completed over several stages and will advance from both directions. A connection between Maitahi and Bay View, and visa vera, will be formed in stages as the development progresses from both ends. A new road connection from Walters Bluff to the top of Bay View is also proposed in the future.

Access to the development is currently via Bay View Road and Maitai Valley Road. Investigations have shown other future connections to access the hilltop area of the Bay View with Atawhai Drive may be available over time. The PPCR is expected to generate around 4,500 vehicle movements per day or around 450 trips in the peak hours. As noted above the PPCR area is ideally located to make use of alternative transport modes. There will be excellent pedestrian and cycle linkages that will be provided to the wider road network, with these linkages being an integral part of the PPCR.

The issues and gap analysis has identified a small number of specific network deficiencies that currently exist as well as parts of the road network where future works may be needed to manage the growth of the development. The key projects to address existing deficiencies and provide for future growth were identified as improving safety of the intersection of Nile Street East and Maitai Valley Road as well as the safety of Nile Street. There were no capacity constraints on the wider road network including Walters Bluff and Bay View Road.

The key advantages/opportunities of the PPCR is its proximity to the centre of Nelson City and its location being on the eastern side of the city. The PPCR area is only three kilometres from the centre of the business district and will enable excellent walking and cycling connections to be developed and used. The PPCR area is also located on a part of the Nelson roading network that is operating well below capacity, especially when compared to the southern side of Nelson. Using this spare capacity in the road network will make more efficient use of existing infrastructure and not require significant roading upgrades to accommodate the PPCR.

The PPCR also provides more opportunities to provide a connected and more resilient road network by providing alternative routes for existing roads should the need arise. Traffic on SH6 will be able to access Nelson central area should the highway be closed temporarily and the same applies to the Maitai Valley. This provides a more resilient transport network for the city.

In summary the PPCR area is ideally located to take advantage of space capacity in the adjacent road network and encourage alternative transport modes. The PPCR area is well positioned to provide a well-connected development area that will enable excellent walking and cycling opportunities to work and other services. This aligns well with the policies and objectives of the Nelson Resource Management Plan and Council's focus on reducing vehicle use and alternative transport modes to town. The PPCR is also consistent with the outcomes provided for in the Government Policy Statement (GPS).

2 INTRODUCTION

This report has been prepared as supporting material for an application for PPCR to the Nelson Resource Management Plan under Schedule 1 of the Resource Management Act.

The purpose of this report is to provide a traffic and transportation assessment to assist in the planning analysis of the environmental risks, opportunities, costs and benefits of the Plan Change. This report also enables the development of planning provisions or the use of existing Plan provisions to avoid remedy or mitigate any effects appropriately for the PPCR.

This assessment is sufficient for its intended purpose and will appropriately enable an analysis under the Resource Management Act and the Section 32 analysis.

This assessment has been prepared under the guidance of the Code of Conduct for Expert Witnesses issued as part of the Environment Court Practice Note 2014 (Part 7).

At the end of this report is a concluding analysis of the anticipated transportation effects of the PPCR in light of the Plan provisions that will form part of the PPCR application.

It is considered the transportation analysis provides an accurate statement of the anticipated effects relevant to the environmental effects addressed in this report. It is recognised that some of the effects will be addressed at resource consent stage. The report authors consider that is the appropriate time and process by which those effects will be addressed.

The PPCR change area has a total land area of around 287 hectares. The PPCR area is located very close to the Nelson central area which provides an excellent opportunity to encourage walking/cycling and passenger transport as a preferred transport mode. There will also be a variety of section types which will allow a cross section of the community to live and play in the PPCR area.

It is thought the PPCR area once completed will have around 750 homes. The development of the land will be completed over several stages and will gradually move up the Maitahi valley and separately on the Bay View hills. A connection between Maitahi and Bay View, and visa vera, will be formed in stages as the development progresses from both ends with a new future link from the end of Walters Bluff.

3 SITE LOCATION AND DESCRIPTION

The site is located on the hilltop to the east (Bay View) of Nelson City Centre as well as the Maitahi Valley. The site is in two land holdings.

Figure 1 shows the land holdings that form part of the extension to the urban area of Nelson.

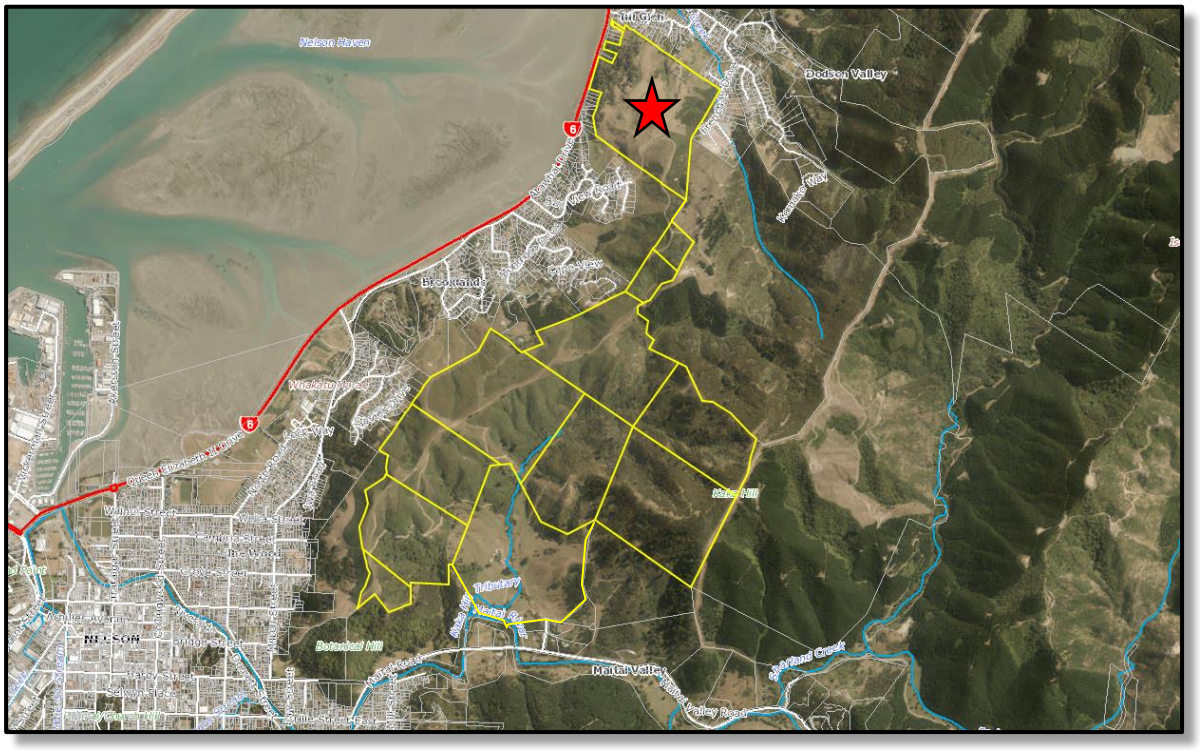

Figure 1: Land Development Area. Source (Top of the South Maps)

The area contained within the yellow boxes (except the parcel highted with a star) represents the land holdings within the PPCR.

The PPCR area has a total land area of around 287 hectares, ranging from the flat valley floor to relatively steep sided hillsides. The PPCR area is located very close to the Nelson central area which provides an excellent opportunity to encourage walking/cycling and passenger transport as a preferred transport mode. The Structure Plan also enables, by the proposed zoning pattern and associated Schedule of rules, a variety of section types which will allow a cross section of the community to live and play in the new residential area.

The site ranges from low level floodplains at the bottom end of the Kaka Hill Stream, through the Maitahi Valley floor, up on to the steep sloping hillsides and finally the hilltop which represents the Bay View part of the PPCR. Buildable areas will require the appropriate geotechnical and topographical analysis and assessments.

There are various farm tracks through the PPCR area that are driveable with a four-wheel drive vehicle. In most places a two-wheel drive vehicle can negotiate the farm tracks.

Access to the PPCR area is via Bay View Road (from SH6) and Ralphine Way which is off Maitai Valley Road. There are no other current road connections to the PPCR area site but there are various parts of the PPCR area that bounds land that provides the future opportunity for additional vehicle and cycle/pedestrian connections.

It should be noted that both the Maitai Valley and Bay View Area have limited access and connectivity with both areas susceptible to being cut off from the adjacent road networks due to the lack of linkages and the single access route configuration.

4 TRANSPORT ENVIRONMENT

This section provides information about the existing road network. The PPCR area has two access points to the wider road network, being Bay View Road and Maitai Valley Road. These roads will form the main roading connections to the city centre, to the south and to the north.

4.1 Atawhai Drive (SH6)

Atawhai Drive, which is also State Highway 6, carries around 11,900 vehicles per day (2017) and is listed as SH6 in the Nelson Resource Management Plan (NRMP). The intersection of Atawhai Drive and Bay View Road is a tee junction with motorists on Bay View Road required to give way to highway traffic. There is a right turn bay provided within a flush median that runs along part of the highway in this location. The sight distances for traffic exiting Bay View Road are more than 500 metres in both directions and easily meet best practice, the NRMP and NZTA requirements for the 100 km/h posted speed limit. The speed limit along Atawhai Drive is reducing to 80 km/h on 18 December 2020.

4.2 Nile Street East

Nile Street East is listed as a Collector Road in the Nelson Resource Management Plan. Its main function is to provide for vehicle movements with its secondary purpose being for property access.

Figure 2 shows the road environment along Nile Street East.

Figure 2: Nile Street East

Nile Street East is a straight, flat road with two lanes, one lane in each direction. There are footpaths along both sides. There are separated cycle provisions along most of its length on both sides. Nile Street East carriageway varies in width from around nine metres to 17 metres. There is kerb and channel along most of its length.

The intersections along Nile Street East have excellent sight distances and motorists are provided with a relatively safe environment.

Immediately east of the intersection of Nile Street East and Maitai Road is a one lane bridge providing access to residential properties to the east and up into the hills.

4.3 Maitai Road/Nile Street East Intersection

Figure 3 shows the intersection of Nile Street East and Maitai Valley Road.

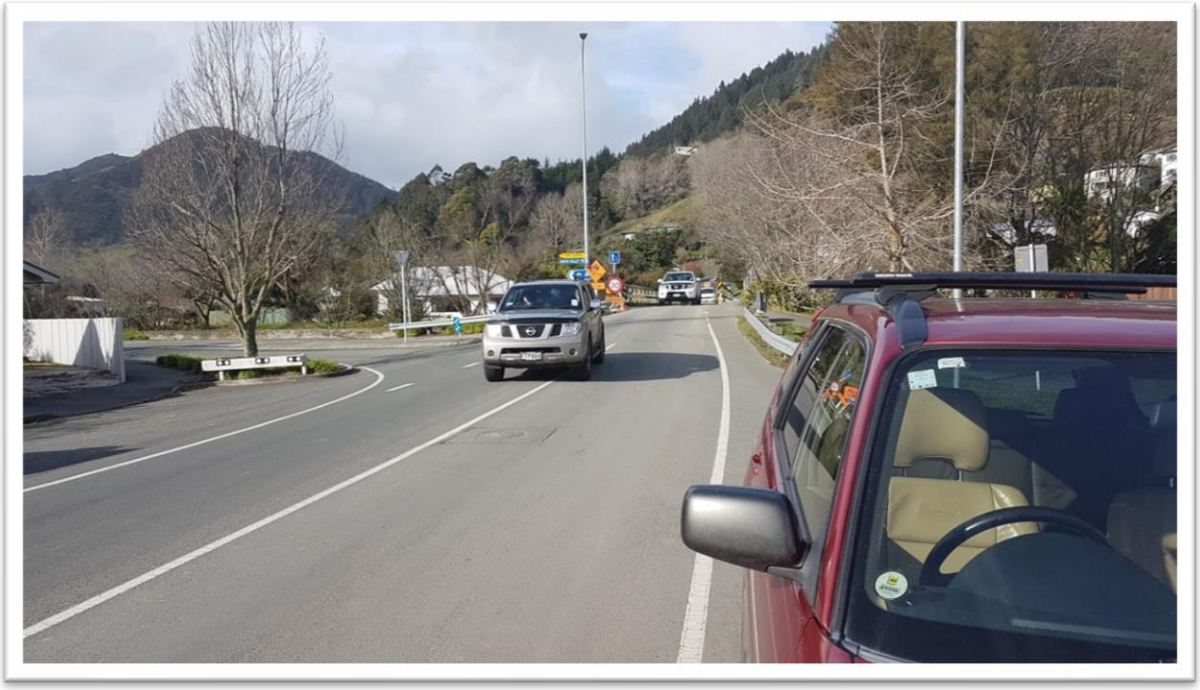

Figure 3: Nile Street East/Maitai Valley Road Intersection

As shown the one lane bridge has been set up to provide priority to vehicles travelling east along Nile Street East. The sight distance along Nile Street East is sufficient for vehicles approaching along this road across the one lane bridge.

Figure 4 shows the Maitai Valley Road approach to its intersection with Nile Street East.

Figure 4: Maitai Valley Road approach to Nile Street East.

Matai Valley Road is controlled by give way signs requiring vehicles to give way to traffic moving along Nile Street East. There is guardrail on the approaches to the intersection along with a chevron board to highlight the intersection. The guidance provided to motorists approaching the intersection is excellent, allowing drivers to easily identify the intersection and its controls.

Figure 5 shows the sight distance for vehicles exiting Maitai Road to the west.

Figure 5: Maitai Valley Road Sight Distances to the West

As shown the sight distance to the west towards Nelson City is excellent, even with angled parked vehicles on the approach.

Figure 6 shows the sight distance to the east from the intersection.

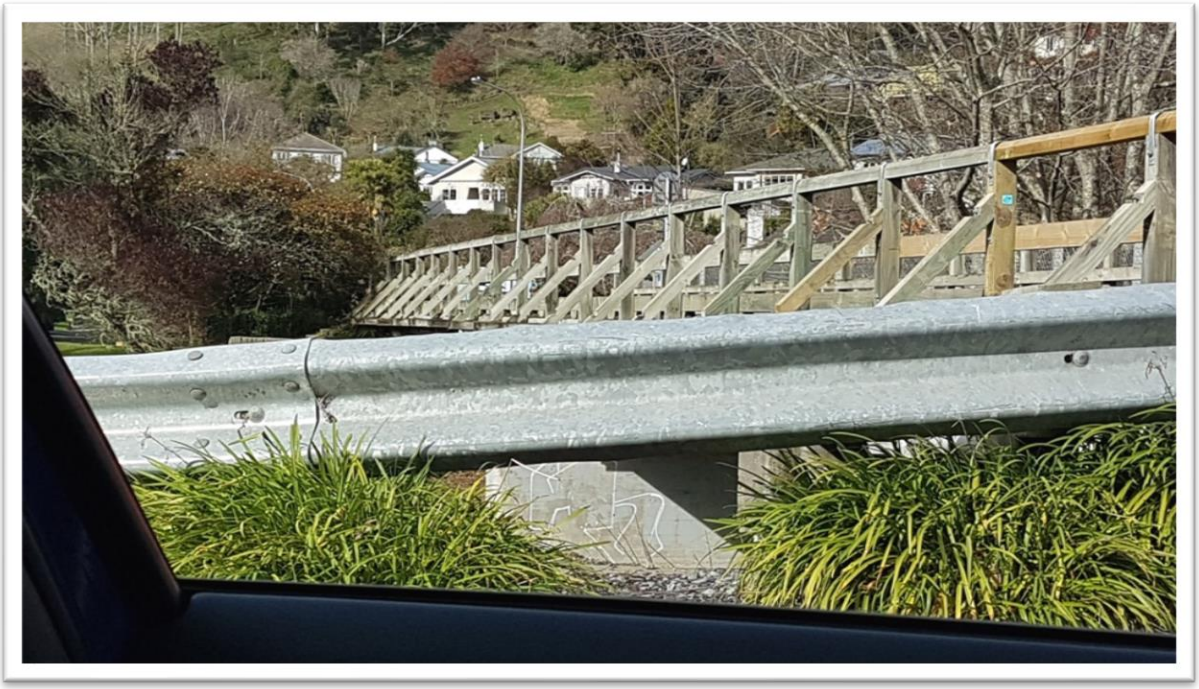

Figure 6: Maitai Valley Road Sight Distances to the East

As shown, the sight distances to the east are obstructed by the handrail structure associated with the one lane bridge. The sight distance for motorists coming from the east along Nile Street East (across the bridge) is also limited.

4.4 Maitai Road (Maitai Valley Road)

Maitai Road has a posted speed limit of 50 km/h even though it is rural in nature with no development along its edges. Typically, this road type would have a 100km/h speed limit, but it is assumed that it has the lower speed limit because it sits within the urban area of Nelson City and the recreational activities along its length. The road is listed as a Local Road in the Nelson Resource Management Plan.

The road itself varies noticeably along its length with narrow sections with no shoulders to wide portions of road with a flush median.

Figure 7 shows the road layout along the first section of Maitai Road.

Figure 7: First Section of Maitai Road

The first section of Maitai Road is around 10 metres wide with a painted flush median along its length. There is no kerb and channel or footpaths along this section of road. Edge lines are also provided with heavy bollards along the edge of the road. A number of these treatments would appear to be an attempt to reduce the speed along this section of road. The Police regularly enforce the speed along this section of Maitai Valley Road.

Figure 8 shows the road environment at Jickells Bridge.

Figure 8: Maitai Road at Jickells Bridge

The road narrows as it comes to Jickells Bridge where the flush median is replaced with a dashed centreline and no edge lines. The width of the road is around seven metres between kerbs with 1.2 metre wide footpaths along both sides.

Figure 9 shows Maitai Valley Road as it approaches Gibbs Bridge.

Maitai Valley Road at Gibbs Road (one lane bridge) narrows further and has a width of around 7.5 metres. The width of the bridge is around 3.7 metres with an area that can be used as a footpath on the southern side and is around one metre wide.

Figure 9: Maitai Valley Road at Gibbs Bridge

Vehicles approaching Gibbs Bridge are provided with good forward sight distances that allow opposing traffic to react and stop should the need arise. The bridge does reduce the operating speed at this location.

Moving further along Maitai Valley Road, past Ralphine Way, the route becomes slightly narrower in some places with more horizontal curves.

4.5 Ralphine Way

Ralphine Way is a short cul de sac which is around 170 metre long that provides access to the PPCR area (existing farm) and seven residential homes.

Figure 10 shows the road layout of Ralphine Way.

Figure 10: Ralphine Way

The road is around nine metres wide and has kerb and channel along both sides of the road. There are no footpaths along the road which is sealed.

The intersection of Ralphine Way and Maitai Valley Road is uncontrolled with Maitai Valley Road having the vehicle priority. Motorists exiting Ralphine Way have excellent sight lines in both directions.

The formation width of Ralphine Way is much wider than would be required to serve the number homes it currently provides for. This would suggest it was constructed with future growth in mind. Its current width of nine metres is consistent with the requirements for a local residential road as set out in the engineering standards for when the road was constructed. More recently the road cross section would easily meet the requirements of a sub collector road for the movement of vehicles.

4.6 Walters Bluff

Walters Bluff is a relatively short cul de sac (450 metres) that provides access to the south western end of the Bay View Hills. There are homes on northern side of the road with no homes on the southern side for most of its length. Walters Bluff connects to the wider road network via the non state highway section of Atawhai Drive which is controlled by give way signs. From this intersection it is a short route to either the city centre or SH6.

Figure 11 shows the general road environment of Walters Bluff.

Figure 11: Walters Bluff

Walters Bluff is around 10.5 metres wide with a footpath along the northern side of the road. There is kerb and channel along both sides of the road and there are intersection markings but no centre lines. Parking is permitted along both sides of the road.

4.7 Bay View Road

Bay View Road is listed as a Sub Collector Road in the NRMP. A Sub Collector Road is an "Unclassified Road" as set out in the Nelson Tasman Land Development Manual (NTLDM). The function of Bay View Road is to provide a connection for the adjacent properties to the wider road network.

Bay View Road has kerb and channel along both sides of the road with a footpath generally along the northern side of the road. The road alignment is curvilinear with a measured operating speed of around 44 km/h which is below the posted speed limit of 50 km/h.

A Sub Collector Road provides a high level of amenity and prioritises access to adjoining property over local traffic movements. Through traffic is not a desired outcome for a Sub-Collector Road.

Bay View Road has been developed over a number of years with the lower sections of the road being older and has a straighter alignment with the higher, newer, parts of the road being part of more recent subdivisions. The road alignment has tighter curves through this section which straighten slightly on the flatter higher slopes.

The access to the PPCR area is located at the end of Bay View Road.

Figure 12 shows the road environment along the bottom section of Bay View Road.

Figure 12: Bay View Road – bottom section

As shown this section of Bay View Road is straight with a few cars parked along the street. There is no centreline marked with a moderate gradient as the road heads down the hill towards SH6.

The road at this point is around eight metres wide from kerb to kerb with all houses having off street parking for at least two vehicles. This allows for two-way traffic, however when cars are parked opposite each other on the street, the road would be narrowed down to one lane. This would have the effect of slowing down opposing traffic as one motorist would need to give way to the other. This can be done safely as there is excellent visibility along the section of Bay View Road.

Figure 13 shows the typical road environment further up Bay View Road as it climbs the hill to the development. The road itself remains relatively consistent in terms of its width. Bay View Road starts to follow the hill contours as it climbs up to the development site which leads to a road alignment with more curves and less straights.

Figure 13: Bay View Road – mid section.

As shown, there is a solid centreline along most of its length on the upper sections of the road. This has been done to assist motorists as they negotiate the curves on this section of road. It also has the effect of reducing the operating speed.

Figure 14 shows the road environment on the higher sections of Bay View Road.

Figure 14: Bay View Road – higher section.

As shown, the road alignment and general environment is similar to the middle sections with solid centreline and curvilinear design. The road again has a similar width to the lower sections with the footpath being on one side of the road. This design has the effect of reducing the high speeds that would be seen on straighter flatter roads.

5 TRAFFIC FLOWS

5.1 General

This section provides traffic count data for the key roads adjacent to the PPCR area. There is also an analysis of the traffic count data for Bay View Road as this provides a useful context of the traffic environment.

5.2 Atawhai Drive (SH6)

The traffic flows have been recorded on SH6 Atawhai Drive near the Atawhai Cemetery. The count data recorded in the third week of November 2020 showed daily flows of around 12,700 vehicles and peak hourly flows of around 1,000 vehicles.

The morning peak period was between 7:00am and 8:00am with the seven-day AADT being around 970 vehicles per hour. The afternoon/evening peak period was occurred between 3pm and 4pm with the seven-day AADT being around 1050 vehicles per hour.

A brief check on the effects of Covid-19 on traffic flows was carried out with traffic counts from November 2019 reviewed. The recorded AADT for the same week a year earlier was around 13,000 vehicles per day. Based on the recorded flows in 2020, there appears to be no material impact of Covid-19 on traffic movements.

The 85th percentile speed in November 2020 was around 96km/h with the posted speed limit being 100km/h. In December 2020 Waka Kotahi (NZTA) reduced the speed limits between Blenheim and Nelson which is likely to influence the operating speed on Atawhai Drive. No data is available on the effect of the lower speed limits at this time. The lower speed limits will reduce the severity of any crashes and generally make the road environment safer.

5.3 Maitai Valley Road

The traffic flows were recorded on Maitai Valley Road, just east of the Jickells Bridge in April 2016. The count data showed daily flows of around 950 vehicles and peak hourly flows of around 90 vehicles. It should be noted that Maitai Valley Road has high seasonal variations and high weekend flows due to a number of recreational activities in this area. Therefore, the traffic flows are expected to be higher than the volumes recorded in April 2016.

Speed data was also collected which showed that the 85th percentile speed was around 64 km/h which is 14 km/h above the posted speed limit. Westbound traffic was travelling slightly slower than eastbound traffic.

5.4 Nile Road East

Traffic count data has been provided by Nelson City Council for traffic movements and speeds along Nile Street East and Maitai Valley Road.

The traffic flows were recorded on Nile Street East, east of its intersection with Tory Street in June 2018. The count data showed daily flows of around 2,700 vehicles per day and around 230 vehicles in the peak hour.

Speed data was also collected which showed the 85th percentile speed to be around 54 km/h. Vehicles were travelling slightly faster in the westbound direction compared with the eastbound traffic.

5.5 Bay View Road

Traffic counts were carried out on Bay View Road to gain an understanding of the number of vehicles that are travelling on the upper parts of this road. The data also provides an understanding of the traffic generation per dwelling as well as measuring the operating speed.

The traffic counts were carried out on the week of 22 July 2019 with the counter being placed outside 42 Bay View Road. This location was chosen as more closely represented the road environment that the proposed development would represent.

Figure 15 shows the weekly traffic patterns along Bay View Road.

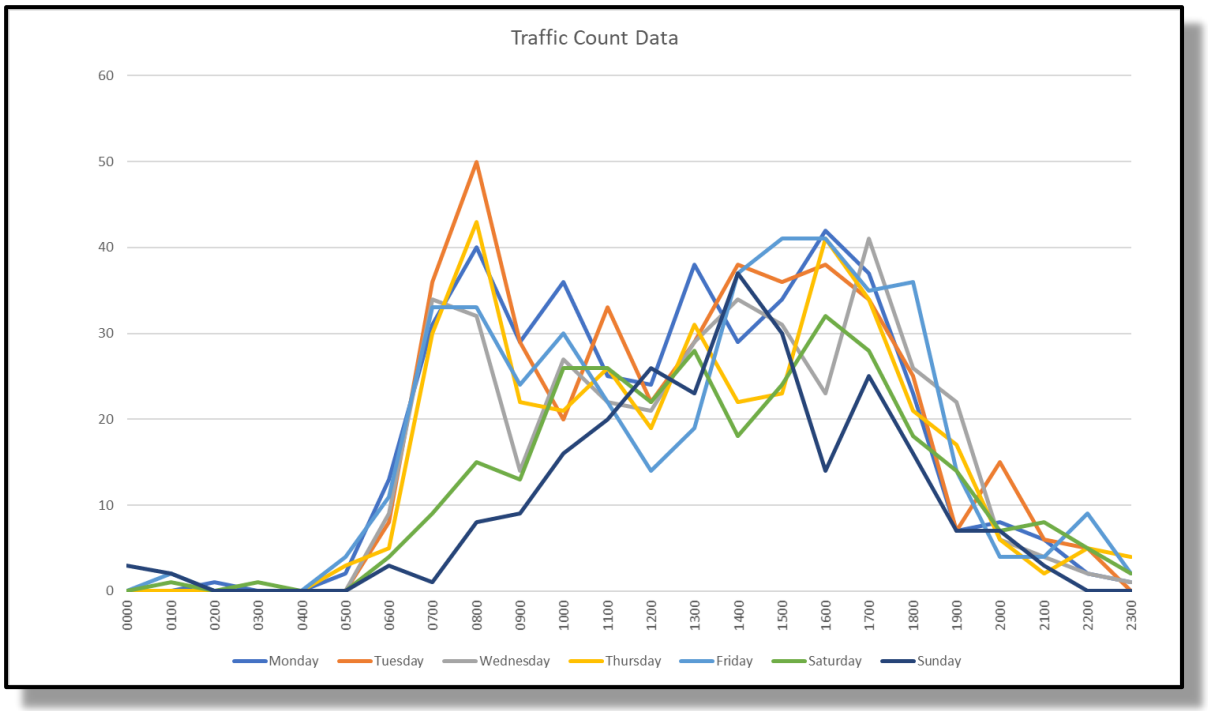

Figure 15: Weekly traffic flows

The seven-day count for the last week of July 2019 shows around 370 vehicles per day on the upper sections of Bay View Road with peak flows of around 35 for the morning and evening peak periods.

The traffic count data shows a distinct peak in the morning with the evening peak being more spread, which is typical of residents returning home over a longer period of time as they leave work later or carrying out other tasks after leaving work.

Vehicle speeds were also measured which showed an operating speed environment for the upper sections of Bay View Road being around 45 km/h. The speed count data also showed that 95% of the traffic was travelling less than 48 km/h. Accordingly, most traffic is travelling under the posted speed limit of 50 km/h.

The location of the traffic counter allowed a simple calculation to be carried out to determine the trip generation rates for the residential catchment.

The calculated trip generation rates for the homes in the Bay View Road area were around six trips per day per dwelling. The flows during the morning and evening peak periods were recorded as 0.6 trips per dwelling per hour. It should be noted that this is much lower than the NZTA trip generation rates (10.7) for residential properties.

Extrapolating the trip generation rate over the remaining properties on Bay View Road would suggest that the daily traffic flows at the bottom end of the catchment would be around 590 vehicles per day. The peak flows for the morning and evening peaks would be around 60 vehicles per hour.

These traffic patterns provide an indication of what the PPCR might produce upon completion.

5.6 Maitai Valley Road

The traffic flows were recorded on Maitai Valley Road, just east of the Jickells Bridge in April 2016. The count data showed daily flows of around 950 vehicles and peak hourly flows of around 90 vehicles. It should be noted that Maitai Valley Road has high seasonal variations and high weekend flows due to a number of recreational activities in this area. Therefore, the traffic flows are expected to be higher than the volumes recorded in April 2016.

5.7 Ralphine Way

There is no recent recorded traffic count data for Ralphine Way. However, with seven residential properties and one farm the traffic flows are expected to be less than 100 vehicles per day.

5.8 Walters Bluff

The estimated traffic counts on Walters Bluff are around 600 vehicles per day.

6 CRASH HISTORY

6.1 General

This section provides details of the crash history for the key roads related to the PPCR area. A detailed search of the NZTA crash database was carried out for the five-year period from 2015 to 2019. The part year of 2020 was also reviewed and considered as part of the crash analysis. The roads that were included in the search are as follows:

- Maitai Valley Road – from Nile Street East to Ralphine Way,
- Nile Street East,
- Nile Street, and
- Bay View Road.

The crash history for these roads are provided below. It should be noted that the crash history for Atawhai Drive from Bay View Road to Nelson has been excluded as NZTA is currently developing a Safer Roads project for SH6 from Blenheim to Nelson.

Table 1 provides further details of the crashes along Maitai Valley Road (up to the Camping Ground) and near the intersection of Maitai Valley Road and Nile Street East.

Road	Location	Date	Collision Date Reference	Accident Description	Severity
Maitai Valley Road	450 metres east of Nile Street East.	201988596	30/12/2019	Car westbound lost control and veered off the road and hit bollard.	Non-injury
Nile Street	25 metres west of Harper Street.	201898619	06/10/2018	Car travelling west collided with parked car. Driver fled the scene	Non-injury
	Intersection with Tasman Street.	201966687	13/09/2019	Cyclist riding south on Tasman Street had sneezing fit and collided with car heading west on Nile Street.	Minor injury
		201618173	11/04/2016	Motorist heading west on Nile Street collided with bike heading south on Tasman Street.	Minor injury
		201510114	10/01/2015	Motorist heading west on Nile Street collided with motor scooter heading south on Tasman Street.	Minor injury

		201610880	24/02/2016	Cyclist heading west on Nile Street collided with car travelling north on Tasman Street.	Minor injury
		201820428	11/12/2018	Cyclist in the roundabout heading north was struck by car heading west on Nile Street.	Serious injury
	30 metres east of Alton Street.	201716226	06/08/2017	Car heading west on Nile Street drove off the road and struck cyclist on footpath on opposite side of the road heading west. Road rage.	Minor injury
	At intersection with Alton Street.	201895317	30/08/2018	Motorists traveling east on Nile Street did a u turn at the intersection and was struck by a car heading east on Nile Street.	Non-injury
	At intersection of King Street	201717809	04/08/2017	Cyclist riding on the footpath heading east on Nile Street collided with car heading north on King Street.	Non-injury
		201717159	29/08/2017	Car pulling out of driveway collided with motor scooter heading east on Nile Street. Sight line obscured by angle parking.	Serious injury
Atawhai Drive	At intersection with Bay View Road.	201600104	14/04/2016	Two pedestrians crossing Atawhai Drive at the intersection were struck by a motorcyclist travelling towards Blenheim.	Fatal

Table 1: Reported Crashes 2015 to 2020 (Source: NZTA)

There were a high number of crashes (80%) on Nile Street which involved cyclists or motor scooters. There were no cycle crashes reported on Nile Street East. Nile Street East has a shared path for cyclists and pedestrians. There are no cycle facilities on Nile Street.

There were no reported crashes on Nile Street East or Bay View Road since 2015.

There have been six non-injury and five minor injury crashes on Atawhai Drive/Queen Elizabeth Drive II from Bay View Road to the intersection of Collingwood Street (2.9kms). Four of these crashes where at the intersection of Malvern Avenue and three crashes were at the intersection of Queen Elizabeth Drive II and Atawhai Drive.

The reported crashes show no inherent deficiencies in the road network apart from Nile Street and the number of cycle crashes. The intersection of Tasman Street and Nile Street has an existing safety issue with regard to cycle crashes.

7 THE REQUEST

The PPCR seeks to rezone the current site from Rural and Rural – Higher Density Small Holdings to Residential (Higher Density, Standard and Lower Density areas), Suburban Commercial and Open Space Recreation areas. The PPCR area, if approved, will be subject to the various Policies, Objectives, Rules and Standards as set out in the Nelson Resource Management Plan (NRMP).

As noted above the PPCR area incorporates a large area of rural land that is located to the east of Nelson which is currently accessed via Maitai Valley Road and Bay View Road.

The PPCR will provide for around 750 new homes plus other related facilities such as commercial areas and open space. The layout of the subdivision will be subject to separate consenting processes and the actual number of houses could more or less than 750 over time depending on opportunities and constraints. For the purpose of the assessment below the figure of 750 homes has been used for the high-level analysis.

The PPCR will be developed in stages and in areas. The land will be developed roughly in three areas being the Maitahi valley floor and edges, Malvern Hills (Walters Bluff extension) and Bay View hills. The first stages are expected to start around 2024.

Future development of the land will need to meet the provisions of the NRMP or seek resource consent as required. The infrastructure required to address any of the effects relating to the development of the land will rest with the future subdivision applications. The established mechanisms include the use of Structure Plans and the Services Overlay (REr.108) in a similar way to other structure plans such as Ngawhatu Residential Area (Schedule E) and Bishopdale Subdivision Area (Schedule H).

Figure 16 shows the PPCR area along with indicative road connections.

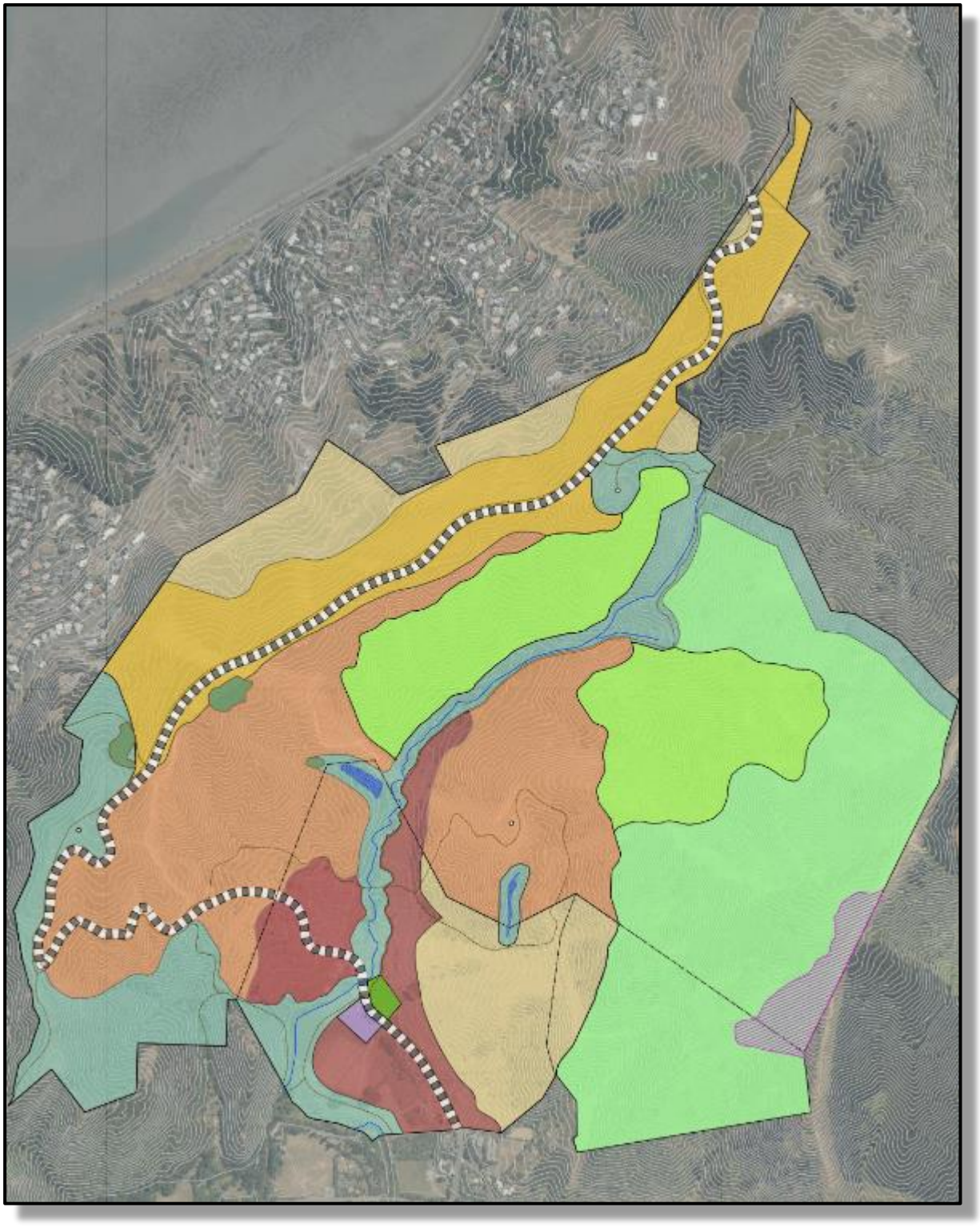

Figure 16: Structure Plan

As shown the PPCR area is located close to the Nelson city centre with the most direct access being via Maitai Valley Road and SH6. The development is likely to be constructed in stages with around 50 to 100 lots completed each year as demand dictates.

The Structure Plan also shows the indicative road connection from Ralphine Way to Bay View Development. As shown within the draft Nelson Plan, a new connecting road from the end of Walters Bluff is also being considered.

Due to the location of the PPCR area it provides an excellent opportunity to encourage alternative transport modes and provide greater resilience to the overall road network. Due to the topography and the ability to provide road connections will be limited, the road distance from the centre of the Bay View area is around seven kms to Hardy Street. The distance from Ralphine Way to Hardy Street is around 2.5 kilometres. The cycle/pedestrian distance from the centre of the development (Maitahi Valley) to Hardy Street is around three kilometres. The distance from the southern end of the Bay View area to centre of Hardy Street is around 1.8 kilometres.

With regard to the Maitahi area, the traffic will travel towards Nelson City via Ralphine Way, Maitai Valley Road, then Nile Street East. All of the traffic from the Maitahi valley floor is expected to use Maitai Road and Nile Street. Traffic associated with the south western end of the Bay View hills will use Walters Bluff and north traffic will use Bay View Road.

8 PLANNING

8.1 General

This section provides information relating to the Nelson Resource Management Plan (NRMP) and, in particular the key outcomes which the PPCR needs to meet. There are various sections in the NRMP that set direction for development. The parts relevant to Transportation matters are found in various sections of the NRMP and include AD11.3.3, AD11.3.10, AD11.4D, RI10, RI14A, RI14B, RI15, DO10, DO13A, DO14.3,

The various sections generally have the same theme which is best set out in DO10 of the NRMP which states "*A land transport system that is safe, efficient, integrated and context responsive, and that meets the needs of Nelson in ways that are environmentally, socially and economically sustainable.*

In breaking this statement down shows that the NRMP seeks to provide a safe and efficient transport network that also provides sustainable transport modes such as pedestrian, cyclists and public transport. This is also consistent with the Government direction in regard to managing growth and intensive of land for urban development.

Section (RI14B) provides the key elements that need to be considered and managed to ensure that developments can meet the outcomes of the NRMP. These elements include the following:

- Traffic Generation;
- Parking;
- Visibility and safety;
- Accessibility – location;
- Alternative transport modes;
- Use of resources, and
- Sustainable transport.

The matters noted above have been considered as part of this impact assessment. However, these matters are more appropriately dealt with as part of the future subdivisions applications which will have more detail such as parking, visibility and accessibility.

Future subdivision acceptations will be subject to a Services Overlay which is provided for within the NRMP. Particularly Rule REr.108 provides the framework for new development areas and a method of managing effects through the process of developing the land. The effects of the PPCR can be managed through this established process.

The relevant part/s of Section REr.108 set out the following:

REr.108.1 Subdivision is not a permitted activity.

REr. 108.3 Subdivision in the Services Overlay, is a restricted discretionary activity, if:

a) it is accompanied by the design and information requirements as detailed in AP14.2 in Appendix 14, and

b) it complies with all other controlled activity terms REr.107.2 b) to h), or

c) in relation to REr.107.2 f) 'Minimum Site Area' it is the subdivision component of a Comprehensive Housing Development meeting the restricted discretionary standards and terms of rule REr.22.3.

Discretion is restricted to:

(i) ensuring the development is provided with services of adequate capacity to serve the future development level of the site and surrounding sites in the Services Overlay as provided for by zone standards, and

(ii) ensuring the proposal provides for future roading and servicing connections to adjoining land in Services Overlay.

(iii) the matters in the NCC Land Development Manual 2010, and

(iv) the extent of consistency with the Councils strategic planning for the servicing of sites within the district as identified in the LTP, and the timing of the development in relation to the availability of roading and service connections, and

(v) the matters of restricted discretion in Rule REr.107.3 (subdivision general).

Resource consent for restricted discretionary activities will be considered without notification. Discretionary Activity Activities that contravene a standard for the restricted discretionary activity are discretionary.

As shown subdivision would not be a permitted activity. Any future development needing to consider the future roading connections, the capacity of the network and the requirements of the land development manual.

This framework provides the mechanism to ensure any development can be managed through the consenting process. Also, notably this section allows for development to be programmed within the Long Term Plan process (LTP) to ensure there is alignment of future works and appropriate planning tools for the growth of the city. The LTP process will also enable existing network deficiencies to be addressed as future developments progresses.

The assessment criteria set out in Section RER 108.4 which sets out the following:

REr.108.4. Assessment Criteria

b) the minimum standards and the matters in the NCC Land Development Manual 2010.

d) the timing of the development in relation to the availability of roading and servicing connections.

e) the extent to which the development is provided with services of adequate capacity to serve the future development level of the site and surrounding sites.

g) the assessment matters in REr.107.4. Subdivision (General).

Special regard also has to be had to the roading pattern, to avoid precluding future development of other areas, as well as ensuring that the capacity of services has regard to the development potential of neighbouring land.

Refer to Policy DO14.3.1 Roading for direction in terms of when Council will fund infrastructure provision to sites, or when the infrastructure provision shall be funded by the developer. The Council holds copies of maps which define the servicing constraints in more detail.

The assessment criteria provide the detail of the extent of information needed at the time of subdivision and as with any future subdivision a full Transportation Impact Assessment (TIA) will be required. Each TIA will provide the analysis and assessment of the future subdivisions, the existing environment, and an effects-based approach to the impacts of the development on the adjacent road network and other road users.

The assessment of the gaps and potential high-level impacts of the PPCR are provided below.

9 NETWORK ANALYSIS

9.1 General

This section considers the network issues in the existing network that will require some attention, whether that is immediately or sometime in the future. It should be noted that some of the gaps in the network are existing deficiencies that need to be addressed regardless of this PPCR. That said the PPCR area will add traffic volumes and so depending on the timing of stages may well require some mitigation measures to address any effects.

9.2 Intersection of Maitai Road and Nile Street East

As noted above this intersection has some existing constraints/issues in its layout and sight distances.

These issues relate to the presence of a one lane bridge at the intersection and sight lines for some of the movements. This is an existing problem which Council have already identified. With increased activity up the Maitai Valley including greater use of the excellent recreational facilities, this intersection will come under more pressure.

9.3 Continuation of Cycle and Pedestrian Connection on Nile Street

Nile Street East already has excellent off-road shared pedestrian cycle facilities that run from Maitai Road to Tory Street. While this facility is in place, there are issues in its operation and interaction with vehicle crossings and the road edge.

The main issue is the lack of continuity of this facility west of Tory Street along Nile Street. No similar facility exists which forces the cyclists onto the road or use a narrower footpath with pedestrians.

This is complicated by the high demand for on-street car parking on Nile Street from Tory Street towards Collingwood Street. Any improvements to these linkages will likely require the removal of on-street parking. As noted above in the crash history there is an existing safety issue that also needs addressing.

9.4 Gibbs Bridge

Gibbs Bridge is a one lane bridge located on Maitai Valley Road immediately west of the development intersection of Ralphine Way.

The traffic volumes across this one lane bridge are well within capacity. The PPCR will increase the use of this bridge and the likelihood of opposing traffic meeting and needing to give way. The increase in opposing traffic will lead to more inconvenience but is not a safety issue. The level of inconvenience that will occur as the PPCR area develops is not expected to require the widening of the Gibbs Bridge.

There are many one lane bridges on local and national road networks that carry high traffic volumes and function safely with some minor inconvenience. Retaining Gibbs Bridge as a one lane structure would not be inconsistent with this approach and there are no capacity constraints with the one lane bridge and the expected flows from the PPCR.

9.5 Intersection of Ralphine Way and Maitai Valley Road

The current intersection is well laid out and provides a safe connection to the Maitai Valley Road. There is sufficient width to accommodate the expected flows from the development.

Most of the traffic associated with the PPCR area will turn left in or right out so the need for a right turn bay or similar treatment is not likely to be required.

9.6 Bay View Road

Bay View Road is currently the only legal road link to the development on the hilltop. This limits the ability of the development to address resilience issues should this road be closed. The road has a width of around eight metres which is wide enough to carry the additional traffic from the PPCR area.

9.7 Intersection of Bay View Road and Atawhai Drive

Analysis has shown that it currently operates well and there are no safety or capacity constraints. In reviewing the SIDRA outputs, it shows that there is still a relatively generous capacity buffer before any modifications to the design are warranted.

NZTA has recently reduced the posted speed limit on Atawhai Drive to 80 km/h which is likely to provide more capacity and improve safety.

Council currently have concerns around the shared path layout and its crossing point over Bay View Road and are discussing these matters with NZTA. Council are seeking some minor improvements to the shared path to address their concerns.

9.8 Domett Street

Domett Street from Nile Street to Hardy Street is a relatively narrow road which will be used as a short cut to access the wider road network. The PPCR will increase the likelihood of this route being used as a connection between Nile Street and Hardy Street, and especially for cyclists and pedestrians.

Domett Street does not have the road width to be used as a collector road. Council is looking at changing the layout of Domett Street and making it more friendly to cyclists and pedestrians with restrictions to vehicle use.

9.9 Lack of connections from Bay View

The PPCR area on the hilltop will add new trips to the existing road network which will have limited route choices to access the wider network. Bay View Road, as noted above, can

accommodate more traffic but there are some consequences to achieve that. The route is also a very long way back to SH6 from the southern parts of the hilltop which will make it less attractive once the connection to Maitahi development is completed.

There is the opportunity for a new connection from the extension of Walters Bluff that would link the middle of the Bay View development with the wider road network. It is understood that council is investigating this road option.

9.10 Nile Street

The section of Nile Street from Domett Street to Collingwood Street provides inadequate facilities for cyclists. There is a high demand for on-street parking and there are educational institutions along its length. There are street trees along the road which are highly valued that will restrict the ability to make changes to the roadway.

The crash history shows that there is an existing issue around safety and particularly with cyclists which Council are currently considering solutions to mitigate this current problem.

10 TRANSPORTATION IMPACTS

10.1 General

This section looks at the PPCR area and provides an analysis of the road network. The assessment of the potential positive and other effects, shortfalls in the adjacent road network and mitigation measures are provided below.

It should be noted that the assessment looks at the impacts of the PPCR which will form the framework for future development of the PPCR area. Appropriate analysis and assessment will be prepared as part of the future subdivisions which will include a comprehensive assessment of the traffic impacts, road layouts and any measures required to address any adverse effects. The Services Overlay is the planning mechanism to achieve future needs of the development, with support also from the Schedule.

The key aspects of the development will be the traffic generated from the site, the connections to the wider road network, the cycle and pedestrian linkages and its proximity and location to Nelson City.

The potential negative and positive impacts of the PPCR on the wider road network are likely to occur from the increased traffic from the PPCR area. That said the adjacent road network is operating well below its potential operating capacity.

10.2 Traffic Generation

The calculation of trip generation for the developments are usually based on research undertaken by NZTA and is set out in Research Report 453 (RR453). While this document has been updated recently to reflect changes in travel choice that has occurred for a number of reasons, it still is useful as a conservative assessment tool for calculating the trip generation that could occur at the upper limits. The document RR453 provides figures of 10.7 per dwelling per day or around 1.3 trips per home in the peak hour.

More recent traffic count data for residential development shows that trip rates have reduced from this high figure of 10.7 per day. Even some of the more recent information from NZTA research shows trip rates between six and eight movements per household.

Surveys of Bay View Road show trip generation rates from the existing homes in the upper part of Bay View Road being around six trips per dwelling per day. The same traffic count data also showed peak flows of around 0.6 trips per dwelling per hour. This is noticeably less than the research carried out by NZTA. This more recent traffic count data is also consistent with other surveys of residential properties across the Top of the South. Interestingly similar rates have been surveyed in Wellington in an area that is not close to public transport.

As noted above, the location of the PPCR area is ideally placed to make use of alternative transport modes including walking and cycling. The PPCR area will be able to provide separated

facilities to encourage alternative transport modes to vehicles. This will further reduce trip generation rates to lower than those survey on Bay View Road. There is also the opportunity to provide a bus route through the development.

Based on these assumptions above, a trip generation rates of around six vehicles per day per dwelling has been used. Based on 750 homes the expected traffic movements associated with the PPCR would be around 4,500 vehicles per day or 450 vehicles in the peak hour. There will be some other trips associated with the commercial components for the PPCR area. However, most of these trips are expected to be internal to the development or otherwise small and immaterial to the overall trip generation to the PPCR area.

10.3 Trip Distribution

As shown in above, the site is large and has two existing access points to the wider road network. As part of the subdivision process opportunities to provide further road connections to the wider road network will be investigated.

For the purpose of analysing trip distribution, it has been assumed that there are three access points and an internal link road between Bay View and Maitahi is constructed. Any additional connections to the wider road network will further disperse the traffic moments across other routes.

As shown above most of the Bay View part of the PPCR area lies well to the south of its connection to Bay View Road. This will result in most of the traffic generation from the hilltop choosing to use Walters Bluff or the internal link road through the Maitahi Valley to access the central area of Nelson.

The traffic split for the PPCR is expected to be the following.

- 55% via Maitahi Valley onto Maitai Valley Road and Nile Street East.
- 28% via Walters Bluff extension.
- 18% via Bay View Road

It should be noted that most of the developable flattish land for the Bay View area is south of Malvern Avenue. At this point it is around 6.5 kms to the city centre via Atawhai Drive and 6.0 kms via Maitahi area. The route via Maitahi Valley will be more direct.

With regard to the Maitahi Valley it is expected that almost all of the traffic will use Ralphine Way and Maitai Valley Road to access the wider road network. There may be some residents that use the internal road to head north out of Nelson via Bay View Road or Dodson Valley Road. However, this number is expected to be very small in the context of the PPCR area.

Based on the trip distribution splits noted above the following increase in traffic movements over the day and in the peak hour for the three access points are as follows:

- 2450 vehicle per day or around 240 vehicles per hour on Maitai Valley Road.

- 1250 vehicles per day or around 120 vehicles per hour on Walters Bluff.
- 800 vehicles per day or around 80 vehicles per hour on Bay View Road.

Any future connection that is constructed will affect the trip distribution across the PPCR area and reduce the number of vehicle movements on Bay View Road and Ralphine Way. It should also be noted that these trip calculations have no discounting for increased use of alternative modes such as cycling and walking. The proximity of the PPCR to the central area is expected to have a high use of alternative transport modes.

10.4 Road Capacity

The three key routes that will provide access to and from the PPCR area are as follows:

- Maitai Valley Road, Nile Street East and Nile Street
- Atawhai Drive, and
- Bay View Road, Atawhai Drive and Queen Elizabeth II Drive.

These three routes will see the most noticeable increases in the number of movements both in terms of vehicles but also cyclists and pedestrians.

With regards to the available capacity of these three routes, an analysis using the Austroads suite of guidelines has been used to determine link capacity of the roads. A number of factors affect road capacity which include road width, traffic composition, vehicle speeds and road geometry. The other important element of capacity is the target operating Level of Service (LoS) which the roads are expected to function at.

There are six different LoS ranging from A through to F. LoS A is a condition of free-flowing stable traffic stream with LoS F being unstable with long delays and queues. Typically, arterial roads have a target LoS service being no worse than LoS D.

Under ideal conditions the number of movements per hour can be as high as 2,200 vehicles per lane. Flows have been recorded at this level for urban motorways in peak conditions. However, the peak operational capacity of a two lane, two-way road (one lane in each direction) is more practically around 2,800 vehicles per hour. This operational flow is for road with traffic lanes with a width of 3.7 metres and shoulders of 2.0 metres (parking lane). It should be noted that the capacity of a road that has 2.7 metre wide lanes with no parking lane is around 1,400 vehicles per hour or 14,000 vehicles per day.

In putting this into context, the current flows on Maitai Valley Road are around 1,000 vehicles per day and for Bay View Road the flows are around 400 vehicles per day. Nile Street East has recorded traffic flows of around 2,700 vehicle per day. The estimated flows for Ralphine Way are less than 100 vehicle per day.

The PPCR area is expected to increase the number of movements using the wider road network by around 4,500 vehicle per day. This increase will see the existing roads operate at around 50% of the practical operating capacity.

There are no traffic capacity constraints along the roads that will be mostly used by the PPCR area. The roads that will be used by vehicles from the PPCR area are currently operating around 10 to 20% of their practical operating capacity.

There is a one lane bridge (Gibbs Bridge) on Maitai Valley Road. This does not pose a capacity constraint as its effective operating capacity is well above the number of vehicles that will use the bridge following completion of development within the PPCR area. However, as traffic flows increase there will be slightly more inconvenience with some motorists needing to wait more often.

Generally, the north east part of the Nelson City road network is operating well within its operational capacity. This is particularly important as the southern approaches into the city such as Waimea Road and SH6 are operating well above the ideal operating capacity with any increase in traffic from the south exacerbating the existing long delays and queues. The expected flows from the PPCR area can easily be accommodated within the existing road network with no improvements to infrastructure required for capacity reasons.

This makes the PPCR areas an excellent location for growth that requires no road capacity upgrades to the existing road network. The roads that will be used by the PPCR area are operating well below capacity and with expected increases in vehicle movements still being less than 50% of the operating capacity.

With the increase in traffic using the intersection of Nile Street East and Maitai Road, there will be an increase in delays for users at this intersection. However, based on the development flows of around 240 vehicles in the peak hour and the relatively low traffic volumes on Nile Street and Maitai Road, the level of service at this junction would still be a LoS A.

As traffic moves further away from the PPCR areas, the density of the new traffic will be dispersed over the wider network. Accordingly, any effects of the increase in traffic will be diminished across the wider network with no discernible difference on other road users.

10.5 Road Linkages and Network Resilience

The PPCR will also include a linkage within the development area that will connect the lower section of Maitai Valley Road with the Bay View development area. This internal linkage will enable an important connection over the Atawhai Hills that will have a number of positive benefits which will include the following:

- providing an alternative route/connection to the city centre should a section of SH6 be closed for some reason,

- equally providing an alternative link should Nile Street East be closed for some reason,
- allowing flexibility in route choice for residents that will live in the PPCR area,
- providing alternative routes for other existing residential areas that may be affected by closures of SH6 or other nearby roads, and
- enabling the ability to introduce a public transport link/routes to serve future residents.

As noted above, Council is also considering the extension of Walters Bluff which would allow more resilience and connectivity to the PPCR area as well as residence within the existing urban areas nearby.

This approach to urban development is consistent with good design principles that enable future residents to access the wider road network via a number of alternative routes and with a reasonable amount of certainty. This is consistent and important in providing a resilient City.

10.6 Cyclists and Pedestrians

The PPCR area is located very close to the city centre (around 3kms). This will see the likely increased use of alternative transport as the preferred form of transport for work and recreational trips. There are already excellent cycle facilities for most of the routes from the PPCR area with Council already planning works to provide better linkages in the location where these are missing on Nile Street.

The PPCR area will be able to enhance and provide excellent connections to the wider road network to encourage alterative transport modes. This aligns well with Council's new focus on promoting more sustainable transport modes. The initial planning of the development area has seen a focus on cycle and pedestrian projects that will link the PPCR area to the wider nelson road network.

With the proximity of the PPCR area, it is very likely that a high percentage of trips and especially those in the peak periods will be by cycle or walking. The popularity of e-bikes will also encourage less use of cars. This is consistent with good urban design where alternative choices to the car are readily available to reduce vehicle use.

The location of the PPCR area is considered to have a positive effect with the development being ideally located to promote the use of alternative transport.

10.7 Road Safety

Generally, the road network that will be used for the PPCR area is operating safely with only a couple of isolated locations within the wider road network that will require improvement projects to address existing problems. It is likely that with no improvements these locations

could see a potential increase in the number of crashes with or without traffic from the PPCR area. There are no obvious safety deficiencies in the road network that the future traffic from the PPCR will use apart from the two identified below.

Nile Street East and Maitai Road Intersection

The intersection of Nile Street East and Maitai Road has some existing constraints that make it potentially unsafe, if not treated with care. The lack of reported crashes at this intersection highlight the care that motorists must be taking when using this intersection. With increasing traffic from the recreational areas of Maitai Valley (and the possible construction of a Gondola), particularly with high quality cycle tracks, this intersection will see more traffic.

The PPCR area will also add additional traffic to this intersection. The increase in the number of interactions at the intersection will lead to a higher exposure and number of conflicts. This will in turn lead to a greater chance of crashes occurring at the intersection. The vehicle speeds are expected to remain low and therefore the crash severity is likely to be damage only crashes. One area that will need careful attention is the likely increase in the number of cyclists that may use the intersection.

Council have already identified this intersection and its deficiencies which has led to some preliminary work on upgrading the intersection. Two projects have been identified at this location to address existing and future safety issues. The intersection is likely to be upgraded to a signalised junction. The cycle connections in this area are also being considered to better meet the existing and future demands.

The staging of the development of the Maitahi valley floor will see the first homes being occupied by 2024 with 50 being completed each year. The impacts of the PPCR area on this intersection are likely to occur until after 2026.

Nile Street

The key part of the road network that requires targeted improvements is Nile Street as well as the intersection of Nile Street and Tasman Street. Ten of the twelve crashes identified in the crash history within this report were on Nile Street, with most of these involving cyclists and motor scooters. Five of the ten crashes were at the intersection of Nile Street and Tasman Street.

Council have identified improvements for along Nile Street as well as its intersection with Tasman Street. The proposed improvements will provide better cycle facilities and upgrade the intersection of Tasman Street. These improvements will address the existing safety problem and provide for the expected growth from the PPCR area.

With planned improvements to the road network to address existing safety concerns and crashes, the future traffic from the PPCR area is not expected to have any noticeable effect on safety.

11 WAKA KOTAHI (NZTA) CONSULTATION

Early engagement with NZTA has been carried out on the PPCR to gain their feedback. NZTA provided their feedback and comments in their letter dated 31 July 2020. In this letter from NZTA the key points from NZTA are as follows:

- The change in land use from rural activities for PPCR area did not raise any specific concerns;
- The location of the PPCR area could reduce vehicle trips and increase active transport;
- Aligns well with the GPS priorities;
- The future development will use existing transport networks and lead to great network efficiency;
- The traffic is likely to use Maitai Valley Road and Nile Street East to access the wider road network. It should be noted that Walters Bluff will change the distribution of traffic noted above. Less traffic will use Maitai Valley Road with the extension of Walters Bluff being completed;
- The PPCR area will provide the opportunity to use alternative transport modes such as cycling, walking and public transport.

NZTA generally supported the expansion of the existing urban area as set out in the PPCR subject to some further considerations. In summing up NZTA provided the following considerations:

- Connecting new and existing growth areas with a resilient and fit for purpose road transport system across all modes,
- Using service overlays to ensure the development is carefully staged, and
- The cumulative effects on the Bay View Road/Atawhai Drive intersection are managed.

The PPCR will provide a road that that will provide more connectivity and resilience to the local and state highway network. The PPCR area is able to meet the NZTA objectives by providing a development that is resilient, safe and connected.

12 SERVICES OVERLAY

The PPCR will be subject to a "Services Overlay" for roading (and other services) which will apply to the area covered in the Structure Plan. This approach to development and subdivision is consistent with other residential developments that have occurred in Nelson and are covered in a Schedule at the end of the Residential Zone Rules. The schedule includes approved development areas such as Ngawhatu, Bishopdale, and Marsden Valley.

The NRMP provides assessment criteria for future subdivisions

> *REr.108.4. Assessment Criteria*
>
> *b) the minimum standards and the matters in the NCC Land Development Manual 2010.*
>
> *d) the timing of the development in relation to the availability of roading and servicing connections.*
>
> *e) the extent to which the development is provided with services of adequate capacity to serve the future development level of the site and surrounding sites.*
>
> *g) the assessment matters in REr.107.4. Subdivision (General).*
>
> *Special regard also has to be had to the roading pattern, to avoid precluding future development of other areas, as well as ensuring that the capacity of services has regard to the development potential of neighbouring land.*
>
> *Refer to Policy DO14.3.1 Roading for direction in terms of when Council will fund infrastructure provision to sites, or when the infrastructure provision shall be funded by the developer. The Council holds copies of maps which define the servicing constraints in more detail.*

In considering the assessment criteria, the development will be expected to meet the requirements of the latest land development manual, being the Nelson Tasman Land Development Manual 2020. The analysis and assessment of future subdivisions in the PPCR area will be covered in the Transportation Impact Assessment (TIA). Any exceptions to the compliance with the NTLDM will be assessed in the TIA at the time of subdivision application.

With respect to the capacity of the adjacent road network to accommodate the future demands of the development, the assessment contained within this report shows that there are no network issues that cannot be addressed and mitigated with infrastructure projects. It should be noted that some of the identified network deficiencies already exist. While the development of the land will bring the need for these improvements forward, the deficiencies exist within the current road network and currently impact on existing road users.

Most of these deficiencies have already been identified by council officers and will form part of a wider piece of work for the Long Term Plan (LTP) process. It is expected that the development will have to make some contributions to the improvements as a part contributor and the need to mitigate effects of the PPCR. However, the works that have been identified will also have a council contribution to address the existing constraints. Any contribution will form part of the LTP planning process.

The only works that are deemed necessary in order to address the potential adverse effects of the PPCR are at the intersection of Nile Street East and Maitai Road. For completeness, the projects that have been identified in the Network Gap Analysis above and include the following:

- Intersection of Maitai Road and Nile Street East
- Continuation of Cycle and Pedestrian Connection on Nile Street
- Intersection of Ralphine Way and Maitai Valley Road
- Intersection of Bay View Road and Atawhai Drive
- Domett Street

It should be noted that no capacity constraints have been observed on the adjacent road network with the deficiencies noted above only relating to safety. This is an important positive component of the location of this Future Development Area / PPCR.

The location of the PPCR area being very close to the central area of Nelson will make this development very accessible for alternative transport modes such as walking, cycling and public transport. The location of the PPCR area being on the northern side of the central area means that the additional traffic is not added to the already very congested Waimea Road/Rocks Road corridors. This makes the PPCR area an excellent location for growth with any impacts of the development considered to be less than minor.

The extension of Walters Bluff will connect to the Bay View development. This is considered to an important future link for vehicle traffic and other users of the network and further improve the accessibility and resilience of this development area to Nelson.

13 CONCLUSION

The PPCR area consists of around 287 hectares of flat to steep land to the north east of the Nelson City Centre. The PPCR area is located very close to the city centre and will see the subdivision and construction of around 750 homes that will be added to the city housing stock.

The PPCR area is expected to generate around 450 new trips in the peak hours which will be dispersed across the wider road network via three key routes being Nile Street, Bay View Road and in the future Walters Bluff. With the majority of the new homes located closer to the city centre, it is expected around 240 of those trips will be via Maitai Road and 120 trips via Walters Bluff and 80 trips Bay View Road.

The assessment shows that there are no capacity constraints on the road network that is expected to be used by the future traffic of the PPCR area, with the existing levels of service remaining the same. This is largely due to the existing road network operating well below its practical capacity.

The analysis shows that there are some existing deficiencies in the road network from a safety perspective that may be exasperated by the increased traffic from the PPCR area. These deficiencies are the lack of cycle facilities on Nile Street and the awkward intersection of Nile Street East and Maitai Road. Both of these deficiencies have already been identified by Council with works planned to improve safety.

The location of the PPCR area will encourage the use of alternative transport modes and particularly cycling and walking to work and other activities. This is a positive effect by reducing vehicle use and aligns with Nelson City Council's focus on transport choice and the direction of the Government's GPS.

The PPCR area is able to meet the policy and objectives as well as the Residential Rules of the NRMP. The effects of the development are managed through the "Services Overlay" provisions and so comprehensively considered as part of the subdivision application process.

Equally important, the location of the PPCR area will encourage the use of alternative transport modes. This aligns well with Nelson City Council's future vision of reducing the use of vehicles providing opportunities for the use of more sustainable transport options.

Overall, the analysis and assessment of the adjacent road network shows that it will support the future traffic from the PPCR area. There are no discernible effects on other road users. Safety improvements to the road network have already been identified by Council and include Nile Street and the intersection of Nile Street East and Maitai Road. The PPCR area is considered to have a mostly positive transportation effect due to its location and using roads and connections that are operating well below their operational capacity.