Nelson Airport Runway Extension

Notice of Requirement

Transportation Assessment

PREPARED FOR NELSON AIRPORT LIMITED | FEBRUARY 2023

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1 Introduction

Nelson Airport Limited (NAL) is seeking a Notice of Requirement (NoR) with the Nelson City Council (NCC) to amend its existing designations for Nelson Airport (Airport) in the Nelson Resource Management Plan (NRMP) review. The NoR seeks to enable an extension to the existing runway at the Airport and to remove operational constraints experienced by existing aircraft and to support the operational needs of future aircraft types.

This principally consists of a northern displacement of the existing runway to provide for a 240m southern RESA, together with an extension of the runway length from 1,347m to 1,510m and a 240m northern RESA as shown below in **Figure 1-1.**

Figure 1-1: Nelson Airport Runway Extension Proposal

The runway extension (from 1,347m to 1,510m) is necessary to ensure Nelson Airport is able to accommodate future sustainable aircraft types that are expected to replace existing turboprop aircraft. The extension will also resolve operational constraints and impediments associated with the current runway configuration. Those constraint include payload restrictions for Air New Zealand ATR72 and Originair Jetstream aircraft, which limits under certain weather conditions, passenger and freight capacity, impacting reliability for travellers, businesses and their customers. The current runway also does not provide RESA which would enhance the safety of operations by providing space for undershoot or overshoot incidents.

NAL has also forecast growth to average out through to 2050 at approximately 1.8% per annum for passengers, and 1.0% per annum for flights. The forecast growth in passenger numbers to 2050 has been long signalled in Airport Master Plans and other public documents. While the NoR will support the Airport's ability to accommodate this forecast growth, its primary focus is to provide for future sustainable aircraft types.

This report investigates both the existing and future land transport environment connecting to the Nelson Airport, investigates the performance of the network for providing multi-modal access to the Airport, and provides an assessment of the effects on the existing transport network of the proposal to extend the existing runway north.
The assessment demonstrates that significant planning by Nelson City Council (NCC) and Waka Kotahi for the future transport system has occurred that will support travel demand growth at the Airport. This future planning is related to but separate from this NoR and is intended to support the growth in the Region and at Nelson Airport that has been forecast in public documents for some time. This report demonstrates that the NoR and the level of passenger growth forecast will not result in a material adverse effect on the supporting transport environment.

It will be important for the Airport to support the external transport network changes through internal infrastructure that enables good access to the Airport by public transport and active modes. In addition, some further change to the connecting roads between SH6 and the Airport are likely to be necessary as traffic volumes increase in the region and around the Airport more broadly, to manage the balance between through traffic and safe property access functions of these streets.

2 Airport Strategic Context

The Airport has a significant regional and national context which is recognised through various statutory documents including the Nelson Regional Policy Statement and NRMP. The NRMP under section DO11 sets an objective DO11.1 Air Transport as follows:

> *The long term continuation of Nelson Airport at its present location, with provision for controlled growth in aircraft movements, whilst managing the effects of noise and other potential adverse effects on the community.*

Under the reasons it is noted:

> *"Nelson Airport is a significant physical resource, and contributes to the well being of the people and community of Nelson and the adjacent regions, as well as to the New Zealand community as part of a national network of airports. Flight is an increasingly important method of transport, for both passengers and freight and it is projected that Nelson Airport will experience steady growth in the number of aircraft movements over the foreseeable future. The airport's present location, close to the urban area, has both positive and adverse effects. An important positive effect is the short travelling time from the airport to the urban area. The main potential adverse effect of airport activities is noise, although safety and traffic effects may also arise. If the effects of noise become excessive, the long term viability of the airport at its present location may be called into question.*
>
> *The potential adverse effects need to be avoided, mitigated or remedied through a range of provisions and processes that involve the airport owners, operators and users, and the affected community."*

As a key landuse activity within the Nelson region, it is important that the land transport linkages connecting to the Airport enable safe and efficient movement for a variety of transport modes, recognising that the Airport needs to provide for both growth and connectivity to the wider region and New Zealand.

3 Existing Transport Network

3.1 Site Location

Figure 3-1 shows the location of Nelson Airport in the context of the NRMP road hierarchy. Access to and through the Airport precinct is provided via the private NAL operated road of Trent Drive. Trent Drive connects with the external roading network at Quarantine Road (a Principal Road), which in turn connects with State Highway 6 (SH6), which provides a primary route between Nelson CBD and Richmond. Other roads in the immediate vicinity also support access to the Airport, including via Bolt Road and Parkers Road.

The Airport precinct includes airport related landuse activities and carries an Industrial zoning in the NRMP, as shown in **Figure 3-2**. The land between the Airport and SH6 likewise has an Industrial zoning, and is the primary area of industrial zoned land in Nelson, and has been developed supporting that type of activity and associated transport generation.

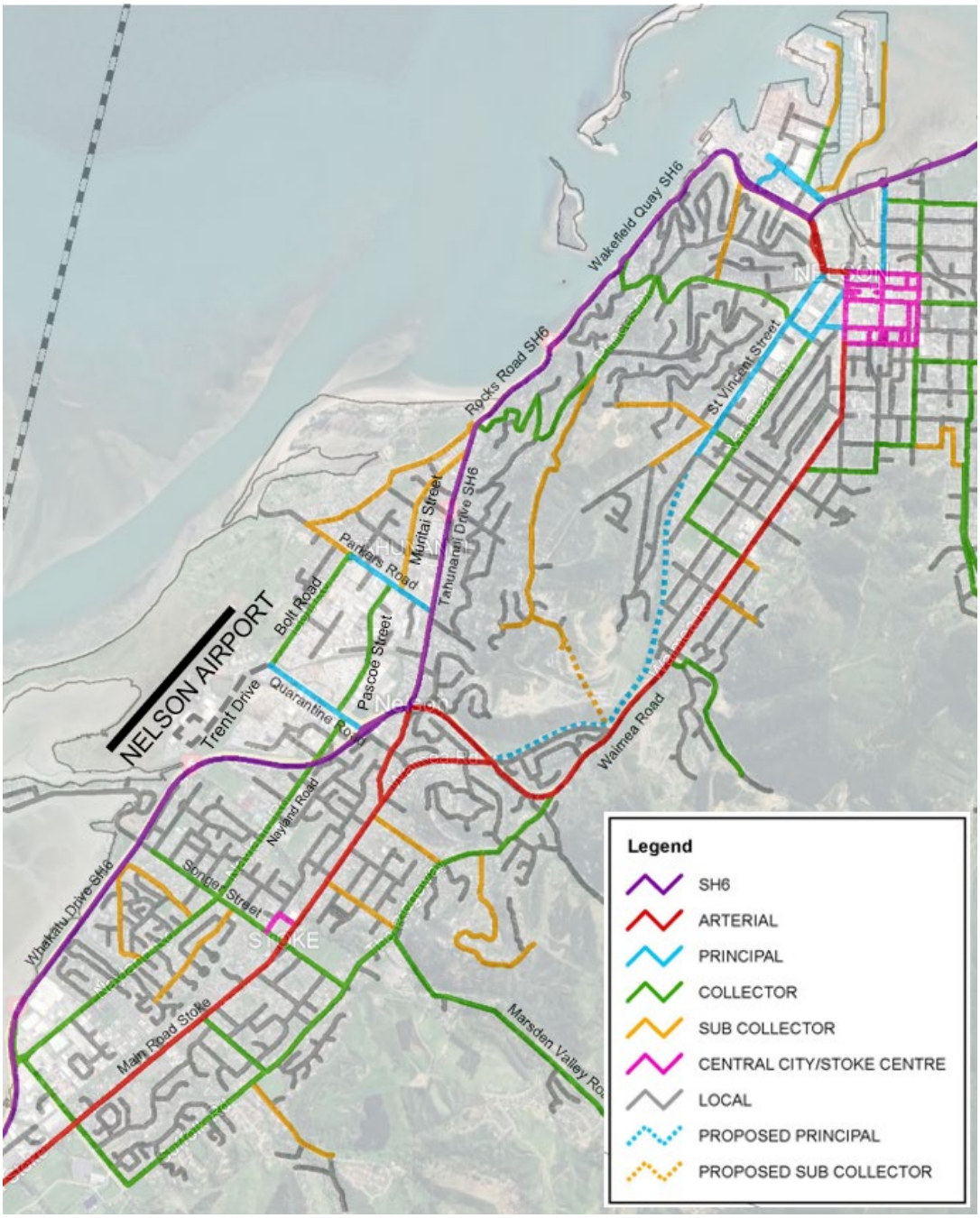


Figure 3-1: Nelson City Road Hierarchy

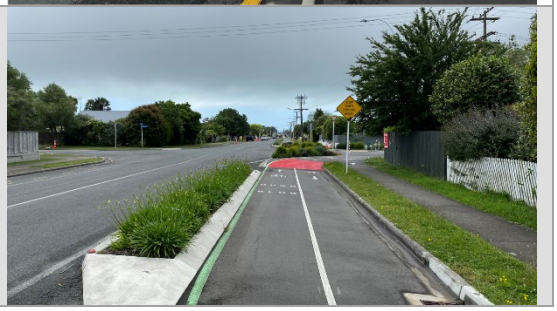
Figure 3-2: Landuse Zoning Surrounding Nelson Airport

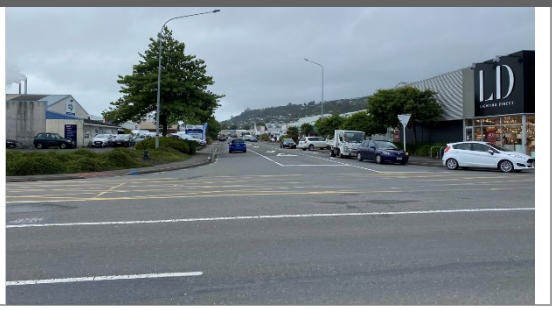
3.2 Road Network Description

Roads serving the Airport have typically been developed to an industrial standard characterised by generous carriageways, on-street kerbside parking, and footpaths on both sides of the road. Quarantine Road includes a painted flush median that supports turning at accesses and side roads. Facilities for pedestrians are of a basic standard consistent with the industrial landuse, and there are generally no dedicated road crossing facilities. A summary of the respective roading characteristics of the network in the vicinity of the Airport is set out in **Table 3-1** below.

Table 3-1: Existing Road Characteristics

Location	Characteristics	Road Hierarchy (NRMP)	Photo
Trent Drive (Bolt Rd to McLaren Dr)	• 9m kerb to kerb • One lane in each direction • Shared Path south side • No Parking	Private Airport Road	
Quarantine Rd (Between Pascoe St and Bolt Rd)	• 13.3m kerb to kerb • One lane in each direction • Flush central median • Parking on both sides	Principal	

Location	Characteristics	Road Hierarchy (NRMP)	Photo
Quarantine Rd (Between Pascoe St and SH6 – Whakatu Dr)	• Includes three busy intersections. One T-intersection and two roundabouts. • generally two lanes in each direction • No parking	Principal	
Nayland Rd (Between SH6 overbridge and Quarantine Rd)	• 11.5m kerb to kerb • One lane in each direction • Parking on both sides	Collector	
Bolt Rd (Between Quarantine Rd and Parkers Rd)	• 14m kerb to kerb • One lane in each direction • Parking on both sides • Marked cycle lanes on both sides between parking and live lane	Collector	
Parkers Rd (Between Bolt Rd and Tahunanui Dr)	• 13m kerb to kerb • One lane in each direction • Parking on both sides	Principal	
Muritai St (Between Parkers Rd and Tahunanui Dr)	• 13m kerb to kerb • One lane in each direction • Parking on eastern side • Bi-directional separated cycle lane on the western side	Sub Collector	

Location	Characteristics	Road Hierarchy (NRMP)	Photo
Pascoe St (Between Quarantine Rd and Parkers Rd)	• 11.8m kerb to kerb • One lane in each direction • Parking on both sides	Collector	

3.3 Road Intersections

Road intersections in the immediate area are the primary driver of network efficiency and safety as traffic volumes increase in the future. These currently comprise a mixture of single and multi-lane roundabouts and standard priority-controlled intersections.

Figure 3-3 shows that the Quarantine Drive intersections with SH6 and Nayland Drive, which are designed with large diameter islands (30m and 20m respectively) and multi-lane configurations to provide for high volume traffic movement. Provision for pedestrians to cross Quarantine Road is provided in the form of central refuge islands at the approaches to the roundabouts, allowing pedestrians to safely cross of the carriageway in stages.

Figure 3-3: Quarantine Road Intersections

Intersections of Bolt Road with Quarantine Drive and Parkers Road are in the form of lower volume single lane roundabouts, as shown in **Figure 3-4**. The Bolt Road / Trent Drive / Quarantine Drive intersection has a small 10m diameter central island, and no specific pedestrian crossing facilities. The Bolt Road / Parkers Road intersection has a 22m diameter central roundabout, again with no specific pedestrian infrastructure.

Figure 3-4: Bolt Road Intersections

Figure 3-5 shows The Parkers Road / Tahunanui Drive intersection is in the form of a channelised give way controlled tee-intersection, including right turn bay on Tahunanui Drive. A shared cycle and pedestrian path is located on the southwest corner of the intersection.

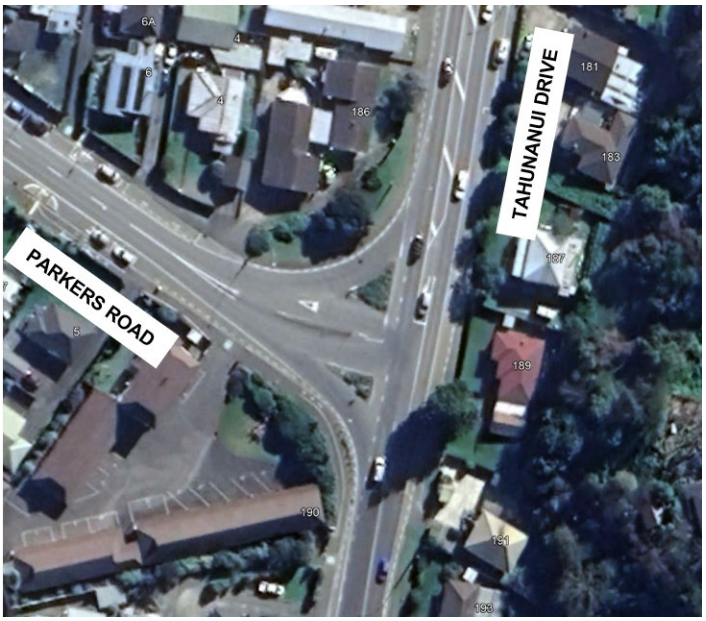


Figure 3-5: Tahunanui Drive / Parkers Road Intersection

3.4 Cycle Network

Figure 3-6 indicates the current form of the shared path cycle / pedestrian network in the vicinity of the Airport. As shown, there are available connections between the surrounding area and the Airport, albeit in some cases routes are incomplete (for example the Parkers Road – Bolt Drive route). There is currently a bridge close to the Airport terminal across Jenkins Creek for access from the south.

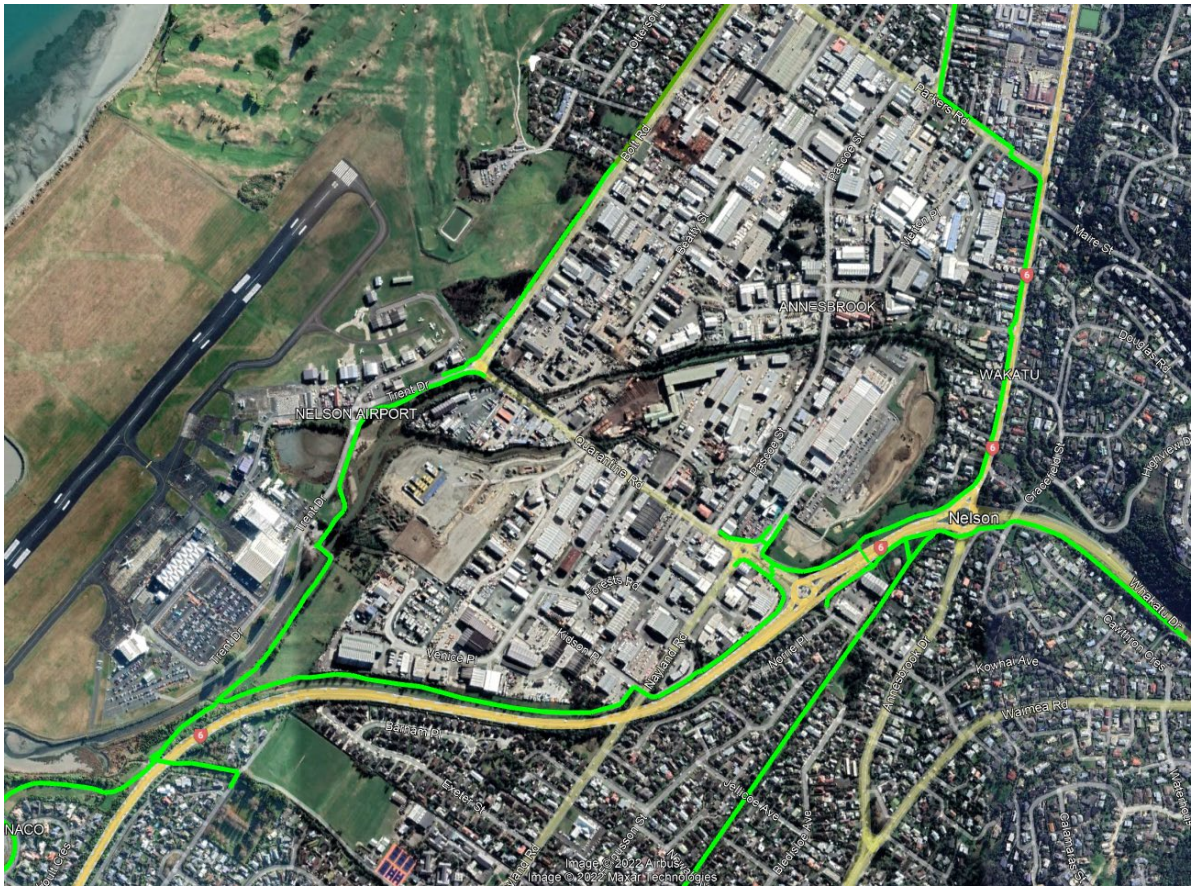


Figure 3-6: Existing Cycle Shared Path Network

3.5 Bus Routes

There are currently no scheduled bus services that operate out of the Airport. As shown in **Figure 3-7**, the closest bus services are the 'Stoke Loop' Route 7B travelling on Seaview Road approximately 1.4km walking distance from the terminal, and the Route 7A on Nayland Road / Quarantine Road some 1.5km from the terminal. These are low frequency off-peak services requiring access to the Stoke bus transfer point so will not be attractive for travel to and from the Airport.

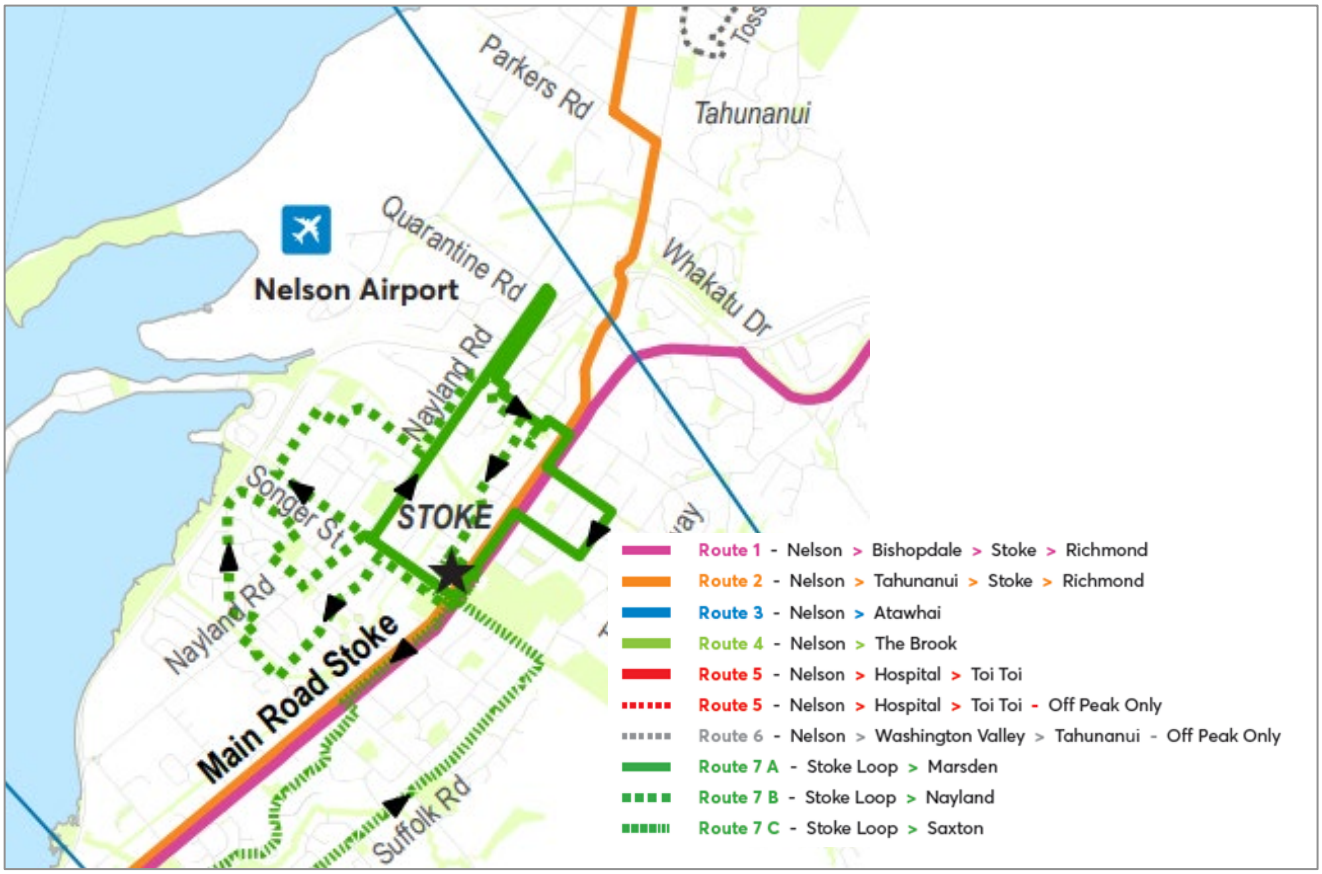


Figure 3-7: **Existing Bus Routes**

4 Transport Environment

4.1 Daily Traffic Volumes

The traffic volumes recorded on relevant roads within the surrounding network are shown in **Figure 4-1**, with the width of the line on each road representative of the daily traffic volumes it carries.

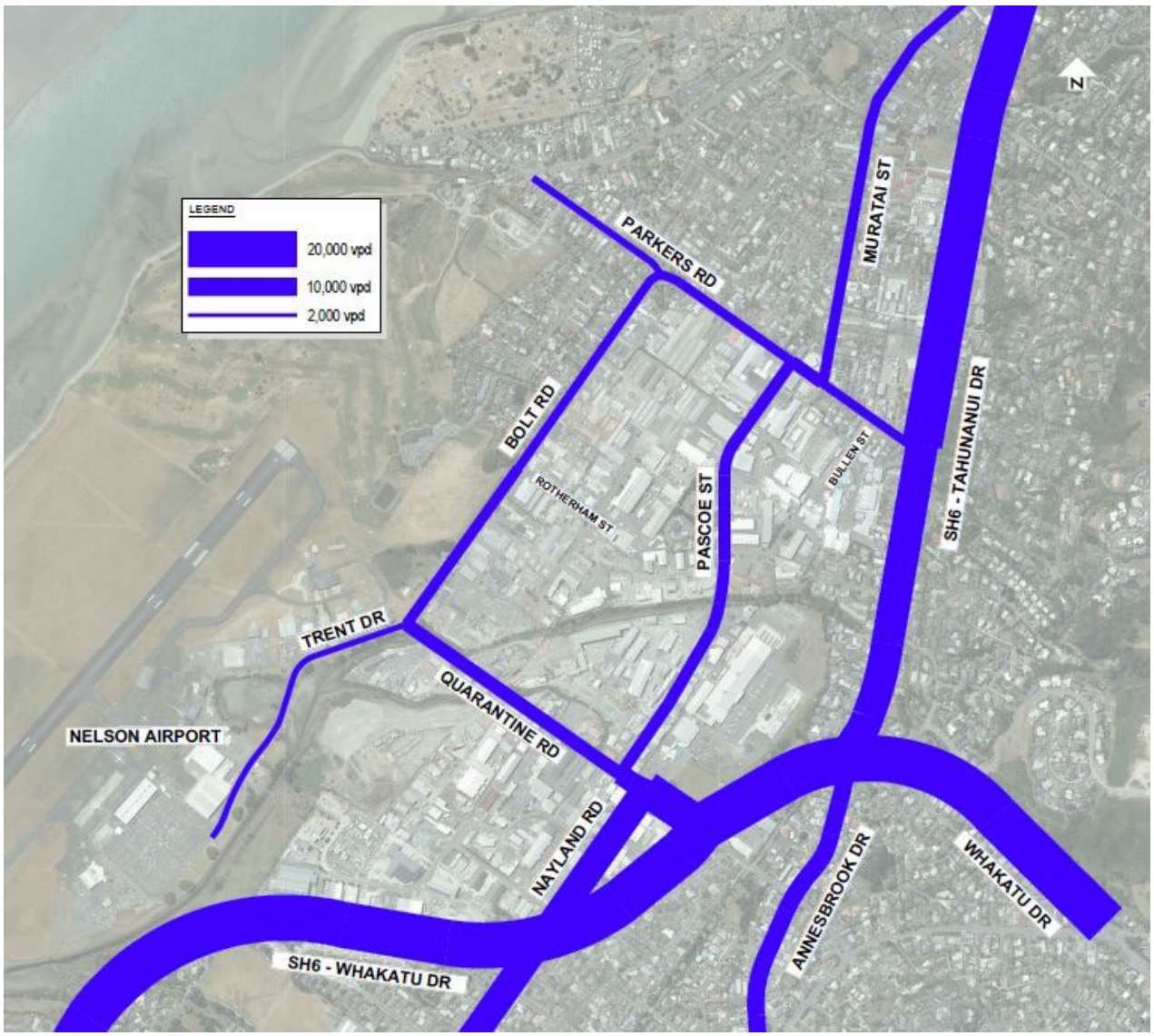


Figure 4-1. Daily Traffic Volumes on Surrounding Road Network

As shown, daily traffic volumes of approximately 20,000 vehicles per day ("vpd") currently travel along State Highway 6 (SH6) on both Whakatu Drive and Tahunanui Drive. The high volume of traffic aligns with their function of providing the primary through route between Richmond and Nelson.

Nayland Road carries approximately 15,000vpd, and in turn meets Quarantine Road where volumes vary between approximately 8,000vpd towards the airport, and around 17,000vpd approaching SH6.

By comparison, the surrounding Collector Roads of Bolt Road, Pascoe Street, Parkers Road each carry traffic volumes of approximately 5,000vpd. Whilst Muritai Street is classified as a Sub-collector road it carries similar levels of traffic as the Collector roads, owing to Muritai Street being a popular rat-run route for drivers attempting to bypass longer queues of traffic at the Quarantine Road and Parkers Road intersections with SH6.

Trent Drive accessing the Airport has previously been observed to carry 4,000vpd (in January 2016) and in July 2020 it carried approximately 3,100 vpd over a 7 day period, indicating the effects of the Covid-19 pandemic on airport traffic.

4.2 Traffic Growth

Traffic Volumes recorded on a consistent basis by the Waka Kotahi NZ Transport Agency ("Waka Kotahi") can be used to provide an indication of traffic growth over time. The nearest sites on SH6 are located on Rocks Road (north of the Airport), and in Stoke (south of the Airport). **Figure 4-2** shows that both sites have demonstrated relatively flat traffic growth profiles over the last 10-years, with a dip in traffic volumes relating to Covid-19 lockdowns in 2020. The flat profile partly relates to capacity of the routes, and may also be related to a high level of the regional commercial and residential growth happening in the Tasman District rather than Nelson City.

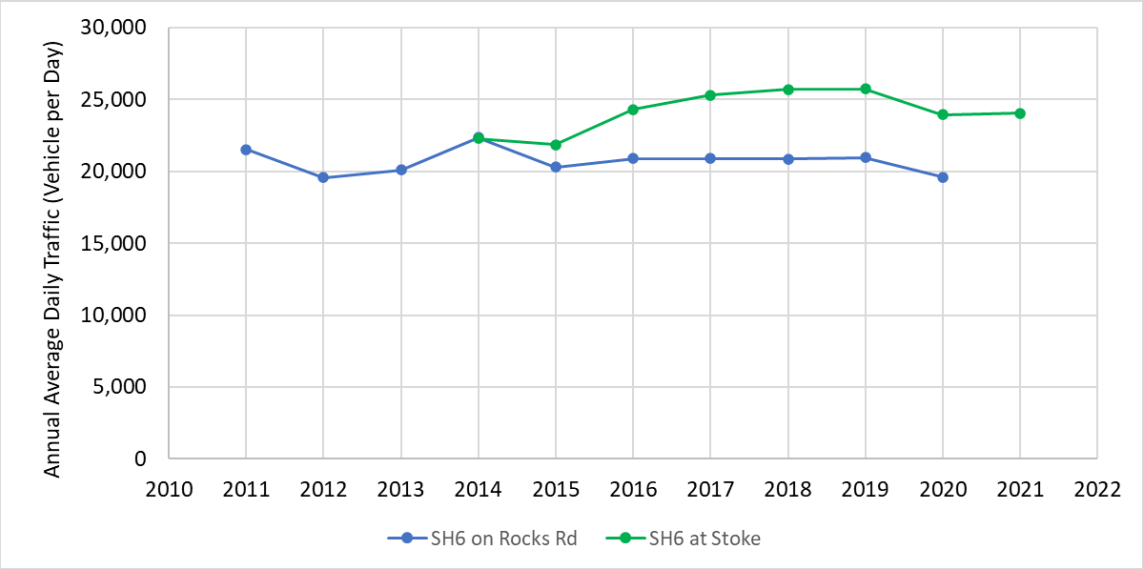


Figure 4-2**: SH6 Traffic Growth Patterns**

4.3 Hourly Traffic Profiles

NCC carries out regular traffic counting and monitoring on the surrounding non-State Highway road network. In order to understand the relative traffic patterns on these access routes to the Airport, average weekday traffic volumes for Quarantine Road, Bolt Road, and Trent Drive have been collated and are reported in the following diagrams.

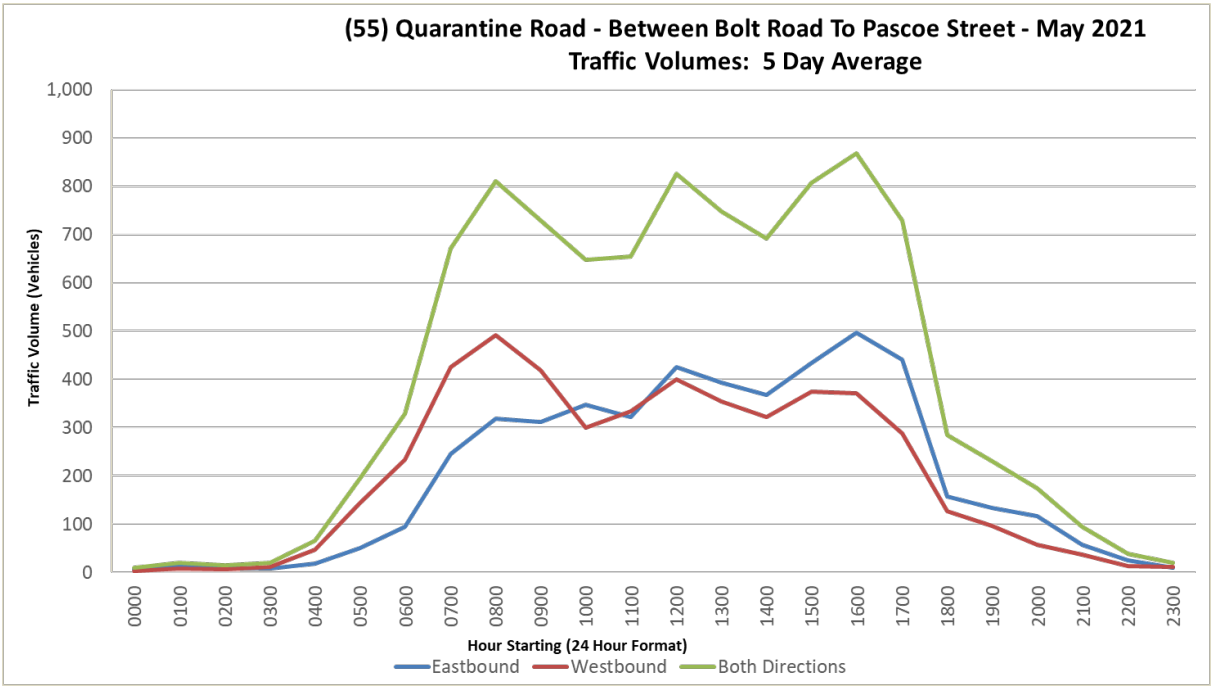


Figure 4-3**: Quarantine Road Weekday Hourly Traffic Patterns**

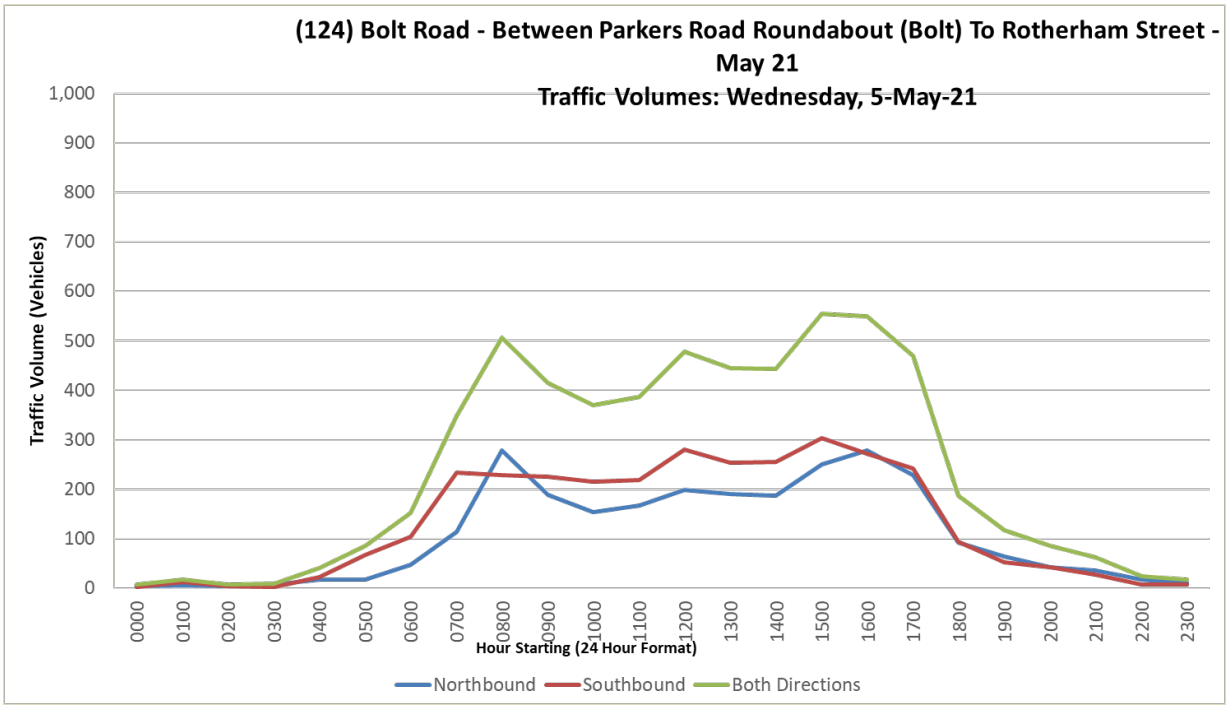


Figure 4-4: **Bolt Road Weekday Hourly Traffic Patterns**

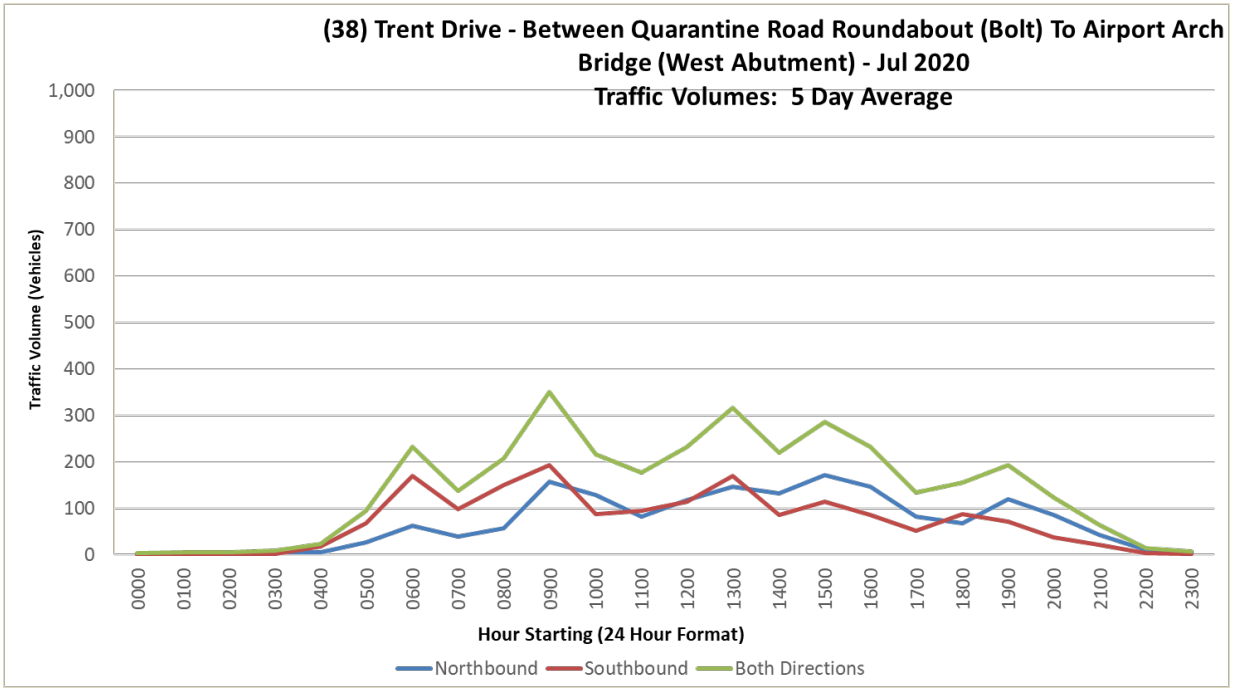


Figure 4-5: Trent Drive Weekday Hourly Traffic Patterns

Of interest from the graphs is that Quarantine Road and Bolt Road have notable morning, lunchtime and evening peaks. 'Trent Drive' at the Airport includes some of these features but at a dampened level, noting timing of the peaks does not coincide with the external road network which has traditional peaks between 8-9am and 4-5pm, as indicated by the busiest periods summarised below:

Peak Hours of road

- Quarantine Road: 8-9am, 12-1pm, 4-5pm
- Bolt Road: 8-9am, 12-1pm, 3-5pm
- Trent Drive (Airport access road): 9-10am, 1-2pm, 3-4pm

5 Road Safety

A search of reported injury crashes contained in the Waka Kotahi 'Crash Analysis System' ("CAS") database has been undertaken for the purposes of reviewing the road safety records in the vicinity of the Airport. The last complete 5-year period of 2017-2021 was utilised as the search period. The search area is shown in **Figure 5-1** and includes sections of Nayland Road, Quarantine Road, Trent Drive, Bolt Road, Parkers Road, and the full length of Muritai Street. A 50m search radii around the Quarantine Road / Whakatu Drive, Parkers Road / Annesbrook Drive, and Muritai Street / Tahunanui Drive intersections has also been included, noting this study area is considered to be the extent where Airport related traffic would generally be concentrated around in accessing to/from the wider network.

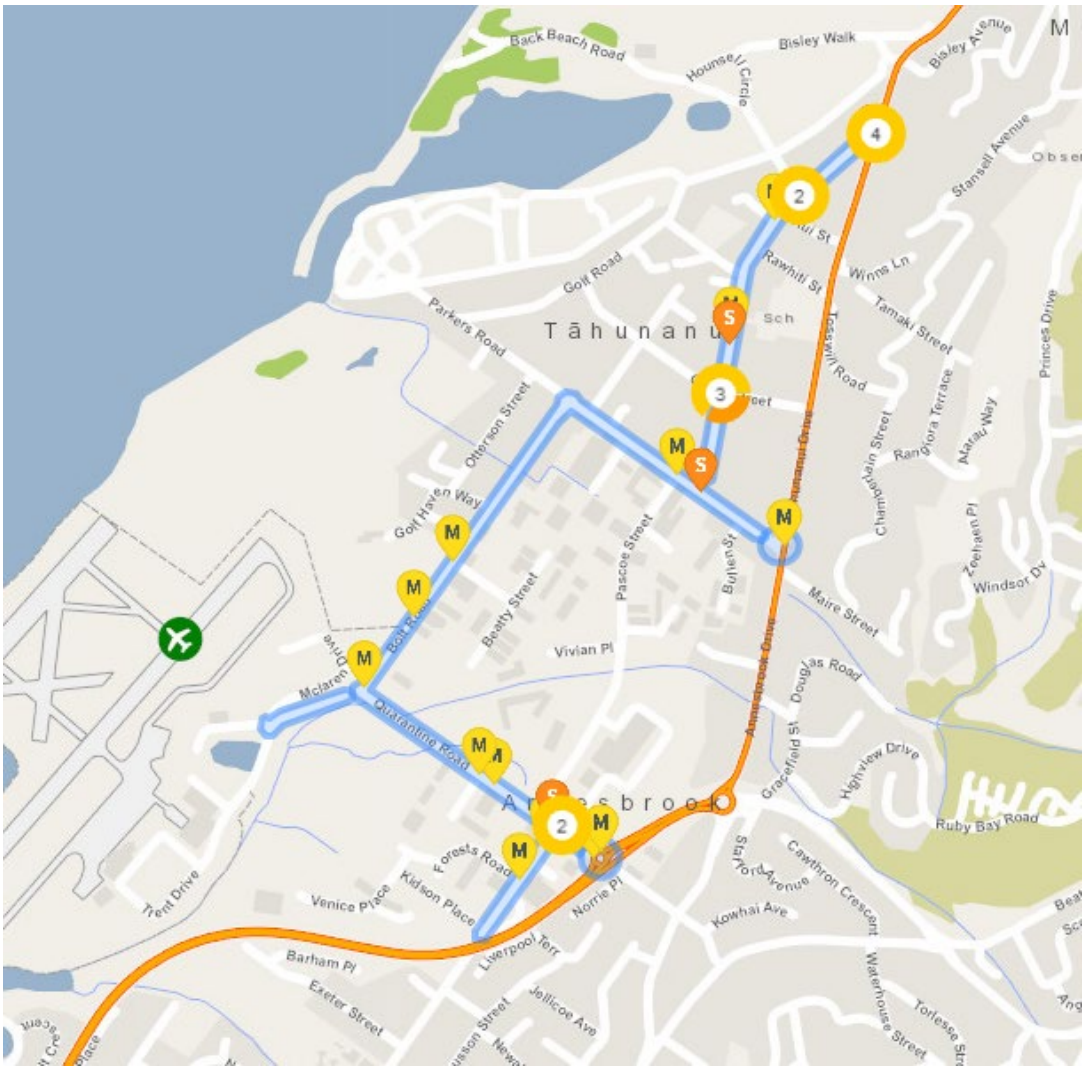


Figure 5-1: Injury Crash Locations and Severity
("M"/Yellow = minor injury, "S" Orange = serious injury)

Figure 5-2 shows the type of crash movement involved, together with the severity of injury. Generally, mid-block sections of road between intersections do not exhibit any noticeable crash trends, whereas intersections typically involved vehicles failing to give-way at priority traffic controls. More crashes are observed near the eastern end of Quarantine Road, and along Muritai Street. This tends to reflect the volume of traffic on each road, and the type of landuse, which is typical.

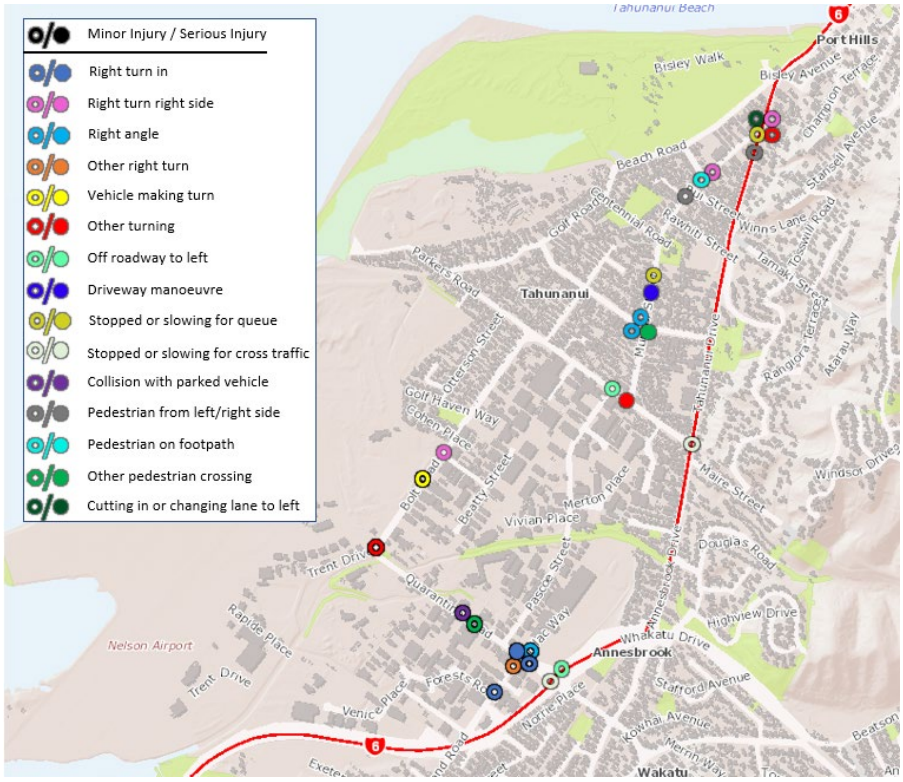


Figure 5-2: Movement Type of Injury Crashes

Assessment of active mode users has also been carried out as it was identified that several of the injury crashes involved cyclists and pedestrians, particularly on Quarantine Drive, Bolt Drive and Nayland Drive.

Figure 5-3 shows that all three crashes occurring on Bolt Road have involved vehicles failing to notice and, subsequently, give-way to cyclists who had priority. The road has a straight and level alignment and does not suggest any safety issues in this regard. The two cyclist crashes on Nayland Road appear to be caused by reckless cyclist behaviour.

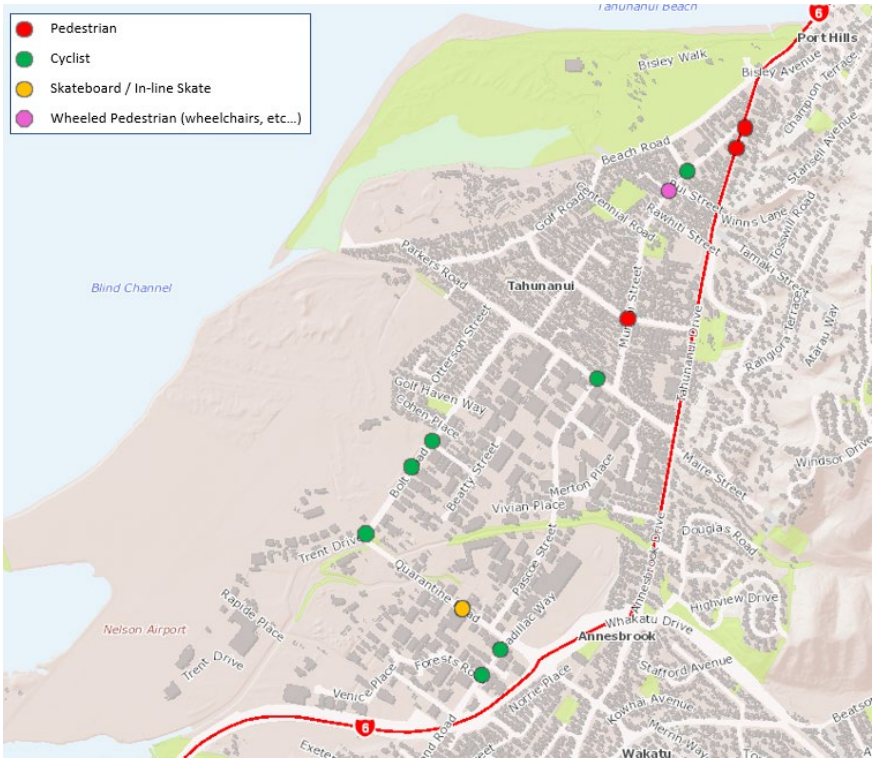


Figure 5-3: Active Transport Modes Involved In Crashes

A total of six pedestrian crashes have been recorded within the search area, with three located on Muritai Street, two at the Muritai Street / Tahunanui drive intersection, and one on Quarantine Road. As described earlier at Section 3.2, the lack of safe pedestrian crossing facilities in these areas may be contributing to this crash record.

Two of the pedestrian crashes that have occurred on Muritai Street had restricted visibility due to kerbside parked vehicle as a crash factor. At many vehicles accesses, particularly to residential properties, kerbside parking is largely unrestricted and available on both sides of the access.

6 Existing Airport Traffic Demand

As recorded earlier, a traffic count was carried out in July 2020 at which time air passenger movements were at an abnormally low level as a result of Covid-19 pandemic impacts.

Manual classified counts were also undertaken within the Airport precinct on Wednesday 27 January 2016 at which time passenger movement demand is considered most likely to be representative of travel patterns going forward following the period of the pandemic. This older comprehensive count has been used for this forward looking assessment, with a factoring process adopted to allow for seasonal effects of airport passenger movement demand. This is also consistent with methodologies previously adopted for Airport site transport master planning.

The key characteristics to emerge from the traffic survey data can be summarised as follows:

- 4,000 daily (24-hour) vehicle movements to/from the airport on Wednesday 27 January 2016;
- 490 vehicle movements on Trent Drive in the peak hour, as recorded between 15:30-16:30; and
- peak hour traffic mode split comprised 90% car; 6% taxi; 3% taxi shuttle; 1% truck / bus.

Over the day of the survey, there were 2,439 passenger movements recorded at the Airport. In the absence of traffic data across a year, the passenger data is applied as a suitable proxy and the availability of passenger data enables some seasonal and annual factoring to be applied.

The assessment for 2016 in **Figure 6-1** shows that the survey day represented the 37th percentile weekday (Monday to Thursday) for the year. The 50th percentile weekday passenger movements were 2592 (factor of 1.06), and the 85th percentile was 2,972 passenger movements (factor of 1.22), and is indicative of March traffic.

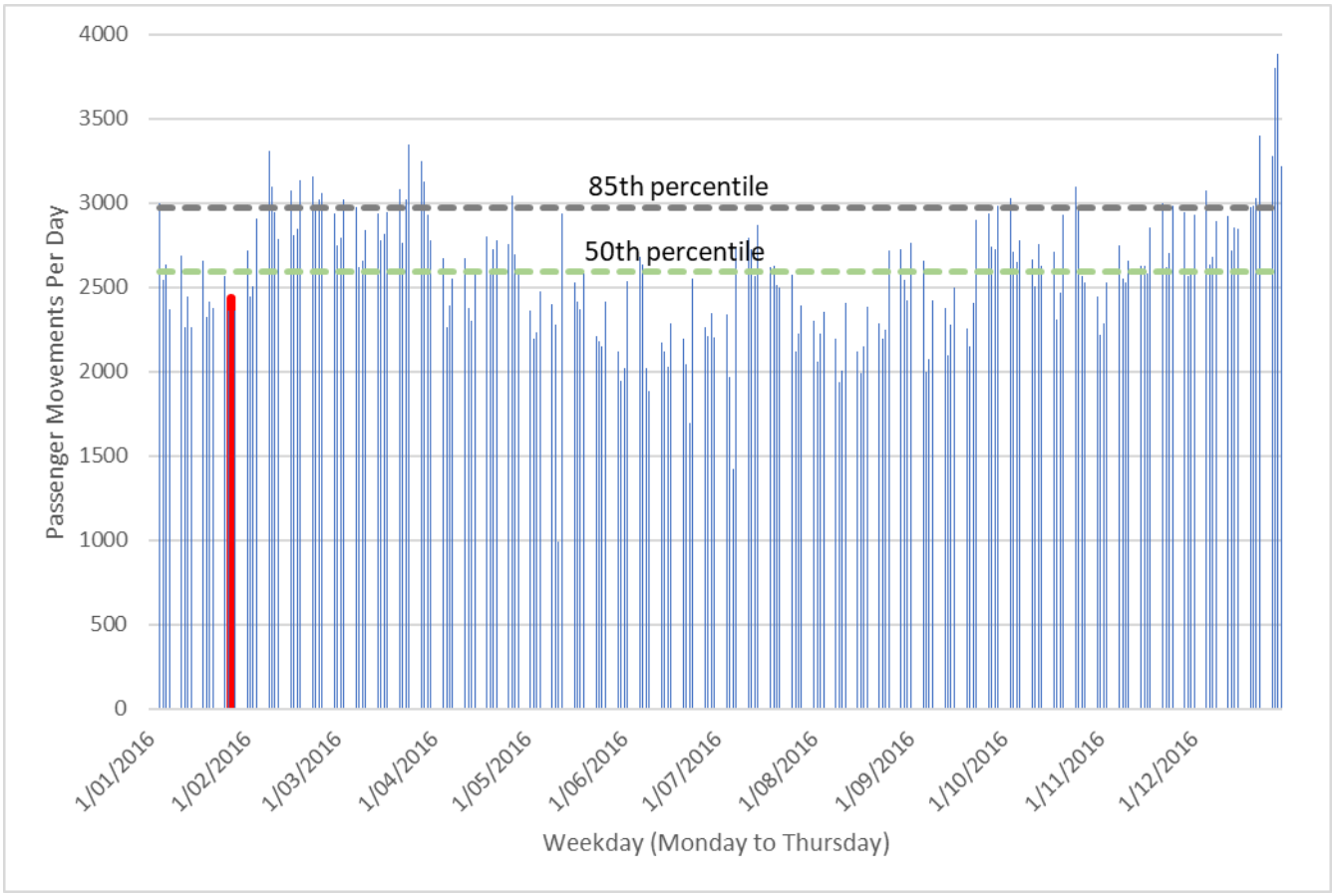


Figure 6-1: Year 2016 Passenger Movements by Weekday

From this data, the relationship of survey day demand to annual passenger demand can be estimated for application to future forecasting. The 2016 85th percentile hourly traffic generation associated with an annual air passenger movement load of 864,830 movements is estimated to be 600 vehicles movements per hour in the peak hour.

The corresponding 85th percentile weekday traffic volume at a daily level is calculated to be 4,875 vehicle movements per day.

7 Future Airport Traffic Demand

NAL has supplied annual passenger forecasts for the period through to 2050, based on an annual average growth of 1.8% for passengers. The forecasts, including a low and high forecast scenario are set out in **Figure 7-1**. Noting that the forecast years were from 2020, actual data for 2020-2022 has also been plotted showing that the effect of Covid-19 travel restrictions has been greater than originally forecast.

As noted above, the growth forecasts are based on current runway configuration and the existing designation. It is understood that the proposed runway extension will provide greater resilience, functionality, and safety improvements to the operations of Nelson Airport in satisfying the forecast growth.

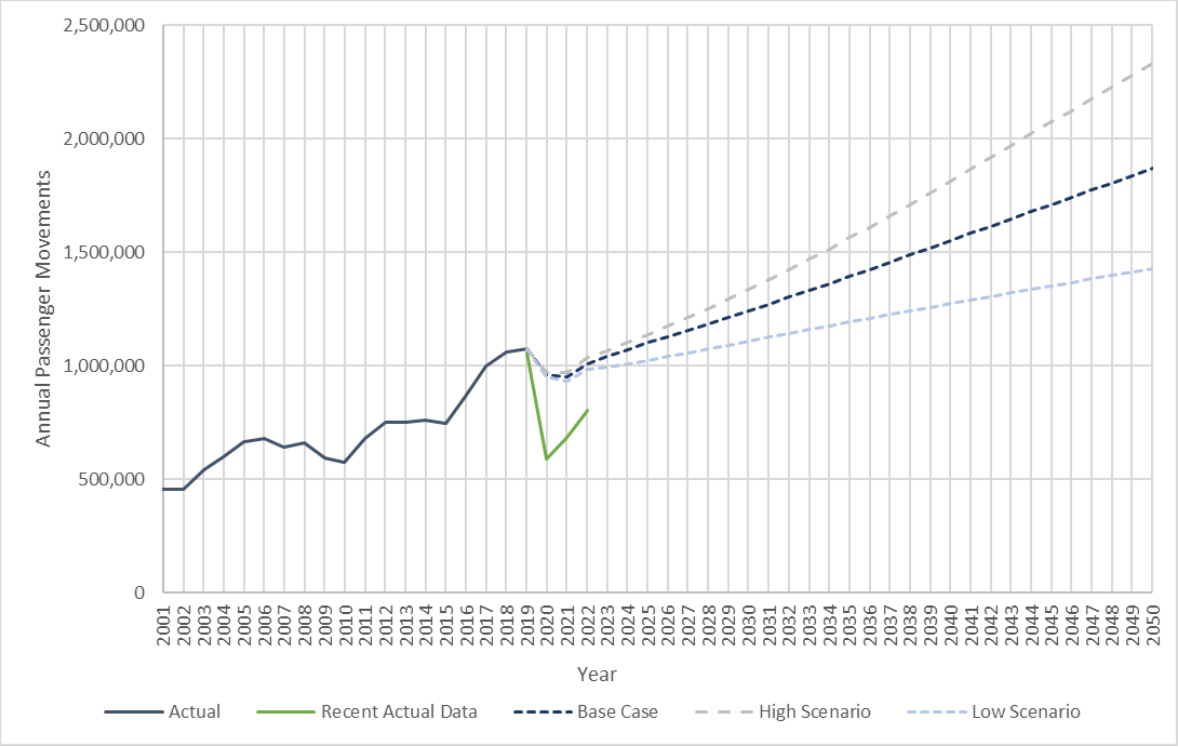


Figure 7-1: Nelson Airport Annual Passenger Movement Forecast

For the purpose of reviewing the transport network operation, a medium term (2028) and long term (2048) scenario have been assessed as these align with previous traffic forecasting carried out by the road controlling authorities as part of the Nelson Future Access ("NFA") project.

The level of passenger forecast and traffic generation is set out by factoring a 'design day' (in this case using the available pre-covid 2016 data described in the previous chapter). For the purpose of assessment and recognising the design day is adopted, the base case forecast is applied, noting that the high and low could bring forward or push out in time the level of traffic generation assessed.

A simple 'business as usual' factoring of 'passenger demand' to 'traffic demand' has been applied. A number of factors mean this approach will give a conservatively high assessment of traffic generation, including:

- as the annual passenger movements increase, it is likely that peak days will not increase at the same rate. Instead, days with lower demand will increase at a higher rate bringing up the average daily passenger movement;
- Demand will spread across the day, such that the peak to daily ratio will reduce as passenger movements increase. The scale of the peak hour will be restricted by the hourly aircraft movements; and
- as traffic demand increases, there is a likelihood that non-private vehicle modes will increase, reducing overall traffic movements. The Nelson Future Access project outlines that public transport patronage in Nelson City is 0.7% of all trips, and it is estimated that a shift of 6-8% from private vehicles to other lower carbon and healthier modes are possible by 2048.

It is beyond the scope of the current assessment to determine reduced factors that will take account of all of those matters.

The resultant forecasts for passenger and traffic volumes based on 'business as usual' traffic generation characteristics, without adjustment for possible reduction factors are summarised below in **Table** 7-1.

Table 7-1. Forecast Future Years

Year	PAX/Year		Design Weekday Traffic Movements	
	Annual PAX Movements	Design Day PAX Movements	Daily (vpd)	Hourly Peak (vph)
2016	864,830	2,972	4,875	600
2028 (Future Forecast)	1,184,000	4,069	6,673	817
2048 (Future Forecast)	1,805,000	6,202	10,172	1,246

As shown, as the annual passenger movements increase, daily and peak volumes will increase, with the potential for the Airport to generate approximately 10,000 vehicles per day in the long term if there is no peak smoothing or mode shift to other modes of transport.

8 Effects of the runway extension

As set out in the Introduction to this report, the change in passenger numbers over time will not be a direct result of the runway extension subject to the NOR. Growth is already expected regardless of the runway extension, and the NOR is proposed to remove operational constraints experienced by existing aircraft and to support the operational needs of future aircraft types, including more sustainable aircraft. On that basis the NOR has broadly a negligible effect on the wider transport network operation.

Growth already enabled by the existing designation could result in some changes to transport network performance when compared to performance that would be expected if Airport activity did not grow beyond existing levels of activity (a theoretical scenario). The operational improvements associated with the NOR do however offer the opportunity for overall transport network operations to be more efficient and sustainable. As an example, the ability of planes to meet scheduled timetables allows land transport connections such as bus services to also operate more reliably in servicing the Airport.

The ability of the wider transport network to accommodate planned growth (regardless of the NOR) is set out in the following sections of the report to assist in understanding possible future constraints and opportunities that require ongoing consideration in optimising the Airport land transport connections.

9 Future Transport Network

For completeness, the following sections investigate what the future transport network might include, and how the future planned network will contribute to servicing the land transport connections to the Airport as both general traffic growth occurs in the region and at the Airport.

In addition to the growth which has been forecast at the Airport for some time, the Nelson region is forecast to experience a high level of residential and freight growth in the next 30 years. Without significant changes to the transport network, access, safety, travel times and the reliability of the wider transport network will deteriorate. In order to understand and manage the effects of such growth from a transport perspective, Waka Kotahi and NCC commissioned the Nelson Future Access ("NFA") project.

9.1 Nelson Future Access

The purpose of the NFA is to plan for the future of Nelson's transport system over the next 30 years. Whilst the scope of the NFA is focused on Nelson City, the project recognises a much wider area of influence including the Airport and adjoining Tasman District.

To help manage the effects of this growth safely, whilst at the same time reducing carbon emissions, the NFA detailed business case sought to provide a plan for the whole transport network to address three high-level problems statements, as follows:

- Problem 1: The inability of Nelsons transport network to support the increasing movement of people and freight between Stoke and Nelson city centre is constraining economic growth and social well-being of the region
- Problem 2: Conflicting uses and inappropriate uses of the network severs neighbourhoods reducing their amenity and safety
- Problem 3: The susceptibility of the arterial network to natural events of increasing severity and a greater number increases the risk of significant economic shock to Nelson and the wider region

The NFA Detailed Business Case report (prepared by Aecom for Waka Kotahi NCC + WK October 2021) included traffic modelling analysis on the road network, which includes the Airport. The Detailed Business Case report (section 3.3.4 of that report) records that growth to the mid-2030's is consistently forecast between both the Ministry of Transport outlook and the Nelson Airport Masterplan, with approximately 1.86 million passenger movements. In this regard, it is understood that the NFA adopted forecast growth for the Airport which aligns with the NAL forecast growth data (described earlier at Chapter 7).

Without any network intervention, the journey time analyses from the NFA modelling indicates the major north-south arterials, including both Rocks Road and Waimea Road, will be over capacity during the PM peak period by 2048, with travel times more than doubling. The congestion plots included in **Figure 9-1** below, show that congestion accessing the Airport will increase, particularly in the vicinity of Quarantine Road / SH6. The darker the colour of the line, the more congested the area is.

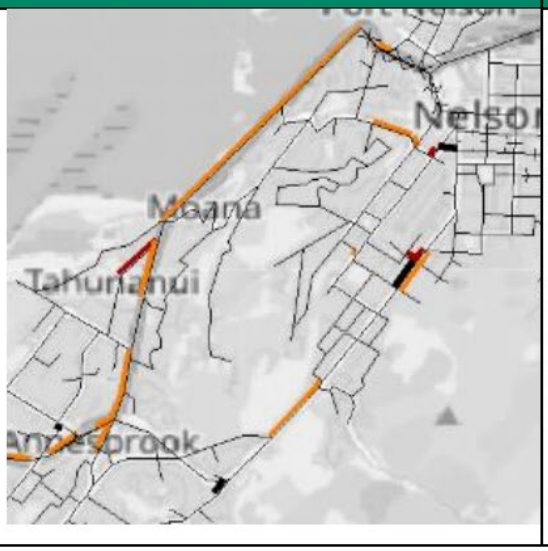
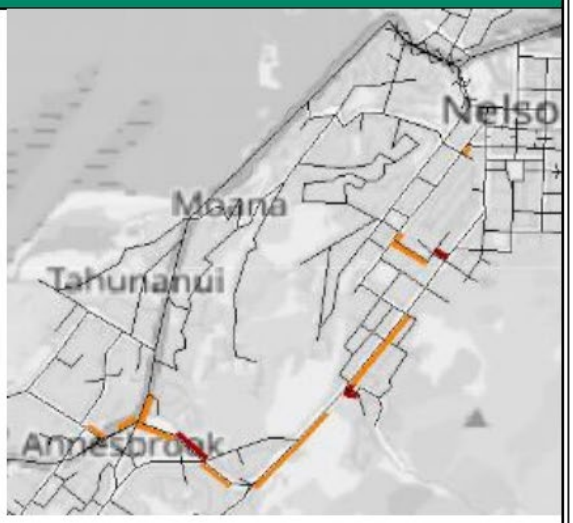
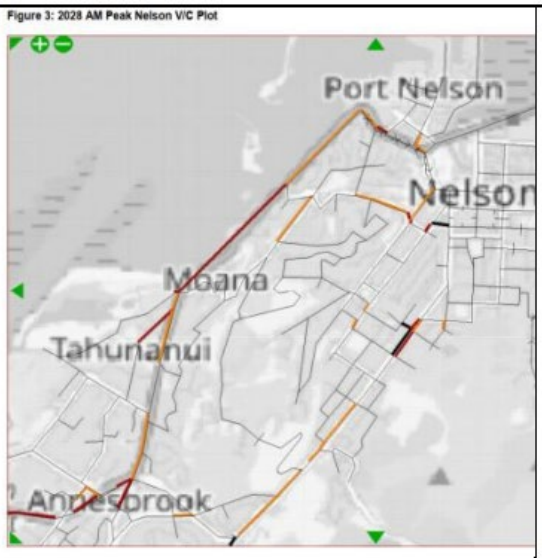
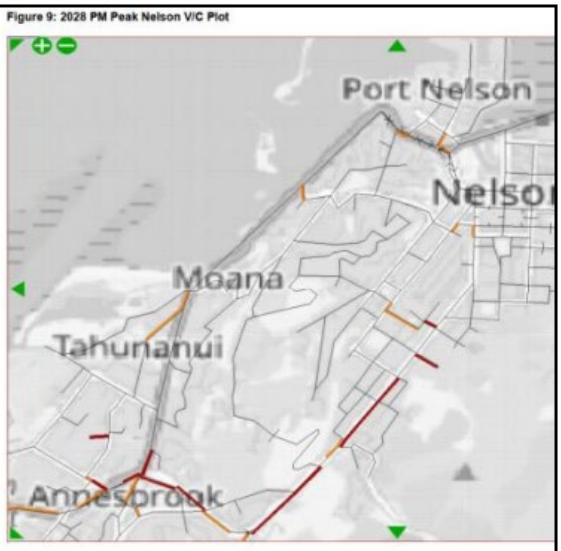
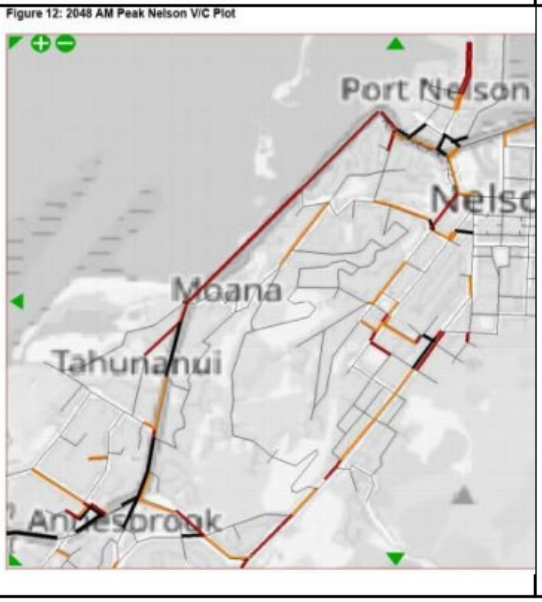
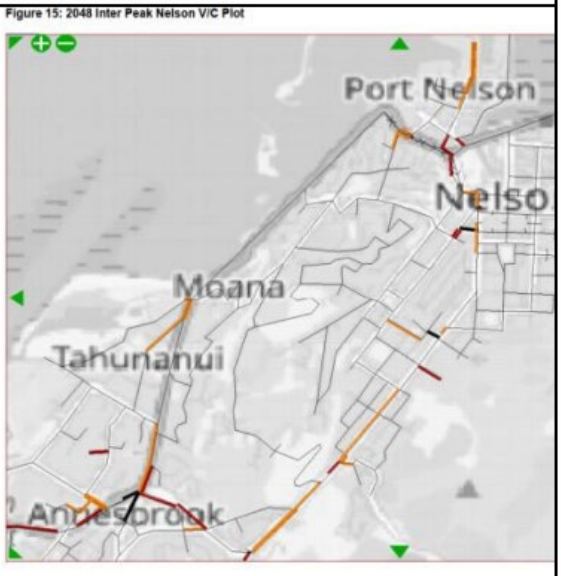
Modelled Years	AM Peak	PM Peak
2018		
2028		
2048		

Figure 9-1: Nelson Future Access "Do-Minimum" Congestion Plots (Source: NFA)

It is clear that a strategy of change in the transport system is necessary for Nelson Region, and the Waka Kotahi Business Case set out a programme to address that. Again, it is noted that the strategy anticipates and provides for forecast levels of Airport travel demand growth.

The recommended programme is intended to increase the availability of attractive walking and cycling paths and public transport options close to areas of planned dense urban living, focuses on reliable journeys to support regional economic development, improves safety for everyone and makes urban neighbourhoods more liveable.

Key elements of the programme are

- shifting people to alternative modes to private vehicles;
- encouraging the uptake of walking, cycling and public transport;
- providing and active mode corridor along Ricks Road;
- prioritising buses through use of priority lanes between Richmond and Nelson, reducing fares, increasing frequency, and maximising the number of people within walking distances to bus routes;
- completing key walking and cycling networks;
- minimising private vehicle travel to the CBD;
- addressing safety risk on key arterials;
- traffic signals to improve access to and across arterial roads.

Of note is that the plan does not provide for any major arterial road capacity into the future. However, the NFA states that the programme, when compared against the status quo of no investment in the transport network, will encourage mode shift away from private vehicles of between 6% to 8%, and in turn reduce forecast travel volumes by 7% out to 2028, and 9% out to 2048.

The Waka Kotahi preferred programme was forecast to alter traffic patterns, compared to “do-minimum” programme. The indicative change in traffic patterns for the 2048 PM peak is shown in **Figure 9-2**[1], for the 2048 PM Peak. The blue lines represent decreases in traffic volume as a result of the preferred programme, and the green lines show an increase. Some small increases are forecast in the vicinity of the airport, although most of the main roads have substantial decreases in traffic volume, up to approximately 500vph in one direction.

[1] Sourced from the NAF Detailed Business Case Appendix D, Figure 16

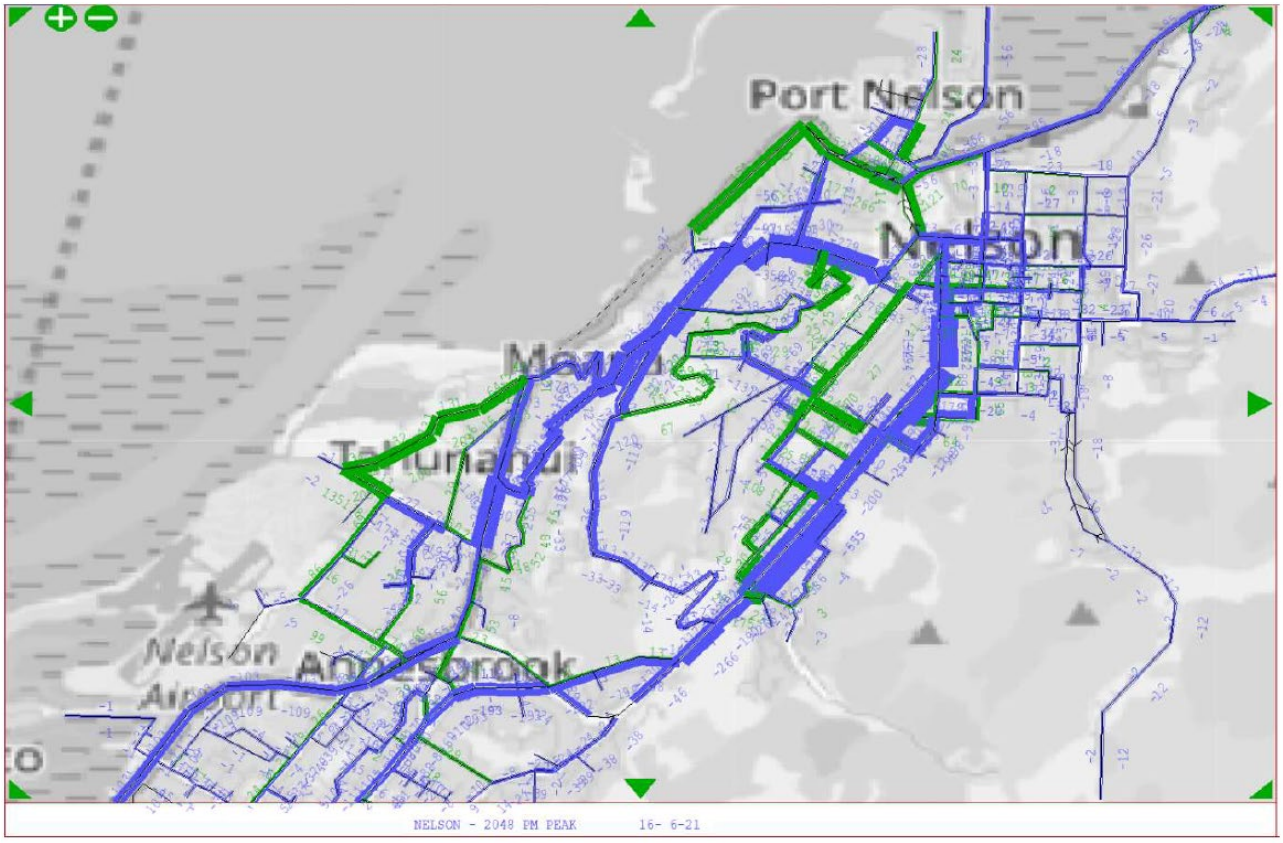


Figure 9-2: 2048 PM peak Change in Traffic Volume as a result of Preferred Programme v Do-Minimum

Maps of the recommended programme are shown in **Figure 9-3** and **Figure 9-4**.

Figure 9-3: Nelson Future Access Programme (Bus Priority Lanes) (Source NFA)

Figure 9-4: Nelson Future Access Programme (Other Projects) (Source: NFA)

Whilst most of the improvements are on the transport network including and to the northeast of SH6 which is some distance from the Airport, the maps indicate signalised intersections on SH6 at and near Parker Street. From an Airport perspective, the changes which have been made to accommodate regional growth generally, will also enable the wider supporting transport network to provide reliable connections to and from the Airport. That will enable the transport network to accommodate the level of Airport passenger growth anticipated to 2050 at the levels of transport network performance service supported by the NFA assessment.

9.2 Nelson Long Term Plan 2021-2031

Projects already committed to in the Nelson Long Term Plan 2021-2031 ("LTP") are as follows:

- Tahunanui Cycle Network – SH6 Tahunanui Drive connect
- Tahunanui to Annesbrook cycle connection
- Rocks Road cycling and walking project
- Airport bridge replacement
- Nayland Road pedestrian crossing
- Muritai SH6 intersection (ped crossing across SH6)
- Quarantine Road Bridge footpath (at Bolt Road) improvement for walking and cycling
- Bolt Road roundabout.

9.3 Public Transport Changes

The Nelson-Tasman Regional Public Transport Plan 2021-31 proposes a staged package of improvements for the region public transport services. Key changes include simplifying the urban route network, fare zone adjustments, implementation of 30-minute frequencies 'all day, every day' (7am to 7pm), introduce new services, bus priority measures (as per the NFA programme), bus stop improvement, as well as longer term increased peak hour frequencies on key routes.

The Plan includes provision for a new east-west Nelson Route between 'The Brook' and 'Nelson Airport' via Nelson City, Washington Valley, and Tahunanui. Bus terminals at Tahunanui and Nelson will allow passengers on other routes to transfer to this new Airport route. In this manner, the provision of an Airport bus service will provide additional mode choice for passengers and staff, supporting a reduction in overall private car trips to/from the Airport.

An extract of the proposed route plan is shown in **Figure 9-5** below.

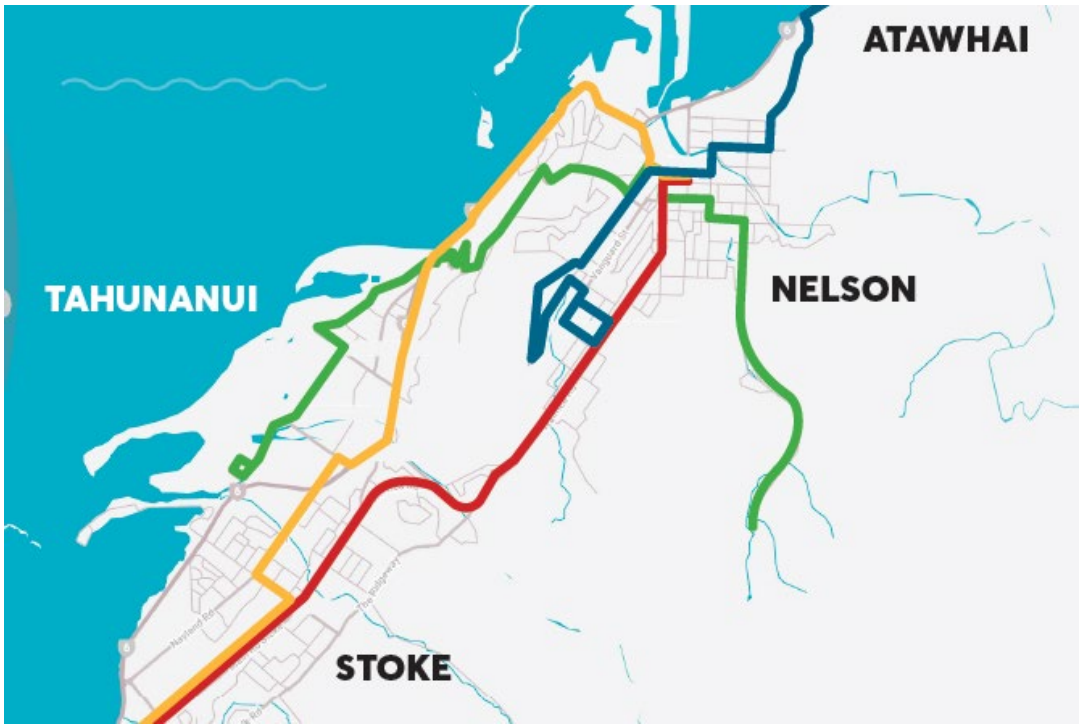


Figure 9-5: Proposed Nelson Bus Routes

9.4 Active Travel

The NCC 'Active Travel Strategy 2022-2032' ("ATS") is part of a suite if transport planning strategies that seek to improve multi-modal journeys in the region. The ATS includes a range of measures to support a substantial increase in walking and cycling, particularly focussed on the delivery of a dedicated network, safety of facilities (including reducing vehicle travel speed), and improving end of trip facilities for cyclists. The Strategy includes a number of potential future routes, indicating how the network in the vicinity of the Airport might be expanded. An extract is shown in **Figure 9-6**.

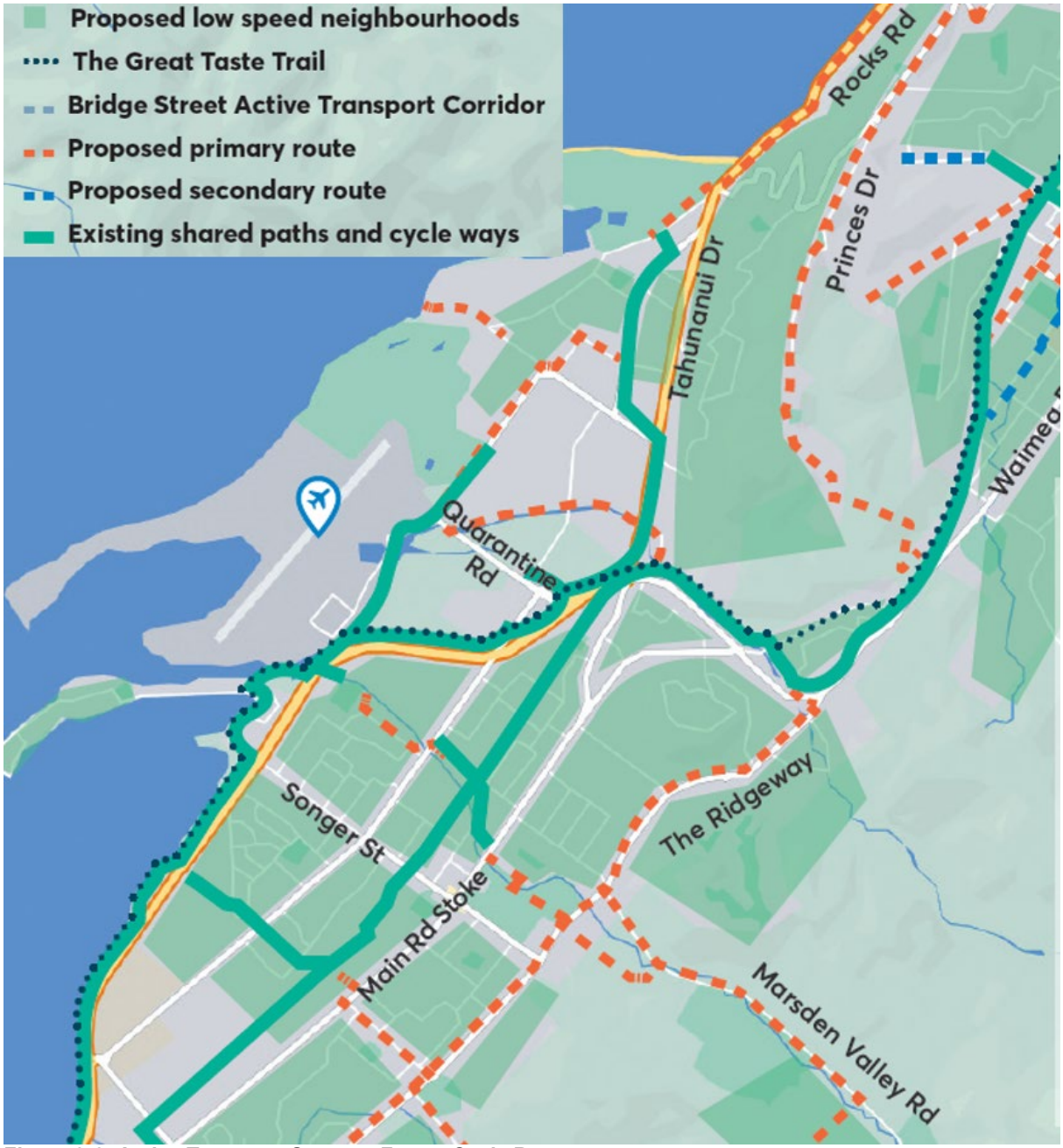


Figure 9-6: Active Transport Strategy Future Cycle Routes

As shown, an indicative new primary cycling route between the Airport and the established 'Great Taste Trail' is included in the strategy, which would beneficially provide improved access between the Airport and the wider Nelson cycling network.

10 Wider Transport Network Operation

It can be seen that a range of multi-modal transport system changes are being proposed by NCC and Waka Kotahi to support travel within the Nelson area, and includes enhanced access to the Airport for public transport users as well as those walking and cycling.

The various plans include acknowledgement of future improvements to the SH6 intersections at Quarantine Road and Parker Street which will support reliability of vehicle access to and from the Airport.

The NFA project also proposes a range of other multi-modal access related improvements along SH6 that will enable better access on the network supporting passenger growth at the Airport.

The active modes transport network will be expanded to improve access between the Airport and Tahunanui, as well as routes to the east adjacent to SH6. The ATS anticipates improvements to facilities at intersections, along with speed management measures to improve safety of the active mode networks.

The review of the existing infrastructure described earlier (at Section 3) identified some gaps in the provision for pedestrians and cyclists in the wider network which appear to be impacting on safety, which the provisions of the NFA and Long Term Plan will look to address (in a network wide sense) over time. In addition, the Airport precinct will likely need some commensurate improvements in precinct infrastructure where gaps currently exist such as safe internal paths, end-of trip facilities and secure cycle parking. These are master planning matters to consider as the wider precinct develops regardless of passenger growth, and are not considered to be a direct effect of the NOR.

The Public Transport Plan proposes a new bus service between the Nelson CBD and the Airport, providing a public transport option for passengers and staff, where currently no such option exists. Some infrastructure within the Airport is likely to be necessary to support this new bus service, including bus stops / shelters and route timing information, which is important given the proposed future focus of the transport network development will be supporting frequency and reliability of bus services to satisfy growth in transport demand. This is a matter to optimise the land transport connections for the Airport and it is not considered to be a direct effect of the NOR.

As congestion increases on the road network in the future as a result of regional population and landuse growth, changes in travel time reliability will become important. Bus priority measures included on arterial roads as proposed in the NFA will improve the reliability and attractiveness of bus travel over taxi / ride share, potentially limiting the extent of change in vehicle trips on the road network. This will support effective access to the Airport from Nelson City, although it is not considered to be a direct effect of the NOR, as set out in Section 8 of this report.

11 Local Network Improvements

The LTP identifies a number of specific projects proposed and funded by NCC for the roads in the wider network that also connect to the Airport, to improve safety for all modes of travel. These will support land transport connections as traffic volumes grow on the road network as a result of general and airport growth (unrelated to the NOR).

As described in Chapter 7, vehicle movements to and from the Airport are forecast to potentially (applying conservative assumptions that likely overestimate traffic demand) double in the next 25-years. Currently the road links of Quarantine Road and Bolt Road have suitable mid-block (between intersections) capacity to accommodate this growth. However, safety concerns are evident as the roads provide for a mix of parking, through traffic, and access function, together with pedestrian and cycle movement.

As described earlier, Quarantine Road is an arterial road with a significant access function to commercial and industrial sites fronting the street. We would anticipate that the configuration of the road will require modification over time to safely accommodate the increasing through movement as a result of general traffic growth. Such changes could include management of kerbside parking adjacent to the accesses and intersections to improve visibility (or removal of parking on one side), speed management, and improved facilities for crossing the road by pedestrians. The need for cycle facilities will depend on the extent that other parallel facilities support movement to and from the Airport. As NCC is the road controlling authority, NAL's role would be to support those modifications being made, rather than taking a facilitating or regulatory role in such.

Bolt Road and Parkers Road could similarly accommodate increasing Airport related traffic as the SH6 intersections with Quarantine Road become more congested in the long term. Some wayfinding improvements will be desirable if greater use of Bolt Road is used, as it is a less direct route for unfamiliar drivers. Parking management along the road to maximise safety will be important. The form of intersections on Bolt Road will likely require safety improvement and/or speed management to reduce the potential severity of crashes as a result of the existing geometric configuration.

As these changes are external to the Airport, this will be a function for NCC as road controlling authority to plan for as traffic patterns change over time. It is recommended that the Airport takes opportunities to consult with the road controlling authorities in any investigation of corridor improvements on roads connecting SH6 to the Airport, with a particular focus on informing Airport travel demand, including time of day of demand, and the likely timing of mitigation works that are required. NCC’s regular traffic counting programmes provide a measure to monitor usage of these roads.

12 Conclusion

The notice of requirement will enable greater resilience and safety improvements to support future operations at the Airport associated with the existing runway configuration. More broadly, regional and passenger growth is likely to see a comparable rate of change in travel demand to and from the Airport via the local transport network. This growth is forecast regardless of the NOR, and as such the direct land transport related effect of the NOR is negligible. The operational improvements associated with the NOR do however offer the opportunity for overall transport network operations to be more efficient and sustainable as less disruption to normal operations at the Nelson Airport will be a likely outcome of the NOR.

In terms of understanding the ability of the future transport network to accommodate growth generally, regardless of the NOR which is not expected to change that growth, a review of the land transport connections to the airport and the future performance of the wider transport network has been carried out. The Nelson Future Access project (led by Waka Kotahi) has proposed a suite of projects to improve travel time reliability into the city, with a focus on supporting a modal shift from private cars to sustainable travel modes.

As well as the provisions of the Nelson Future Access project, various plans and strategies have been developed that propose improvements to ensure the Airport is well connected in the future by a range of transport modes, including a regular bus service between the Airport and Nelson CBD. It will be important for the Airport to respond to these changes in external infrastructure provision by providing on-site infrastructure that supports travel by these broader modes. Such provision that will need to be contemplated could include bus stops and associated infrastructure, safe separated internal paths for walking and cycling, secure cycle parking, and cycle end of trip facilities.

Local access routes from SH6 to the Airport will need to carry higher levels of traffic in response to the increasing passenger movements. In their current formation, local access roads provide multiple functions including on-street parking, property access, and through movement. This has created some poor safety outcomes, and a review of the road configurations are likely to be required with consideration of intersection improvement, parking management, pedestrian crossing facilities, road marking and signage, and speed management. That will be a matter for the road controlling authorities to review, with input from the Airport on actual travel demand and changes to traffic forecasts.

Overall, it is considered that the Airport growth is already being suitably considered in the wider transport network planning. This reflects the importance of the Airport to the region. Measures planned to support movement of people through the transport network by a range of travel modes will also support access to and from the Airport. The change in traffic demand will be most noticeable on the roads connecting to SH6, and these will likely require investigation of change over time. Continued liaison with stakeholders and particularly Road Controlling Authorities will be important, along with review of growth in passenger numbers as new trends develop to ensure an appropriate transport outcome.

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