Memorandum

B&A Urban & Environmental

To: Coralie Barker – Nelson City Council

From: Cam Wallace – Barker & Associates Limited

Date: 12 April 2024

Re: Plan Change 29 – Accessibility Analysis – NPSUD Policy 5 Methodology Statement

1.0 Introduction

Barker & Associates ("**B&A**") have been commissioned by Nelson City Council ("**NCC**") to undertake a more detailed Accessibility Analysis to assist NCC in responding to submissions on Plan Change 29 as they relate to the proposed extent of residential zones as well as meeting its requirements as a Tier 2 local authority under Policy 5 of the National Policy Statement on Urban Development ("**NPSUD**").

The initial zoning pattern proposed through Plan Change 29 was derived from the broader accessibility work undertaken by MRCagney to inform the Nelson Tasman Future Development Strategy (2022) and supplemented with some basic catchment analysis from the main centres within Nelson. NCC has received a number of submissions challenging the proposed extent of residential zones on a number of grounds. This includes:

- Opposition to the proposed High Density ("**HDRZ**") or Medium Density Residential Zone ("**MDRZ**") in Tāhunanui based on the topography, natural hazard risk, traffic network concerns and the lack of supermarket within the Tāhunanui centre.
- Opposition to the HDRZ and MDRZ in Washington Valley based on traffic network concerns, natural hazard risk and concern about social cohesion.
- Broad opposition to the introduction of the HDRZ and MDRZ with requests to revert to the zoning allowed under the operative Nelson Resource Management Plan.

2.0 Memo Structure

The methodology utilised for the analysis is primarily based on the guidance as set out in the Ministry for the Environment guidance document "*Understanding and Implementing the Intensification Provisions for the National Policy Statement on Urban Development*", published September 2020. Where B&A has access to additional information or more refined tools of analysis, these measures have been incorporated into the methodology.

The methodology (and memo) is set out in three parts, being:

(1) Policy Context;

(2) Accessibility analysis; and

(3) Summary and findings

The results of the analyses have been displayed in a map format using GIS software (ArcGIS) to enable visual interpretation of the data, comparison of areas, identification of areas for refinement and ground-truthing.

3.0 Policy Context

3.1 National Policy Statement on Urban Development

The NPSUD replaced the National Policy Statement on Urban Development Capacity 2016 ("NPSUDC") and came into force on 20 August 2020. The NPSUD provides national direction under the Resource Management Act ("RMA") and intends to improve the responsiveness and competitiveness of land and development markets. It requires local authorities to open-up more development capacity, so more homes can be built in response to demand.

Relevant objectives of the NPSUD which are useful in informing a methodology for undertaking an accessibility and demand analysis include:

> ***Objective 1:*** *New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.*
>
> ***Objective 3:*** *Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:*
>
> *(a) the area is in or near a centre zone or other area with many employment opportunities.*
>
> ***Objective 4:*** *New Zealand's urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people, communities, and future generations.*
>
> ***Objective 6****: Local authority decisions on urban development that affect urban environments are:*
>
> *(a) integrated with infrastructure planning and funding decisions* (insofar as this relates to transport)
>
> ***Objective 8:*** *New Zealand's urban environments: support reductions in greenhouse gas emissions; and are resilient to the current and future effects of climate change.*

Relevant policies of the NPSUD which are useful in informing a methodology for undertaking an accessibility and demand analysis include:

> ***Policy 1:*** *Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum:*
>
> *(a) have or enable a variety of homes that:*
>
> *(i) meet the needs, in terms of type, price, and location, of different households*
>
> *(c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport*
>
> ***Policy 5:*** *Regional policy statements and district plans applying to tier 2 and 3 urban environments enable heights and density of urban form commensurate with the greater of:*
>
> *(a) the level of accessibility by existing or planned active or public transport to a range of commercial activities and community services; or*
>
> *(b) relative demand for housing and business use in that location.*

Policy 5 must apply to the entire Nelson urban area based on the NPSUD definition of Urban Environments.

4.0 Study Area

The study area for this work is based on the boundaries of the NCC's urban environment area as shown in Figure 1 overleaf including the areas of Marybank, Atawhai and Brooklands which are of urban character.



Figure 1 - NCC Urban Environment Area

The study area includes some areas that are zoned for development but are currently undeveloped or in the process of redevelopment (e.g. Marsden Valley and Ngawhatu Valley). In these instances, there is often a limited or even no established street network which can be used to understand the potential access to different amenities and employment opportunities. Where this occurs, the level of accessibility can be inferred based on how other areas immediately adjacent to these perform along with other relevant contextual information (e.g. a new cycle or street connection identified within a structure plan).

The scope of the Accessibility Analysis also includes consideration of amenities and services located within Richmond, Tasman to ensure that any overlap of accessibility of services within Richmond are accounted for within NCC's urban area.

5.0 Accessibility Analysis

In order to demonstrate compliance with Policy 5(a) of the NPSUD, it is necessary to determine the 'level of accessibility' for any given area across the entire NCC urban environment area. A high-level desktop review of approaches was undertaken to help inform this analysis.

Although reference to some form of accessibility analysis to help inform the plan development process under the RMA is new, accessibility analysis (or accessibility planning) is a well-established concept in both New Zealand and overseas for a range of similar purposes. Waka Kotahi defines 'accessibility planning' as:[1]

> "*a structured process for the assessment of, and planning for, accessibility. It uses quantitative and qualitative data and employs tools such as geographical information systems to systematically assess a range of accessibility related information, including origins, the location and delivery of key activities and the transport links to and from them, and assist in the development of a set of accessibility indicators*."

Well-established overseas examples of accessibility analysis include Transport for London's ("TfL"), Public Transport Access Level ("PTAL") and Access to Opportunities and Services ("ATOS") measures. PTAL rates a selected place based on how close it is to public transport and how frequent services are in the area, while ATOS attempts to indicate how easy it is to access essential key services and employment locations, using public transport or by foot. Both measures provide a simple ranking system based on overlapping walking and public transport catchment analysis to enable an understanding of relative levels of accessibility across the Greater London area. Example outputs of this type of analysis are provided below.



Figure 2 – ATOS scores for secondary school access in London, U.K.

[1] Chapman & Weir (2008) *NZ Transport Agency Research Report 363 'Accessibility Planning Methods'*

Based on an assessment of approaches to accessibility analysis, accessibility can most easily be defined as your ability to go places so that you can do things. The assessment of this is strongly driven by data (e.g. census, GIS) and is based on two key components:

(1) the transport network serving any urban area (the how we travel); and

(2) the spatial distribution and location of activities or destinations (the why we travel).

Based on this, determination of an area's 'level of accessibility' needs to be informed by how many destinations can be accessed within a given time frame.

5.1 Transport Network

The first step in measuring accessibility involves defining the transport network that contributes to accessibility. The general focus of the policy framework of the NPSUD is on travel via active or public transport which for NCC's area includes the bus network, cycle network and walking network.

It is important to note that this policy framework does not explicitly exclude accessibility via private motor vehicles. However, NPSUD objectives and policies also seek to support a reduction in greenhouse gas emissions, and as such a detailed consideration of accessibility via private vehicle is not considered necessary or appropriate.

In terms of the other elements of the active and public transport network, it is considered that the walking network should form the primary driver for an accessibility analysis for the NCC urban areas. Cycling and public transport (and access to these networks) therefore forms a sub-set of a wider accessibility analysis. This is considered appropriate as:

- Public transport services are available throughout Nelson also connecting into the Tasman District. Stoke is additionally serviced by an on-demand bus which is operated by public via the OnDemand App. However, the on-demand buses have uncertain wait times and travel destinations so therefore cannot be included accurately within the accessibility.
- The Nelson bus network comprises 4 key routes which operate between 7am and 8pm within Nelson City and connecting into Richmond. These routes run with varying frequencies of either 15-minute, 30-minute or 60-minute intervals. Access via public transport is considered to be relatively constant across the Nelson urban area with the only difference being shorter journey times for those that live/ work closer to Nelson town centre. There are two additional routes which connect Nelson with Motueka and Wakefield at reduced frequencies as well as the late late bus (11pm – 1am, weekends only) and overflow bus route (3pm, weekdays only) within Nelson.
- Where use of public transport is considered as part of understanding an areas accessibility, there needs to be an acknowledgment that its use requires multiple trip legs – i.e. you must walk to a bus stop, then travel on a bus, then walk from your bus stop to your destination. In addition, depending on route frequency you also need to account for some waiting as users typically factor in arriving early so as to avoid missing a service. This all contributes to increased journey times. As such, a maximum walking catchment of 5-minutes to access public transport services was adopted.
- For cyclists, assuming an average travel time of 15km/hr (which is at the slower end of typical cyclist speeds) the length of Nelson (Trafalgar Park to the south end of Saxton Field) could be traversed within

a 50-minute journey time. In reality, journey times are likely to be shorter for the majority of cycling trips which will mostly not be the full length of Nelson but instead more centralised.[2]

- On-road facilities (e.g. a painted lane on a busy road) or more broadly the road network provides a limited degree of access for the general population by cycling due to perceived and real safety issues. Such environments have been identified as major barriers to greater uptake of cycling by a wide range of users.[3] As such, whilst destinations may be in theory cyclable within relatively short journey times, this option is likely only to be taken up by a very small percentage of the population.

5.1.1 Walking Catchments

Walking catchments (also referred to as pedestrian catchments) represent the distance that people can walk over a given time period. Although walking catchments are only specifically referred to under Policy 3 which applies to Tier 1 urban areas, the use of walking catchments as a key metric in understanding the level of accessibility for any given area has been utilised for this work. Whilst accessibility via public transport (buses) and cycling is also relevant, the relatively constrained extent of the NCC urban areas means that reliance on these modes and the distance one can travel in a short period of time means they are unlikely to provide a detailed understanding of levels of accessibility for specific areas or neighborhoods relative to one another.

Accordingly, there is a need to establish the walking catchments that should apply for an accessibility analysis of the NCC urban area. NPSUD Guidance[4] notes that not all places are equal and different locations with different characteristics may often have different-sized walkable catchments. A general approach adopting 5 or 10-minute walking time catchments (approximately equivalent to a 400m / 800m walking distance at an average walking speed of 5kmph[5]) as a starting point is consistent with standard national and international practice. However, consideration also needs to be given how far people walk and what types of destinations they are walking to for higher values amenities (e.g. a Town Centre). As Policy 1 of the NPSUD also requires consideration of accessibility for all people by way of active or public transport. In our opinion, this means that an accessibility analysis under the NPSUD needs to take into consideration those that may be less able (e.g. young children or the elderly). For this reason, walking catchments used should be reflective of an average person and shouldn't be based solely off the abilities of a fully fit and healthy young adult.

The New Zealand Household Travel Survey 2015-2018 identifies 12min (equivalent to around 1km) is the average trip leg for pedestrians. A trip leg is a single leg of a journey between two stops, with no stops or changes in travel mode. While the New Zealand Household Travel Survey does not currently record distances for walking trips (only times), based on a walking speed of 12 minutes per kilometre (5kmph), it demonstrates that 70% of our walking trips are for distances of under 1km, while 30% are likely to involve longer distances. However, this research also indicates that journeys undertaken solely on foot tend to be longer in duration, with 34% lasting for more than 12 minutes compared to only 15% of walking trips undertaken as part of 'multi-mode' journeys. Further walk-only trips are more likely to occur for education, social/leisure or shopping purposes, and less likely to occur for work purposes.[6] There is some supporting

[2] It is also assumed that the increased uptake of electric cycles is likely to further reduce potential journey times for this mode.

[3] Auckland Transport. (2016). *Evaluating Quality of Service for Auckland Cycle Facilities,* page 5.

[4] MfE. (2020). *Understanding and implementing intensification provisions of the NPSUD.*

[5] Based on the 85th percentile walking speed of 1.3m/s. Waka Kotahi. (2009). *Pedestrian planning and design guide,* Section 3.4.

[6] https://www.nzta.govt.nz/resources/nz-pedestrian-profile/5/

evidence of these observations. For example, New Zealand research has shown that the likelihood for walking to school drops off significantly over 1.3km.[7]

Based on the above, the approach to undertaking an accessibility analysis for the NCC urban area will be based on a bespoke catchment analysis of key destinations and activities. An Auckland specific example of this approach based on research undertaken by Auckland Transport is shown in Figure 3 below. A summary of the destinations identified for NCC's area and applicable catchments considered in set out Section 5.2 overleaf.



Figure 3 – Acceptable Walking Times to Destinations (Auckland Transport)

5.2 Destinations

The NPSUD policy framework and guidance provides an outline of the destinations which need to be considered when seeking to establish a 'level of accessibility'. This includes jobs, commercial services, community services, natural spaces, and open spaces.

NPSUD guidance states that commercial activities include those that serve the needs of the community (e.g. shops) and provide people with employment. Community services include health care, education (including universities and tertiary training institutes), cultural activities (e.g. churches) and land or venues for sport and recreation. A 'range' of services, as required by NPSUD Policy 5(a) should be thought of as a variety of commercial and community services that serve the needs of the catchment when implementing this policy. For example, a doctor and/or pharmacy, school and/or kindergarten and a café and shops would be considered as providing a range of services.

An initial long-list of destinations that should be included in an accessibility analysis was identified and discussed with NCC staff. Following this, a review of destinations was undertaken by both B&A and NCC staff

[7] Ikeda et al., (2018) *Built environment associates of active school travel in New Zealand children and youth: A systematic meta-analysis using individual participant data*

to determine the appropriateness and validity of this information was undertaken during a workshop dated 14 March 2024.

Based on this review of destinations and workshop with staff, the destinations, along with their prioritisation/ weighting and catchment extents were derived to form the basis of the accessibility analysis. Key destinations such as large supermarkets, centres, schools, bus stops and sports fields were assigned higher weightings in acknowledgment of their importance in for day-to-day living for a wide section of the community.

For identified destinations, up to three separate catchments are identified at 5-minute intervals. Higher weightings have been applied to certain catchments to reflect that all those who live closest to the destination have higher accessibility benefits due to their superior proximity to the destination. Where multiple catchments for the same destination are applied, areas closest to the destinations will invariably fall within all catchments that apply and receive a higher weighted score as demonstrated in Figure 4 (i.e. an area 4-minutes' walk from a primary school fall within the 5-minute, 10-minute and 15-minute catchments which would apply). The weightings are then used to derive an overall accessibility score by combining the total value of all catchments covering any given area. A summary of destinations, their associated catchments and weighting in the analysis is set out in Table 1 overleaf.

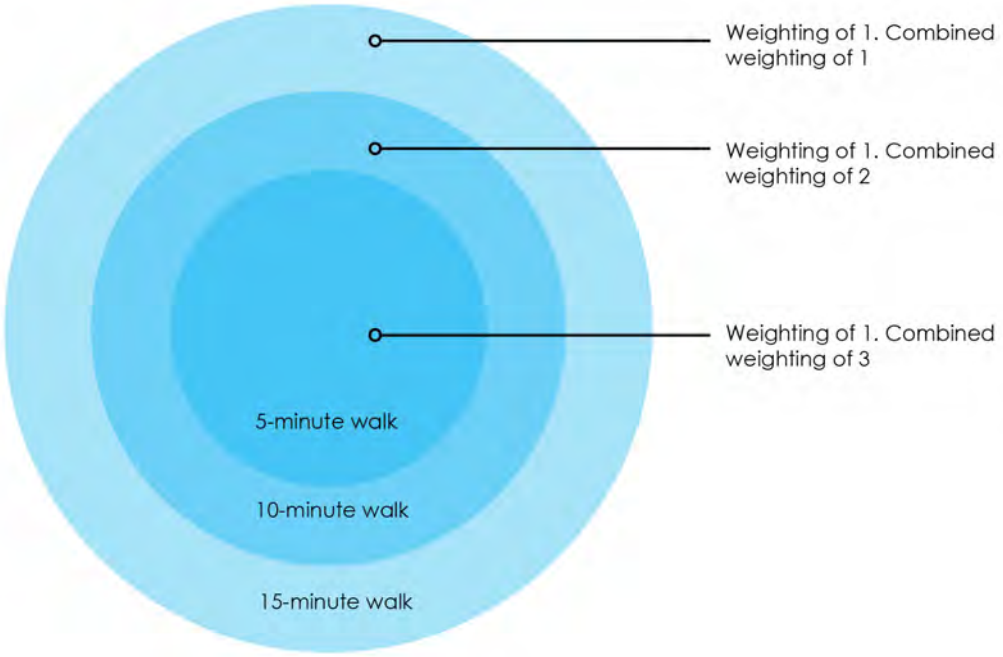


Figure 4 – Diagram depicting the catchment weighting methodology.

Table 1 – Destination Catchment and Weighting

Destination	5-minute Catchment weighting	10-minute Catchment weighting	15-minute Catchment weighting
Nelson City Centre	3	2	1
Stoke Town Centre	2	1	-
Tāhunanui Town Centre	2	1	-
Suburban Centres	1	-	-
Bus stops serving at least 2+ bus routes (with a combined frequency of 15-minutes)	3	-	-
All other bus stops	1	-	-
Primary School	3	1	-
Intermediate School	3	1	1
Secondary School	2	2	1
Private School	1	1	-
Large Supermarket	2	2	-
Major Parks / Reserves (e.g. large sports field)	2	2	1
Recreational Open Space/Reserves	1	-	-
Public Hospital^	-	2	1

^ These facilities serve a broader regional/ sub-regional function, are limited in number and are generally of more importance to discreet sections of the community. As a result, their minimum walking catchments have been expanded from 5-minutes to 10-minutes to reflect their wider benefits to an understanding of accessibility.

5.3 Barriers to Walkability

In establishing walking catchments, it is necessary to consider contextual factors that may impact on the distance one can walk. Factors which can impact on how far people are willing to walk include: the quality of the street environment and surrounding built environment; appropriate provision of infrastructure (e.g. street lighting, or footpath widths); traffic volumes, general perceptions of safety and topography. Many of these elements have the ability to change over time – especially in response to intensification. However, topography will remain a binding constraint on walkability into the future. In order to assess the impact this may have, a slope analysis of Nelson's urban area was undertaken.

5.3.1 Slope Analysis

A slope analysis was undertaken to understand whether local topographic conditions could form a notable barrier to how easily (or how far) people can walk within a given period of time. Using contour data sourced from Nelson City Council, a slope analysis was generated. This analysis divides the slope of land up into five categories based on the average gradient in percentage terms:

- 0% - 10%;
- 10% - 20%;
- 20% - 30%;
- 30% - 40%; and,
- 40% <.

The five categories were derived from a brief literature review on the effect of slope gradient on walking speeds. One important finding from a study carried out in New Zealand, illustrated that the speed of walking is somewhat counterintuitive and increased when walking uphill to a gradient of 6-degrees (or 10%) when compared with flat ground, before decreasing in speed significantly as slope increases[8]. Overall, mean walking speeds at 12% of slope were the same as for flat ground. More generally however, it has been found that once a gradient exceeds 10%, that walking speeds will reduce[9].

Following the slope analysis, a total of 34 sites where the steepness of a street may pose a significant barrier to walkability were identified across Nelson. At each of these 34 sites, a "time-penalty" of 5-minutes was applied to broadly reflect reduced walking speeds up these streets. An example of some of the streets and their gradient where barriers were placed within the catchment model are set out below in Figure 6. It has also been noted that many of the streets identified as having higher gradients also typically feature limited or no dedicated footpath provision.

(1) Montreal Road – 23.1%

(2) Konini Street – 12.3%

(3) Arrow Street – 24.9%

(4) St Lawrence St – 24.9%

(5) Toswill Road – 19.4%

For reference, New Zealand's steepest urban street, Baldwin Street in Dunedin, has an average gradient of 35%.

Figure 6 shows the output of analysis. Polygon barriers were derived from the slope analysis carried out for the NCC urban area. Our analysis illustrated that while there are large areas of land with less than 10% rise within the urban area. Steeper 'less accessible' urban land reach slopes of a 30-40% rise south and west of Nelson City Centre, Washington Valley and Britannia Heights. However, in many instances the corresponding street gradients in these locations are significantly less.

[8] Finnis, K. K. & Walton, D. (2008). *Field observations of factors influencing walking speeds.*

[9] Munroe, I. (2009). *The problem of catchment in Centres-Based Residential Growth Planning.*

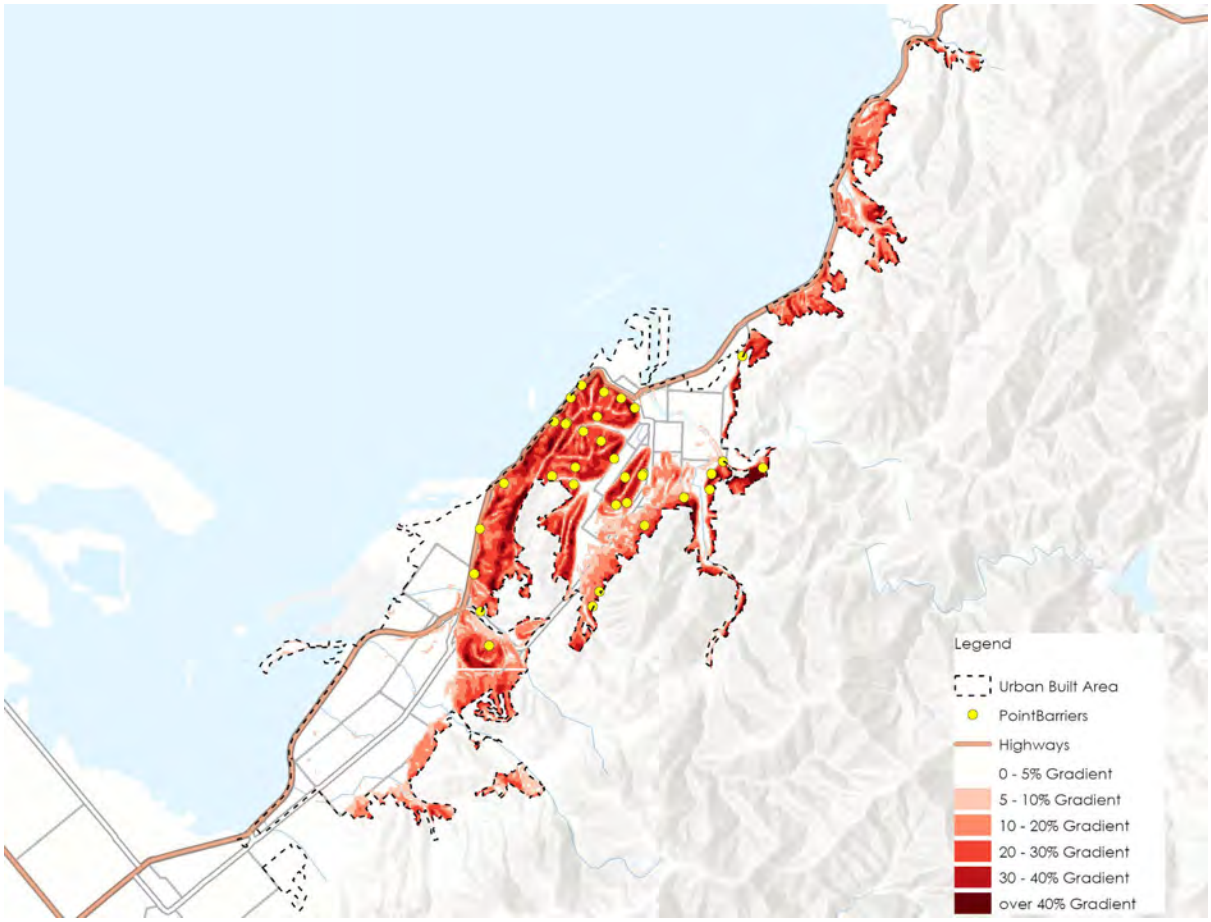


Figure 5 –Slope Analysis

5.4 Catchment Analysis

Section 5.4 provides a brief analysis and discussion of the various destination types identified in Table 1.

5.4.1 Commercial Centres

During a desktop review of each of the main centres (Nelson City Centre, Stoke Centre and Tāhunanui Centre) it was considered that the Nelson City Centre served a greater role and function than Stoke centre, followed by Tāhunanui. As such, three sets of catchments covering the Nelson Town Centre, Stoke Town Centre and Tāhunanui Centre were developed from the edge of the proposed centre zones' extents. Catchments for these proposed centres are shown in Figure 5 overleaf.

Catchments derived from a 5-minute, 10-minute walking time were applied to the Nelson City Centre, Stoke Town Centre and Tāhunanui Centre. In addition, a 15-minute catchment was applied to Nelson City Centre to reflect its larger scale and greater diversity of existing (or potential) activity that can accommodate a number of different commercial and community services as well as a larger employment base.

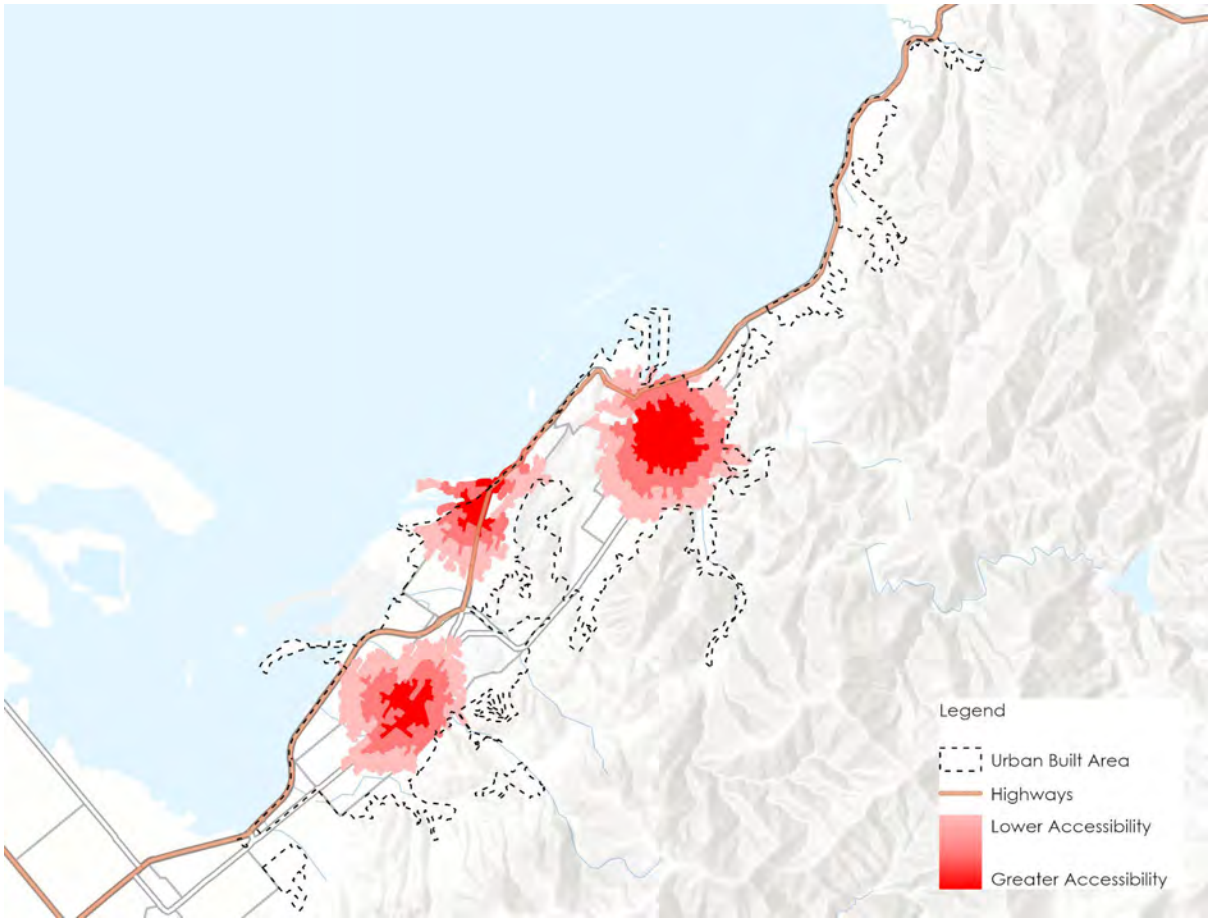


Figure 6 – Centres Catchment Assessment

5.4.2 Education Opportunities

Catchments for primary, intermediate and secondary education facilities were generated. Proximity to primary, intermediate and secondary schools was given a greater weighting in the overall assessment (relative to other destinations). Figure 7 shows the outputs of the catchment assessment for educational facilities. Catchments of 5-minute and 10-minute walking times were generated for primary schools with the greatest weighting applying to the 5-minute catchment.

Both intermediate schools and secondary schools had catchments for 5-minute, 10-minute and 15-minute walking times generated. Higher weighting was applied to primary and intermediate schools at the 5-minute walking distance and at 5-minute and 10-minute for secondary school walk distances. Higher weighting on a shorter walking distance for primary and intermediate schools recognise the younger students who attend these schools and walk shorter distances and that primary schools are generally located more locally. Secondary school have higher weighting at the increased distance in recognition that they typically serve older students who are, on average, more mobile and typically spend a greater portion of their travel time walking. Secondary schools also tend to have a higher number of enrolled students and therefore service a wider area. Private schools have also been considered but access to these is not primarily driven by proximity but other socio-economic factors (e.g. religion) and they are not necessarily open to the wider public. As such, they have been assigned a lower weighting for the purposes of this accessibility analysis.

It is notable that the secondary schools are typically located close to or within existing centres and the primary schools are spread more broadly across Nelson's urban area.

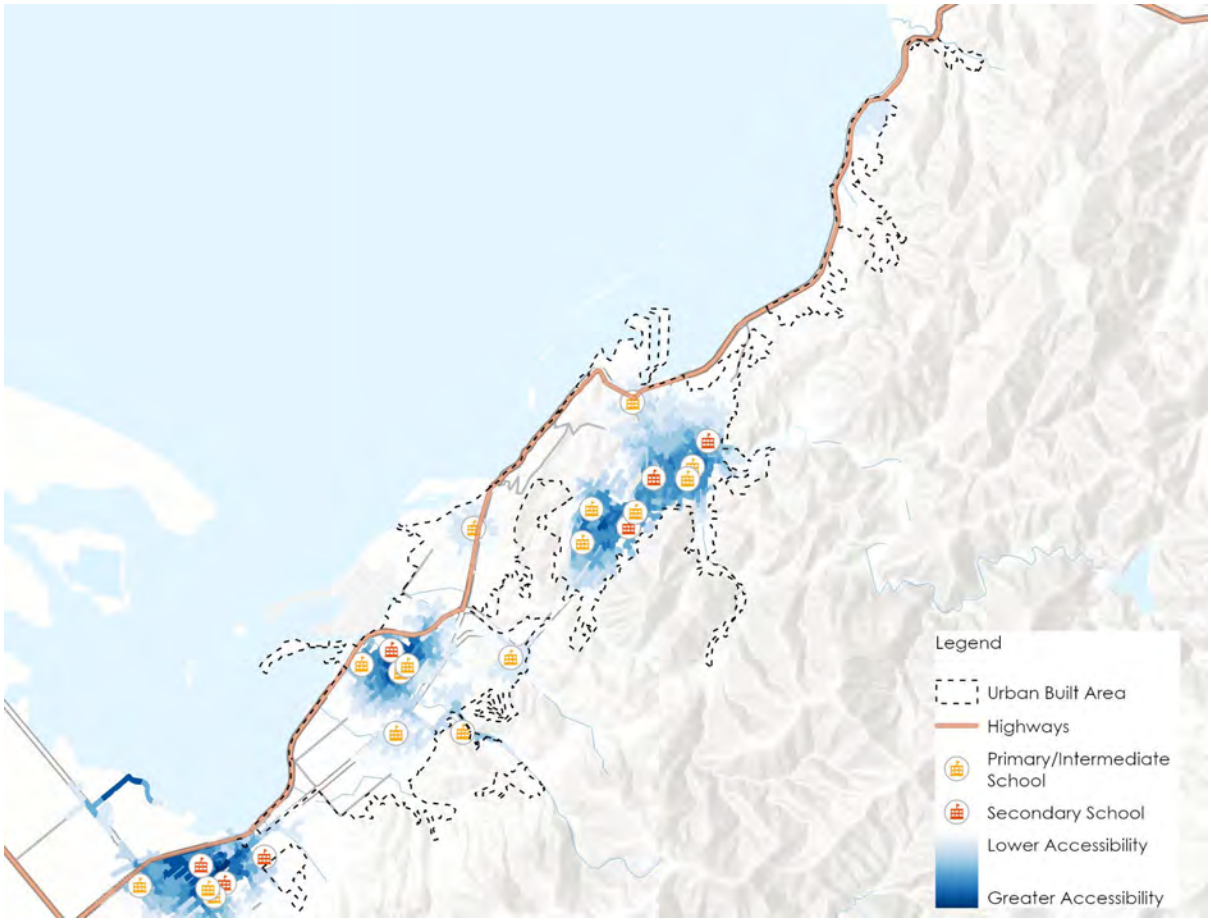


Figure 7 – Education Catchment Assessment

5.4.3 Open Space Opportunities

A range of open spaces were identified as being relevant for understanding accessibility. These were broken down into two different categories for ease of assessment – Sportsfields and general public open space/ reserves (e.g. neighbourhood reserve). A minimum size of 300m^2 was also placed on any general open space included within the assessment as a proxy for usability. Furthermore, analysis accounted for the exclusion of areas zoned as open spaces however are not of a size or shape to accommodate a recreational/leisure function (i.e. drainage reserves or esplanade strips). Remaining open spaces were assessed through desktop analysis by Google Streetview and a further assessment criterion including on-site amenities, useable space and form, access, quality of the space and topography.

Major open spaces were identified as being regionally significant spaces due to a combination of their size and ability to service a range of recreational uses. These were included Saxton sportsgrounds, Isel Park, Ngawhatu Sportsfields, Greenmeadows Playing Fields, Trafalgar Park/Centre, Victory Square, Tāhunanui Recreation Reserve, Neale Park and Maitai Cricket Ground.

A 5-minute walking time to all open spaces identified was applied and a 5-minute, 10-minute and 15-minute walking time was captured for the major open spaces. This is reflective of the nature of these facilities which can, by their size, accommodate a greater number of different uses including organised sport and recreation and thereby creating a high level of value/ amenity for potential users. In terms of outputs, most areas are generally well served by open spaces and playgrounds.

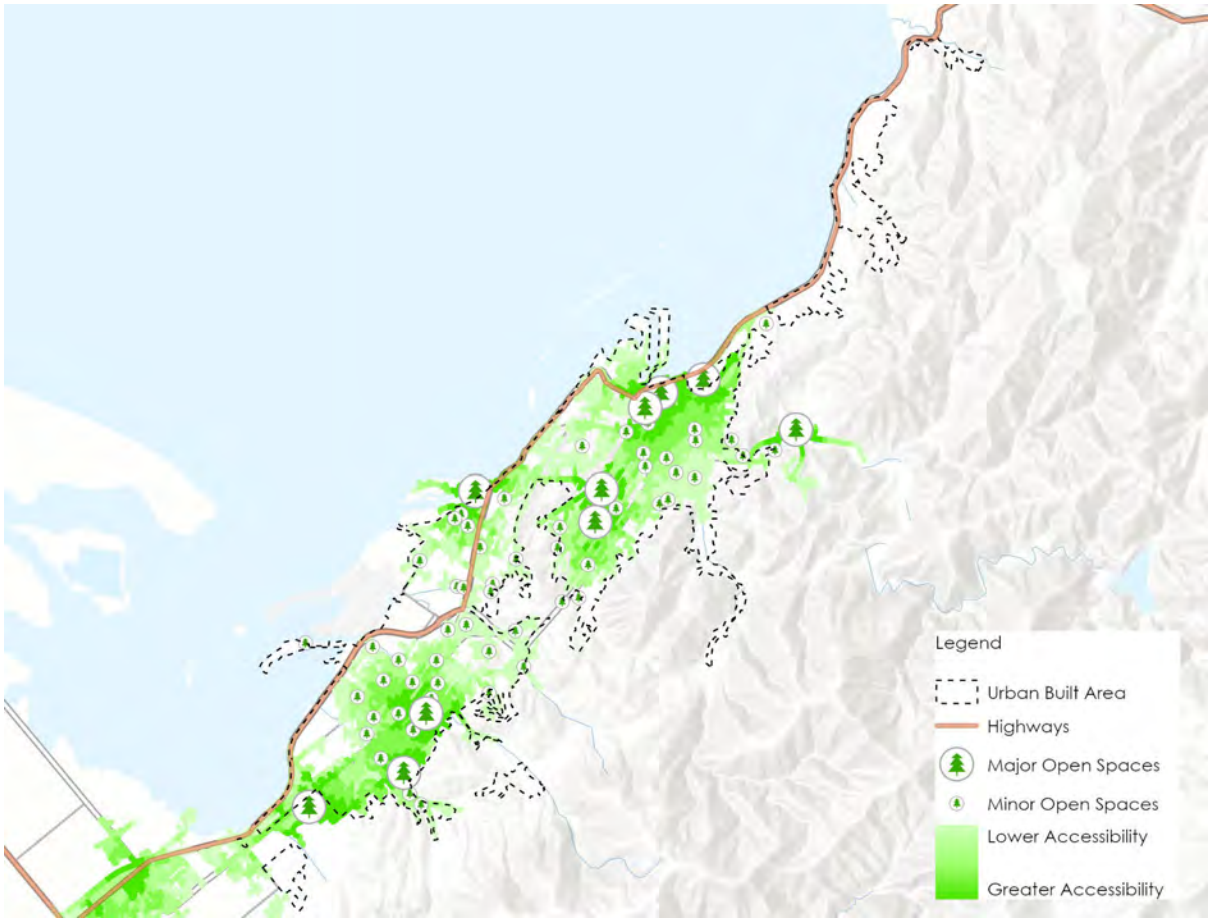


Figure 8 – Public Open Space Catchment Assessment

5.4.4 Food Retail

The supermarket category focusses on the larger, full-service supermarket facilities such as New World and Countdowns (e.g. those that incorporate fresh produce and deli sections). A 5-minute and 10-minute walking time catchment have been identified for large supermarkets. The analysis has included consideration of a full-service supermarket in Annesbrook. Plan Change 31 has made supermarkets at this location a controlled activity and a resource consent application for a new supermarket was being processed by Council at the time this analysis was undertaken.

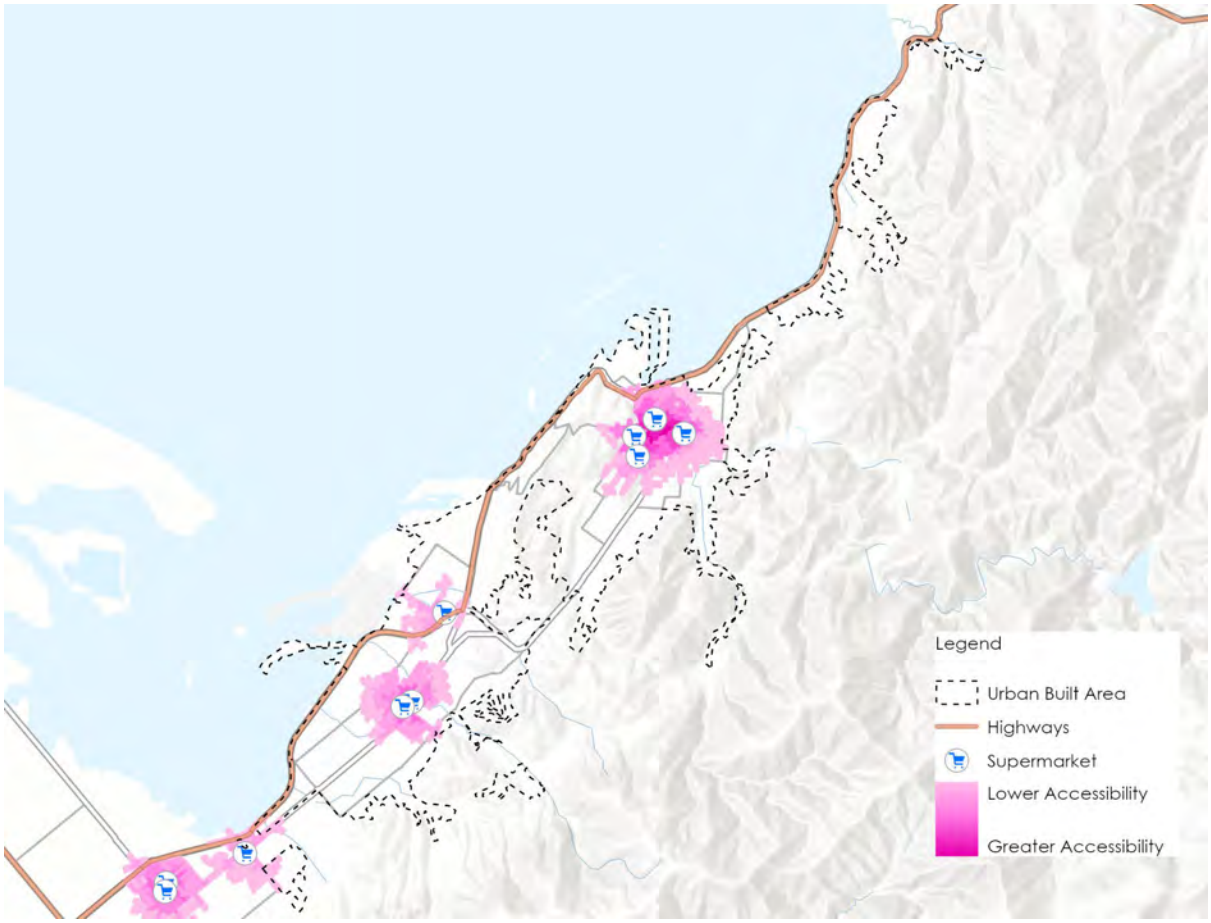


Figure 9 – Food Retail Catchment Assessment

5.4.5 Healthcare

The public Nelson Hospital is located in Nelson South. A 15-minute walking time catchment was captured in acknowledgment of the wider range of medical services provided. The Manuka Street Hospital was not included in this assessment due to its primary function as a private surgical hospital.

It is noted that there are a range of other healthcare facilities which provide a benefit to the public, including specialist medical centres, GPs and pharmacies. Proximity to these destinations can also form an important component of accessibility. Within the Nelson context, the majority of these facilities tend to be concentrated in established centres, suburban commercial areas or in proximity to Nelson Hospital. As such, access to these has been captured indirectly with the assessment of centres and suburban commercial centres. The higher weighting given to centres is also reflective of the fact that they are currently home to a number of different healthcare facilities, or are more likely to accommodate these in the future.

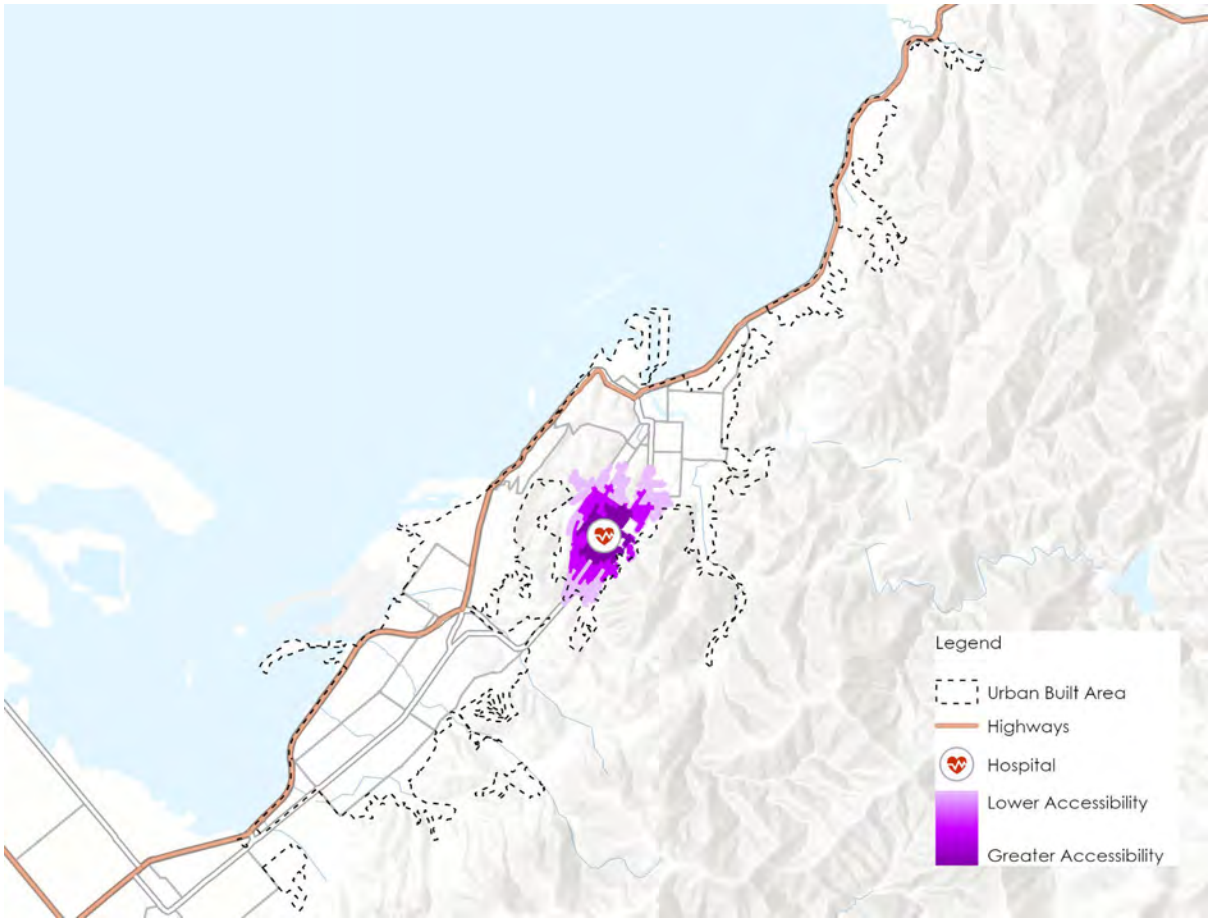


Figure 10 – Nelson Hospital Catchment Assessment

5.4.6 Transport Opportunities

As set out in Section 5.1 of this memo, public transport has been incorporated as part of a broader assessment focused on walking catchments to and from particular destinations. In terms of public transport, existing bus routes and bus stops were identified. A 5-minute walking catchment from bus stops was identified. These more restrained catchment extents are reflective of the fact that use of buses requires a multi-modal journey with additional onward travel and waiting times once a bus stop has been reached. A greater weighting has been applied to those bus stops which have access to more than two bus routes to reflect their increased utility and accessibility for passengers. The bus stops with more than two bus routes are concentrated within identified centres which provide more travel options. This is reflected in greater public transport accessibility identified in Figure 11.

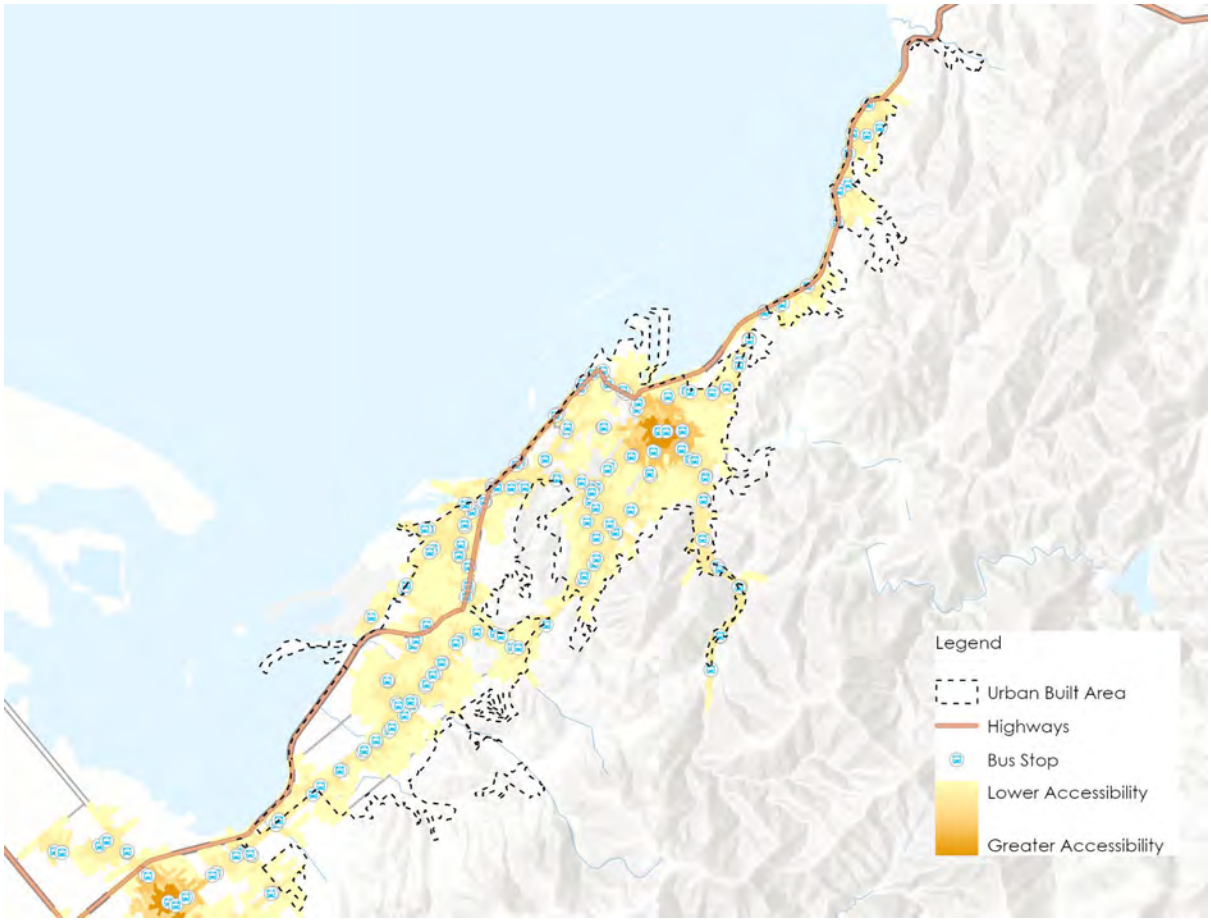


Figure 41 - Transport Opportunities Catchment Assessment

5.4.7 Employment Nodes

Access to major employment nodes within the urban area has also been identified based on data from the 2018 Census to provide an additional check of the outcomes of the accessibility work. Figure 12 identifies total employment opportunities available within a 30-minute walk by meshblock.

The catchments for this matter differ from all others in that they are derived based on the distance from the centroid of individual meshblocks to the next. This is because the data available for employment locations have been derived from the 2013 Census with meshblocks forming the smallest statistical area for which this data is collected. A 30-minute catchment is used in recognition of the limitations of this dataset where employment destinations and trip origins can be distributed across any given meshblock.

Unsurprisingly, Nelson City and Nelson South feature as major employment nodes. A concentration of employment opportunities is also observable around the fringes of the urban area in places like Stoke and Annesbrook. This is likely to be reflective of employment opportunities available within the surrounding industrial zoning.

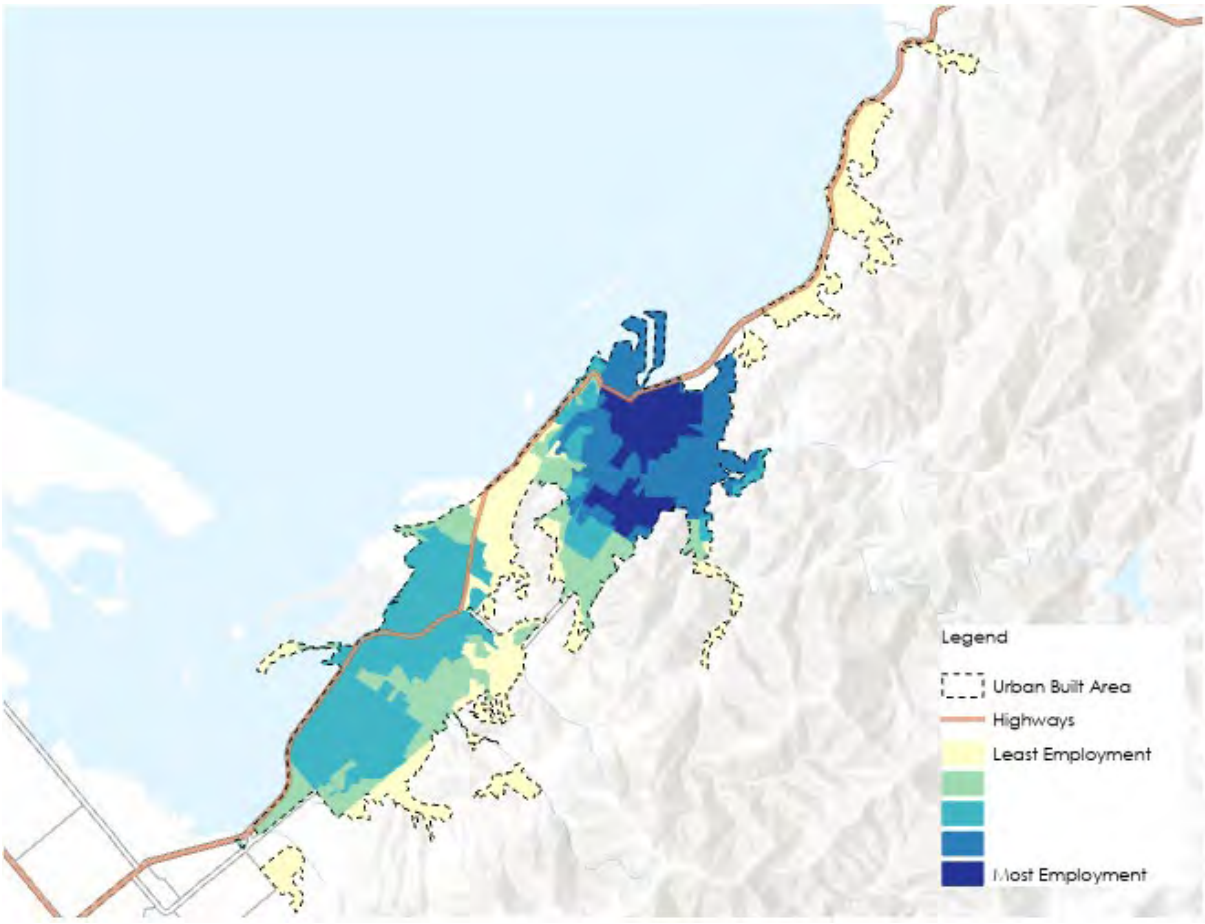


Figure 12 – Employment Opportunities by Meshblock (30-minute walking time)

6.0 Summary & Findings

6.1 Accessibility

Figure 13 presents the summary findings of the accessibility analysis set out in Section 5 of this memo. The findings show the results of catchment overlayed with one another and weightings applied according to the priority of the destination and the proximity of the catchment. Under this analysis, the main drivers of accessibility include the proximity to: the Town Centres; primary and secondary schools; large supermarkets; public transport; the public hospital and major open spaces. A summary of key drivers of accessibility within areas across NCC is provided overleaf.

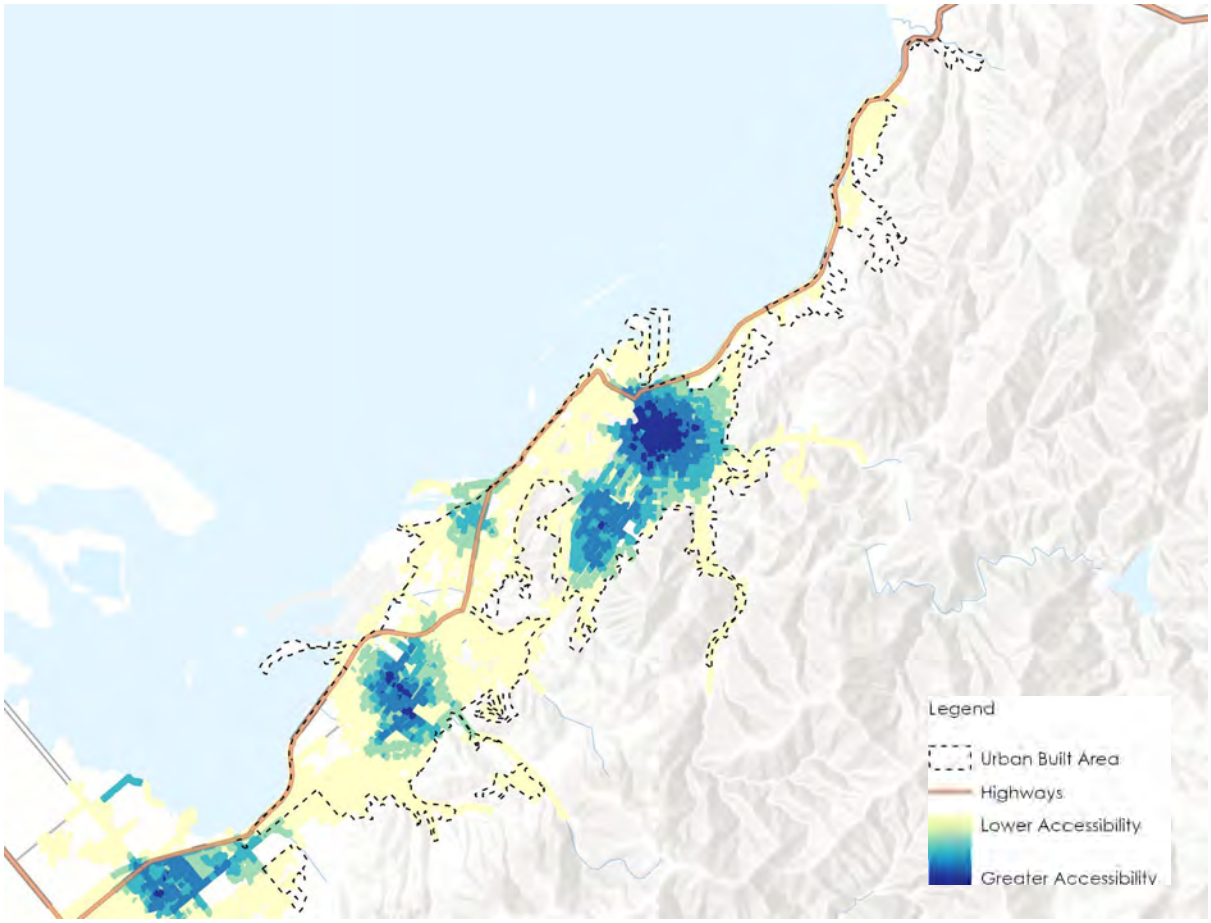


Figure 13 - Total Accessibility (Weighted)

6.1.1 Accessibility by Location

Nelson City Centre (and surrounds) – As expected, Nelson City performed with the highest level of accessibility across the NCC urban area. Most of the city has at least a moderate level of accessibility with the exception of the areas west of the centre where there are topographical constraints and limited separated footpaths.

Nelson South – Nelson South performed with strong accessibility, close behind Stoke. The accessibility within Nelson South is centralised around the Nelson Hospital and Nelson College. The main difference between Stoke and Nelson South is the former's access to two full-service supermarkets. However, Nelson South also benefits from its proximity to a wide range of ranges within a 30-minute walk as well as a number of fixed education destinations including Nelson Intermediate, Nelson College, Hampden Street School and Nelson Girls College.

Nelson East / The Brook – Nelson East benefits from high to moderate levels of accessibility with the reduction corresponding with distance from Nelson City Centre. In addition to proximity with the City Centre, a number of education facilities and parks also contribute to the overall accessibility of the area. The Brook features low to lowest levels of accessibility as there are limited destinations / services available in the immediate area for residents to access.

Washington Valley / Toitoi / Britannia Heights – The accessibility of these areas is rated lowest to low relative to the wider urban area. The topography of this area acts as an obvious barrier to accessibility (through both slope and a circuitous street pattern). There are also limited destinations / services located within these areas. The exception to the above are those areas located in the eastern portion of these areas near the flatter areas of Nelson City Centre and Nelson South.

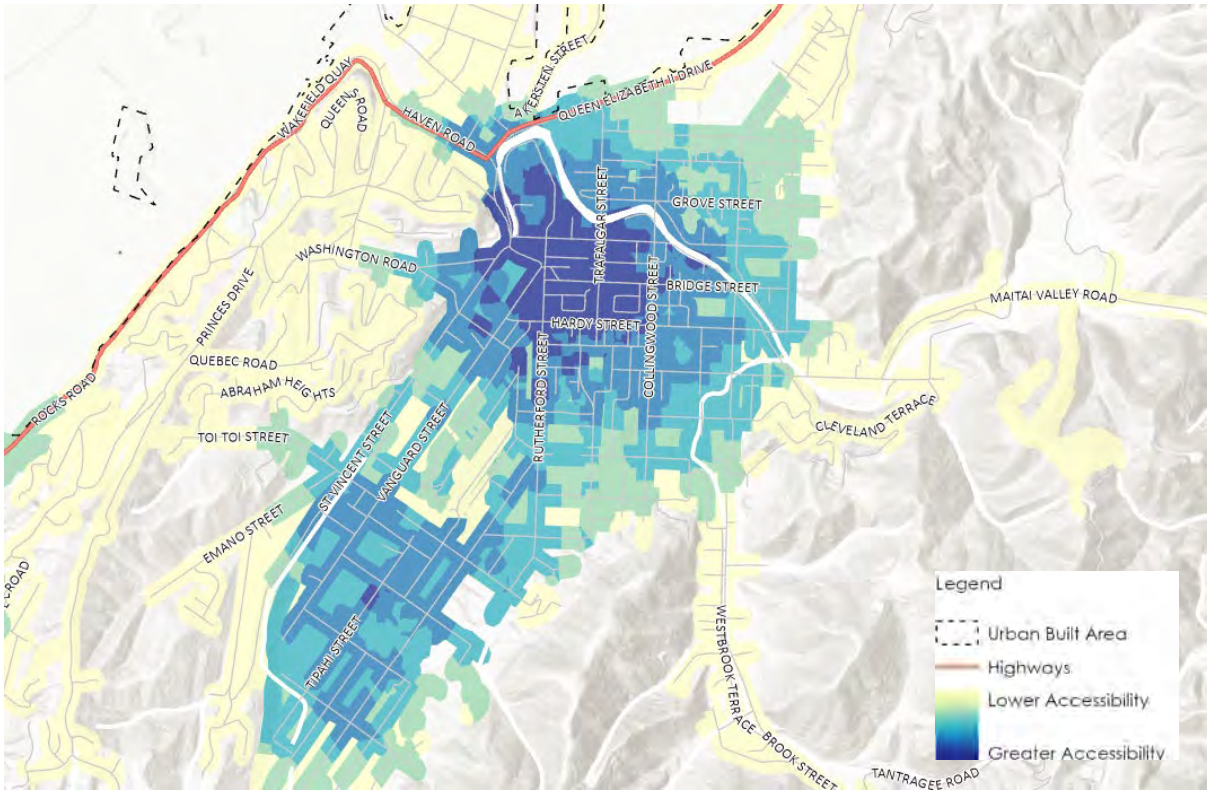


Figure 14 - Total Accessibility (Weighted) – Nelson City Centre and Surrounds

Stoke – Stoke performed as the second most accessible area. It should be noted that given the limitations of the Stoke on-demand bus network data, the area has a greater public transport network than the analysis currently presents. It is thought that this bus service may give a very general widespread accessibility uplift in the residential areas of Stoke. Stoke also benefits from the Railway Reserve Pathway which provides a segregated cycling route from Totara Street in the north through to the Orphanage Stream Reserve / Saxton Fields in the south. A segregated cycling route also extends west of SH6, southwards towards Richmond Town Centre and other employment areas in Richmond. These routes provide a safe and continuous off-street connection linking several important destinations in the immediate environment.

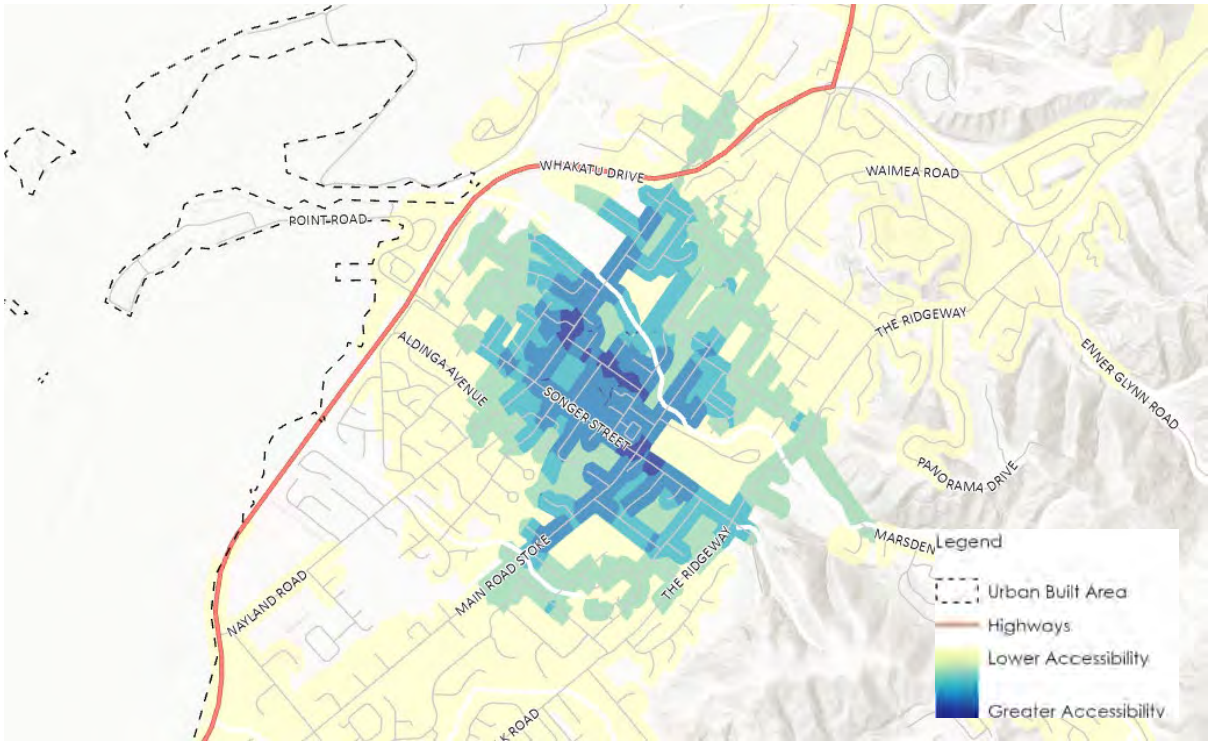


Figure 15 - Total Accessibility (Weighted) – Stoke

Tāhunanui – Tāhunanui presents as a low-moderate accessible area. Whilst the area benefits from high-levels of natural amenity (e.g. Tāhunanui Beach) which can help drive demand for new housing, the accessibility of the area primarily relies upon bus routes and a number of parks, reserves and open space and the centre itself.

Atawhai – The accessibility of Atawhai is rated lowest to low as the accessibility of the area is influenced by the linear nature of development, extending approximately 4km along the coast in combination with only a number of low frequency bus stops and open spaces. Clifton Terrace School is also located at the northern edge of the urban area, while other smaller scale commercial or community services tend to be scattered throughout the urban area rather than concentrated in or around an identifiable urban centre. An existing shared path provides largely segregated cycling access to Nelson.

6.2 Approach to Zoning

The general intent and proposed approach to residential zones in Plan Change 29 remains sound. However, based on the preceding detailed analysis and in response to submissions received, a number of refinements to the residential zoning pattern proposed through Plan Change 29 are recommended.

Nelson City Centre (and its surrounds), Stoke and Nelson South are all identified as having the highest level of accessibility to a wide range of commercial and community services relative to other areas of the Nelson urban area. As such, it is considered that the application of the HDRZ (or equivalent) in these locations is appropriate and required to align with Policy 5 of the NPSUD.

Some amendments to the extent of the HDRZ (or equivalent) in these locations is proposed to better take into account local topography and site-specific characteristics including natural hazards. Similar amendments to the MDRZ which border the notified HDRZ extent in these locations is also recommended. These changes are shown in Attachment 1.

Based on the results of the more detailed accessibility analysis, it is recommended that the more intensive residential zoning proposed in Atawhai and Tāhunanui are replaced with the General Residential Zone (GRZ). In particular, the location and nature of Atawhai means it is unlikely to support greater levels of community and commercial services even with increased demand that could arise from intensification. I note that some intensification of Tāhunanui may remain possible within the commercial zones but in general the area is features a limited concentrated of important destinations and is heavily constrained through the combination of topography, natural hazard risk and the noise contours associated with Nelson Airport.

Attachment 1 – Recommended Zoning Extent Changes